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Student Teachers' Beliefs and Practices About Developmentally Appropriate Practice for Infants and Toddlers

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STUDENT TEACHERS' BELIEFS AND PRACTICES ABOUT DEVELOPMENTALLY APPROPRIATE PRACTICE FOR INFANTS AND TODDLERS

by

Trisha Haws

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of the requirements for the degree

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ABSTRACT

Student Teachers' Beliefs and Practices About Developmentally Appropriate Practice for Infants and Toddlers

by

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Utah State University, 2008

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The purpose of this study was to examine students' beliefs and practices about developmentally appropriate practice with infants and toddlers. This study examined whether coursework in child development, combined with a lab experience engaging with children of the same age group, was related to developmentally appropriate beliefs and practices of student teachers. In particular, the study examined how coursework and practicum taken concurrently may have differed from taking the coursework alone. The relationships between descriptive data and student teachers' developmentally appropriate beliefs and practices were also of interest.

A total of 390 college students participated in this study. These students were enrolled in an undergraduate Infancy and Early Childhood course and some were also enrolled in an Infant Toddler Lab. The students completed a questionnaire at the

beginning of the semester and again at the end, which was designed to measure teachers' developmentally appropriate beliefs and practices in an early childhood classroom.

The results showed that there were no statistically significant relationships between college major, marital status, or number of children and pretest beliefs scores. Individual means on practices scores also showed very little difference.

The results demonstrated that beliefs about developmentally appropriate practice increased for all of the participants from the beginning of the semester to the end, with those in the class and lab increasing slightly more. On the practices items some of the developmentally appropriate scores went up and some went down. These findings have implications for infant toddler teacher training.

When participants were compared based on group membership, whether they were in the class alone or took the lab concurrently, results showed that while not statistically significant, belief scores were higher for those who were in the class and lab combined. Many specific practices items were statistically significantly different between groups, especially at posttest, where those in the class and lab had higher scores of developmentally appropriate practice. However, some results indicate that idealized postulations of developmentally appropriate practice may not be realistic in actual classrooms. Suggestions of how these findings can be used in the training of early childhood teachers are presented.

(103 pages)

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CHAPTER I

INTRODUCTION

One of the most pressing issues facing Americans today is the demand for childcare. Whereas only 27% of children ages 3-5 were enrolled in preprimary programs in 1965, those numbers have more than doubled to 64% in 2004 (National Center for Education Statistics, 2007). In a study looking at children under the age of 6, similar results were found. It was reported that 60% of these children were in non-parental care at least once a week (Iruka & Carver, 2006). This translates to 12.2 million young children (Mulligan, Brimhall, & West, 2005). While these numbers are astounding, they only represent childcare that is measured, and many working parents are using informal and unregulated arrangements (Clarke-Stewart & Allhusen, 2005). If a true count could be obtained, these figures would be even higher.

Much of this need for childcare is attributed to the increased number of mothers working outside the home. While labor participation for all mothers peaked at the mid-nineties and has since declined, the rate of working mothers is still well over 50% and has remained stable since 2000. Nearly 60% of working mothers have preschool age children, and mothers of infants in 2005 totaled 1.3 million (Cohany & Sok, 2007). Childcare in the United States takes many forms, but there are four major types used by most parents. The first of these is care in the child's home, where caregivers may be fathers, other relatives, or nannies. Family-based childcare is another popular arrangement chosen by parents. The caregiver, almost always a female, will care for a number of children in her own home. There are also centers specifically designed for

childcare, which, in recent times, have become much more common. And finally many parents rely on extended family members, friends or neighbors to care for their young children (Childcare Aware, 2007; Clarke-Stewart & Allhusen, 2005). As more is discovered about the benefits of early childhood programs, many parents, regardless of their employment status, look for enriching settings for their children (Bredekamp & Copple, 1997). Examples of these programs include preschools and play groups which are designed either by individuals or members of the community with expertise in early childhood education.

With regard to the need and desire for childcare, a particular call emerges for programs that involve children under the age of three. In 2001, out of the 11 million children in the United States in this age range, 5 million were in care outside of the home for at least 25 hours a week. Among mothers with children under the age of one, 56% were in the workforce, with many of them returning within three months following birth (Behrman, 2001). An examination of the differences between the care giving arrangements of toddlers versus older preschool siblings, demonstrated that when other household characteristics were controlled, children in the younger group were more likely to attend childcare on a regular basis than their older preschool siblings. Researchers hypothesize that this may be due to birth order in the family and parental beliefs about childcare. A mother may be less willing to leave her firstborn in someone else's care than she would be with subsequent children. Another hypothesis suggests that the age of parents when the first child is born may influence participation. Since many parents are waiting to have children until they are established in a career, infant care may be made possible due to a higher income (Joesch, Maher, & Durfee, 2006).

Unfortunately, programs with a developmentally appropriate base for this young age group tend to be rare (Bardige, 2006). In a cross-cultural study, centers for infants and toddlers in both the U.S. and Germany were found to be mediocre at best, with 40% being rated as poor quality (Tietze & Cryer, 2004). In a more in-depth look at health and safety within infant and toddler programs, researchers in Connecticut found that only 8% met the minimum requirements (Crowley, 2000). Lally (2003), co-director for WestEd's Center for Child and Family Studies, has noted that centers for infants and toddlers need to go beyond the standard of doing no harm and build the profession by training staff as educators, not merely babysitters.

Minimal levels of care for infants and toddlers bring concerns in light of the brain research that has emerged in the last forty years. The 100 billion neurons that the brain uses to send messages and signals are already present at birth. Connections between these neurons, called synapses, are produced by the brain in higher numbers in infants. For example, a one-year-old has 150% more synapses than an adult (Gallagher, 2005; Siegler, Deloach, & Eisenberg, 2006). Scientists are not exactly clear as to why there is an overabundance of synapses produced in these early years, but they speculate that the brain may be preparing to meet the demands that the child will face in their environment (Gallagher). The brain's ability to change and adapt, referred to as plasticity, has brought many arguments of "critical" versus "sensitive" periods in brain development. While the debate still continues, most research confirms that the first three years of life definitely comprise a sensitive period for many areas of development and that experience plays a role (Gallagher; Thompson & Nelson, 2001). Shonkoff and Phillips (2000) may have put it best when they said, "The question today is not whether early experience matters,

[because it does] but rather how early experiences shape individual development and contribute to children's continued movement along positive pathways" (p. 6). Since research demonstrates that much of the care offered to infants and toddlers is minimal in terms of appropriate activities, caregiver responsiveness and basic health and safety, it says something about the opportunities that are available at this sensitive time. If care is centered only on basic needs and does not offer stimulating activities, it could possibly have an effect on the brain development of these young children.

Clearly, there is not only a demand for care and programs designed specifically for infants and toddlers, but also a need for quality within these programs. The Developmentally Appropriate Practice (DAP) guidelines, published by the National Association for the Education of Young Children (NAEYC; Bredekamp & Copple, 1997), offer a framework of implementation from which many programs would benefit.

The purpose of this study is to examine students' beliefs and practices about DAP with infants and toddlers by analyzing data collected in an undergraduate infancy course at Utah State University. First, descriptive data are of interest as the relationship between differing demographics and student teacher' developmentally appropriate beliefs and practices in the classroom will be investigated. This study will also examine whether coursework in child development, combined with a lab experience engaging with children of the same age group, is related to developmentally appropriate beliefs and practices of student teachers. In particular, the study will examine how course work and practicum taken concurrently may differ from taking the coursework alone. Specific research questions are as follows:

1. Do demographic characteristics such as martial status, college major and number of children at pretest relate to developmentally appropriate beliefs and practices?

2. Does coursework and coursework taken concurrently with a practicum relate to student teachers' developmentally appropriate beliefs and practices at the beginning of the semester as compared to the end?

3. Is there a difference in beliefs and practices at pretest and posttest between students who have only coursework and those who take the coursework and lab concurrently?

CHAPTER II

LITERATURE REVIEW

Starting early, many children are being cared for by other adults besides their parents. The National Association for the Education of Young Children (NAEYC, 2005) reports that 64% of mothers in the labor force had children under the age of six. In recent years there has been an increase in single mothers, who by necessity have to work. Likewise, many married mothers have to work out of economic necessity. The cost of living has increased and women are earning more than they ever have, making them better able to contribute to the financial situation of the family. Still others enjoy work, and since the Feminist movement, these women do not feel the pressure of returning home as in former times. More and more women in the United States are becoming educated, and thus, want to work at establishing careers even after child bearing (Clarke-Stewart & Allhusen, 2005).

As there are increasing numbers of working mothers, there is decreasing support to help them care for their young children. The United States is one of only two industrialized countries that does not give women paid leave after the birth or adoption of a child. The policies regarding maternity leave have been slow and inadequate. Another trend that has raised the need for childcare is the lack of extended family that can offer assistance (Clarke-Stewart & Allhusen, 2005).

Types of Care

The care arrangement most widely recognized as "childcare" are centers serving groups of children. These centers, regulated by state licensing guidelines, serve anywhere from 15 to 100 children, but the average lies around 60 children per center. In 2005, there were 116,000 licensed centers in the United States (Clarke-Stewart & Allhusen, 2005). Nearly 20% of children needing care in this country from birth to age two attended a center, and more than 57% from age three to six were cared for in this way (Federal Interagency Forum on Child and Family Statistics, 2007).

Licensing requirements for centers vary from state to state, but standards may not necessarily ensure quality. At the most basic level, health and safety standards are required and the caregivers are obligated to have some kind of training in child development (Childcare Aware, 2007). For example, a care center in Utah must meet standards of safety for both their indoor and outdoor equipment and additional criteria for health practices. There must also be a director (age 21 years or older) who has received at least an associates degree in child development, or other equivalent training. Staff are required to be over the age of 18 (assistant staff may be 16), but no educational requirements are set. Both the director and staff are required to have 20 hours of training per year in some aspect of child development or safety (National Resource Center for Health and Safety in Childcare and Early Education, 2007).

Parents who choose care centers do so for a number of different reasons. Many times centers are operated through institutions, such as universities, churches or other non-profit organizations, which parents trust or associate with. Because centers are

required to be licensed, many parents trust centers to be a safer environment than those which are unregulated. In addition, the group atmosphere where there are more materials provided for a large number of children, may appeal to parents looking to give their children social opportunities and to prepare them for school. Also, many care centers provide stability, having set hours that parents can depend on (Childcare Aware, 2007; Clarke-Stewart & Allhusen, 2005).

The second type of care that is more common in the United States is family based childcare. In these settings, one caregiver, almost always female, cares for a number of children in her home (Childcare Aware, 2007). These arrangements are less regulated, with most states requiring some sort of license only if there are 4 or more children being cared for. For providers offering care for less than 4 children, licensing is voluntary (Childcare Aware). In 2003, there were 300,000 family childcare homes that were licensed, but the true number of such arrangements is unknown. Many providers choose not to be licensed, and many operate illegally. Some estimate that the true number is 80-90% higher than what is reported (Clarke-Stewart & Allhusen, 2005). In 2003, this would have meant there were approximately 2 million more family childcare homes that were totally unregulated.

The requirements for caregivers in family childcare settings are minimal. In fact, every state in the country allows early childhood providers to operate a family childcare home with very little education. In most states, if you are over the age of 18, have graduated from high school or received a G.E.D, and have no criminal history, you are qualified to care for up to 16 young children in your home (National Resource Center for Health and Safety in Childcare and Early Education, 2007).

One of the biggest factors in choosing childcare is cost. Family childcare homes tend to be the least expensive and are much more informal. Parents may also prefer the convenience of these arrangements. Family childcare homes are more likely to be located in neighborhoods in comparison with centers. Parents may also have a preference for a home-like environment with smaller groups of children and feel that the child will receive more one-on-one care in this setting (Childcare Aware, 2007).

Another type of childcare is when a provider cares for a child in the home. This may include using a live-in or live-out nanny or housekeeper who may be trained in child development. This type of arrangement is the most expensive and least stable, most of the time offering very little educational or group activities. In addition, most states do not regulate in-home care providers. Despite these disadvantages, many parents feel that having their children at home provides them with more control of their scheduling thus fostering more convenience (Childcare Aware, 2007; Clarke-Stewart & Allhusen, 2005).

Another in-home caregiver might be someone that the child is related to. Many times a relative will come to the home and take care of the child. This provides a more economical solution than other in-home options and many parents feel more comfortable leaving their children with people who are invested in their families and share similar values. However, as mentioned earlier, members of extended families are more likely to live further away from each other than in previous times, decreasing these opportunities (Clarke-Stewart & Allhusen, 2005).

An important distinction is also needed to differentiate care settings and preschool settings. The recent cultural shift has also made parents more aware of the importance of early experiences. Brain research has indicated that the early years of a child's life,

particularly birth to age three, are pivotal for later development (Gallagher, 2005). In part because of these findings, there are now more programs going beyond basic care and providing enriching curriculum for even the youngest children. These unique settings may provide a combination of care and preschool, while others may focus directly on preschool opportunities, perhaps with more limited hours. The curriculum may focus on things like art, creative movement, music, and dramatic play (Bredekamp & Copple, 1997).

According to the NAEYC (2005), there are 43 states that currently fund such pre-kindergarten programs. The longest running federal program for young children, Head Start, has focused on preparing those that are economically disadvantaged for the past 40 years. Early Head Start was added in 1995, expanding services to children, birth to age three, after repeated research findings pointed to the importance of these early years (U.S. Department of Health and Human Services, 2007). While many of these programs have been shown to help children in the early years (Zill, Sorongon, Kim, Clark, & Woolverton, 2006), they simply cannot accommodate all of the children that qualify. Only 50% of the eligible preschool children and less than 3% of the infants and toddlers were served by Head Start in 2005 (Children's Defense Fund).

Unfortunately, as the demand for childcare has increased, the number of providers offering quality services has, in comparison, gone down. Currently, there are millions of children in settings that are unregulated by any set of state-appointed standards (National Resource Center for Health and Safety in Childcare and Early Education, 2007). Consequently, there is not only an unprecedented call for childcare today, but an

increased need for parents and educators to understand what constitutes quality care and how it can be utilized in the various care settings.

Developmentally Appropriate Practice

When researchers and educators began to organize nursery schools for young children in the mid 1920s there were concerns about how to determine quality with the rapid increase in the number of programs and interest on the part of parents. A multidisciplinary group discussed and then organized the association that would come to be known as the National Association for the Education of Young Children (NAEYC). In the beginning, the association worked to set minimum standards for nursery schools and worked with the legislatures in war times to ensure the quality of care settings. As the association matured, its influence has spread from research through its *Early Childhood Research Quarterly* journal, to national accreditation standards, and has been significant in guiding public policies on a state and federal level. The association has also published a number of position statements which focus on professional development and a variety of child development topics. It is now the nation's largest professional organization for educators of young children (NAEYC, 2005).

As trends for early childhood programs began to change in the 1980s, a position statement was published to guide those programs seeking accreditation by the NAEYC's National Academy of Early Childhood Programs. During this time, curriculum had put emphasis on rote learning, especially through the use of group instruction. In addition, testing began to be a precursor for enrollment in many programs with active learning becoming less of a priority. This position statement was designed to guide curriculum

and professionals to have activities, materials, and expectations that were developmentally appropriate. Since the original publication in 1986, Developmentally Appropriate Practice (DAP) has spurred research and debate in and outside the field of child development. It has become a catch phrase in many programs and prepared curricula. The NAEYC revised the position statement in 1997 to clarify any misinterpretations and include more of the current research (Bredekamp & Copple, 1997).

DAP is built upon knowledge of how children best develop and learn. The 12 principles outlined in the NAEYC's position statement are meant to educate and guide decisions of those working with children from birth to age 8 (Bredekamp & Copple, 1997).

Twelve Principles of Developmentally Appropriate Practice

The first principle of developmentally appropriate practice emphasizes the importance of all domains of development for children: physical, cognitive, emotional, and social. These areas are closely linked, meaning that each one influences and can be influenced by the others (Bredekamp & Copple, 1997). A good example of this principle is seen in young infants. As they develop physically by rolling, crawling, or walking, they encounter new things and experiences, thus helping to develop cognitively. These milestones may also elicit encouragement and attention from caregivers, thus influencing their social and emotional development.

The second principle from NAEYC's position about developmentally appropriate practice discusses how development has a sequence with earlier abilities serving as the

foundation for later skills and knowledge (Bredekamp & Copple, 1997). This has reference to pivotal theorists like Erikson and Piaget, who will be discussed later. An example in an infant toddler classroom would be language development. A child begins by using one word phrases like "mine" or "outside" to communicate with their peers or teachers. Building upon these phrases children are able to expand using telegraphic speech such as "Me, outside." Then as their language further develops they can begin speaking in full sentences like "I want to go outside."

Each child is unique and has differing paces at which they develop. The third component of developmentally appropriate practice guides teachers to base their curriculum not only on the particular age group, but also the individual needs and learning styles of the children in the class. This guideline still allows for teachers to set standards for children to achieve, but also adapts and takes into account the specific individual needs of the child (Bredekamp & Copple, 1997).

The fourth developmentally appropriate principle explains that early development not only matters, but can be severely impacted by experiences or the lack thereof (Bredekamp & Copple, 1997). Motor development for a toddler who lives in a home that he/she is free to crawl, walk, jump, and play in is going to be very different from a child who lives in a home where it is unsafe to even be put on the floor.

Along with the second developmentally appropriate principle, which emphasizes development having a sequence, the fifth states that development advances in predictable paths to "greater complexity, organization, and internalization" (Bredekamp & Copple, 1997, p. 11). One of the ways to see this principle in action is to look at materials in a classroom. A block to a one-year-old might be something to touch and mouth, but by the

age of two, this same child may be using this block to build a tower. As the child develops and matures, his use of objects becomes more multifaceted. The materials provided in a DAP classroom allow children to manipulate them at differing levels depending on the particular stage they are in. In addition, teachers that use DAP will provide a variety of materials to help the children. For example, they might add trucks to the blocks in order to encourage creativity in the two-year-old who has built many towers.

The sixth developmentally appropriate principle acknowledges the critical importance of multiple social and cultural constructs (Bredekamp & Copple, 1997). Teachers who understand this principle seek to involve caregivers and to understand family backgrounds in order to adapt curriculum and accommodate specific needs. In a classroom with diverse ethnic backgrounds, developmentally appropriate practice would include materials in native languages and pictures of a variety of ethnic and cultural groups.

The next principle underlying developmentally appropriate practice concludes that children actively learn by doing, thus gaining an understanding of their world by the experiences they encounter (Bredekamp & Copple, 1997). For example, a toddler might be given the opportunity to explore the properties of water through hands-on activities such as using cups to pour and transfer, using turkey basters to suck and squirt, or simply splashing around in a sensory table. Through these experiences the child learns that water moves, can be held in differing containers, and can get one wet! Without the opportunity to explore the properties of water firsthand, the child would not have gained this knowledge.

An ongoing debate among scientists has been the controversial nature versus nurture. Are outcomes of development, such as language or motor skills, based on genetics or environment? While research is still being conducted to better understand this relationship, most professionals now agree that it is both nature and nurture that influence individuals. The NAEYC recognizes this in the eighth developmentally appropriate principle which affirms that it is the interaction of biological maturation and environment that determines a child's learning and development (Bredekamp & Copple, 1997).

Despite the research to support it, many proponents of developmentally inappropriate practice (DIP) see children's play as a waste of time (Berk & Winsler, 1995). However, between the ages of one and two, children begin to develop the ability to make believe, make mental representations, and to use expressive language (Bergen, 2002). Play, and especially dramatic or pretend play, can be very influential for a child's development. Starting at an early age, play can teach new roles, varied skills, and enhance imagination (Chenfeld, 2006). The ninth developmentally appropriate practice principle concurs with this research and states that play is very important to a child's social, emotional, and cognitive development. In addition, play allows the child to reflect on what they have learned (Bredekamp & Copple, 1997).

The tenth principle of developmentally appropriate practice states that learning not only advances when children are allowed to practice newly acquired skills, but also "when they experience a challenge just beyond the level of their present mastery" (Bredekamp & Copple, 1997, p. 14). Large motor skills activities provide an excellent example of this principle. In a toddler classroom where there is a slide, there will be

various ways that children at different developmental stages will use it. An older child may be able to go up the steps and slide down without teacher help. Another might be able to slide independently, but may need help maneuvering the rungs of the ladder. A still younger infant may need help with getting up and sliding down. A teacher aware of this developmentally appropriate principle might give support to the child still struggling with climbing, but allow for them to practice by waiting to offer help until the child asks for it, or until safety becomes a concern. For the younger infant, they may allow for the child to slide down holding on to one of their fingers, instead of holding their entire bodies, thus giving them a chance to strengthen the muscles used to hold themselves upright while moving.

The ways that children learn are almost as diverse as the children themselves. Some children learn better through hands-on activities, others learn better through music, and some still better through verbal interactions (Rushton & Larkin, 2001). The eleventh principle of developmentally appropriate practice recognizes that children learn in different ways and also have different ways of expressing what they know (Bredekamp & Copple, 1997). A developmentally appropriate classroom is set up to accommodate the different learning styles of the children and provides different outlets for children to express themselves, such as art, dramatic play, blocks, and large motor activities.

The last principle of developmentally appropriate practice involves the whole community that surrounds the child. When a child feels safe and supported and her physical needs are met, she is more likely to feel psychologically secure, which is optimal for both development and learning (Bredekamp & Copple).

Theoretical Underpinnings of Developmentally Appropriate Practice

The position statement on developmentally appropriate practice does not claim to adhere to any one theory. Rather, these guidelines tie in various theoretical frameworks, including the work of Piaget, Vygotsky, Bronfenbrenner, Erikson, Gardner, and Maslow.

Piaget. Jean Piaget is most widely known for his theory of cognitive development and his work with children in the early years. His theory consists of four developmental stages from birth to adolescence, starting with the sensorimotor stage, moving to the preoperational stage, advancing to concrete operations, and finally, getting to the formal operational stage. Piaget (1969) noted that "the real problem is not to locate the first appearance of intelligence but rather to understand the mechanism of this progression" (p. 5). He felt that all children pass through the same stages, but focused on the construction of knowledge rather than the actual ages that children moved from one stage to another (Piaget).

Piaget's stages build on each other with one providing the framework to move to the next stage. In the sensorimotor stage, infants primarily focus on understanding their world through the senses. This knowledge allows the child to advance to the preoperational stage and focus on the acquisition of motor skills. Piaget felt that action was a critical component of intelligence. As the children use their senses and master the motor skills necessary to have hands-on experiences, they can then utilize more logical thinking which Piaget described as the concrete operational stage. The next level of intelligence, formal operations, begins when abstract thinking is attained without the presence of actual instances (Piaget, 1969). This explanation of cognitive development,

with its clear progression from stage to stage, underpins the second developmentally appropriate principle that recognizes that development has a sequence.

The idea that children are active learners (the seventh developmentally appropriate practice principle discussed earlier) coincides with what Piaget theorized, seeing overall intelligence as a way of adapting to the environment. He believed that children have what he called inherited tendencies, or ways of adapting to their environment. As this occurs, there develops certain mental structures, or, as Piaget called them, schemes. In order to adapt to stimulation, children strive for equilibrium within these mental structures. When new information is presented to the child through their experiences, they must fit it into an existing schema (a process known as assimilation) or create a new schema (known as accommodation; Piaget, 1969).

Vygotsky. Vygotsky believed that play was the means to development, especially when it comes to language. He believed that written language grew from oral language and that the dramatic play children engage in allows them to use objects as symbols which becomes the base for reading and writing (Vygotsky, 1978).

Another important link to Vygotsky's theory comes in the tenth principle which states that, not only does learning advance when children are allowed to practice newly acquired skills, but also when they are challenged beyond present abilities (Bredekamp & Copple, 1997). This corresponds to Vygotsky's definition of the zone of proximal development. This zone represents not what functions the child has already developed, but those that are in the process. He hoped that in educational settings, teachers would not only look at what the child could accomplish on their own, but also make more use of

those skills and abilities that children could do in a group setting or with additional help or support (Vygotsky, 1978). In developmentally appropriate practice classrooms, teachers would be seen assisting children by either offering assistance or tools to solve problems and discover new things that might be unfamiliar to them.

Bronfenbrenner. Another theoretical base to examine is Bronfenbrenner and the connections between his work and the developmentally appropriate principle that acknowledges the critical importance of multiple social and cultural constructs (Bredekamp & Copple, 1997). Bronfenbrenner's view of overall development incorporates many differing levels, thus being described as an ecological environment. Bronfenbrenner saw the interaction of the individual and the environment as a nested structure, much like a set of Russian dolls where each smaller doll is inside the next. An individual and their surroundings, a toddler, for example, would be the inner most level. This microsystem includes the developing person and immediate environments, such as the home or the classroom. Encompassing the first, the second level includes interactions of single dyads, and the relationships between them. This mesosystem could characterize the relationship between the parent and the teacher of the toddler. On the next level, called the exosystem, Bronfenbrenner posits that environmental settings, such as community organizations for example, play a role of the development of the child. Even though the toddler would not physically be present during administrative meetings at the local preschool, decisions in these situations could still directly or indirectly affect the child's development. And finally, encompassing them all is the macrosystem, which includes overall cultural and belief systems passed down to a child (Bronfenbrenner,

1979). Professionals who understand development as a complex process involving multiple constructs can better incorporate a curriculum that fits the dynamic individuals to whom it will serve.

Other Theoretical Influences. Erikson's theory (1950) focuses on emotional and social domains of development. He postulated that as one develops there are certain stages that all must pass through, which he called the Eight Ages of Man. These stages cover the lifespan of the human being and Erikson felt that previous stages, and the mastery of certain tasks within that stage, would affect the next stage. In addition to Piaget's theory of cognitive development, Erikson's belief in movement from one stage to the next validates the developmentally appropriate practice principle that development has an order and that early stages provide a foundation for more dynamic stages.

Developmentally appropriate practice supports the premise that each child is going to have different ways of knowing and learning (Bredekamp & Copple, 1997). One of the most well known underpinnings on this topic is Gardner's (1983) theory of multiple intelligences. Besides the traditional ways of learning, through linguistics or logical-mathematical skills, Gardner identifies five other ways for humans to gain knowledge and express what they know. These other styles include: musical, spatial, bodily-kinesthetic, intrapersonal, and interpersonal. These variations encourage teachers to acknowledge different ways that children learn and modify curriculum to incorporate different teaching styles to accommodate those needs.

According to Maslow (1954) each human being has a hierarchy of needs with basic needs coming before higher needs. He believed that learning would be impossible

if basic physical and psychological needs were not met first. If, for example, an infant wasn't receiving the correct amount of food, it would be difficult for this child to progress in his/her development because their energies would be focused on his/her subsiding hunger. This coincides with the eighth principle of DAP which states that both biology and environment play a role in a child's development.

Brain Research and Developmentally Appropriate Practice

The theories that provide the foundation for the developmentally appropriate practice principles span from the early 1950s up to the 1980s. In addition to these classic sources, these principles are linked to current brain research which provides further evidence of the validity of developmentally appropriate practice.

The cells in the body that transmit and process information, called neurons, provide the structure for the human brain. As more is known about the brain than ever before, scientists have discovered that the brain's neurons, while complex, do have a sophisticated network of connections between different parts of the brain. An example of this is the section of the brain that is called the emotional center. This area has been found to be closely linked with learning and memory as scientists have studied how different parts of the brain are activated during the learning process (Rushton & Larkin, 2001). This highlights that development across domains is related, which is the first principle of DAP.

Research has demonstrated that the brain actually makes physiological changes due to experience. New dendrites, which are the branches of the neuron, form everyday, linking previous knowledge to new experiences. When the environment is enriched, both

cell weight and dendrites increase (Rushton & Larkin, 2001). This reinforces the second principle of developmentally appropriate practice which emphasizes that previous experiences provide the foundation for later learning. An example of this principle in an infant/toddler classroom would be a child being exposed to a new song. Never having sung the song before, the child's brain would have to make adjustments (create or connect neurons) in order to incorporate the experience. In a classroom setting teachers could then build on this by using the song on a daily basis.

Research indicates that each brain is not only unique, but also develops on its own timetable (Rushton & Larkin, 2001). This supports the third principle of developmentally appropriate practice that emphasizes the individuality of each child and their development.

The brain is designed to recognize and create patterns. Research has demonstrated that the brain actually functions better when doing multiple tasks, and more understanding is gained when there are more inputs to receive (Rushton & Larkin, 2001). This further validates the fifth developmentally appropriate principle and Vygotsky's conclusion that learning more difficult tasks comes after mastering simpler ones.

One of the strongest links of the developmentally appropriate principles to brain research is with regard to the opportunities young children have. Because of the brain's plasticity, information can be absorbed and processed better at different times, providing evidence that there are indeed sensitive periods of brain development (Rushton & Larkin, 2001). The Children's Defense Fund's (2005) most current publication reports the impact of negative environments, particularly for the 13 million children that live in poverty. The report emphasizes that the lack of many basic necessities such as health

care, early childhood programs of quality, education, and stability in home life can lead to substance abuse, mental health problems, and juvenile delinquency. Research in the area of language development has also cited the critical importance of experience (Rushton & Larkin).

While some of the outcomes above may seem like behavioral issues, a nationwide report of brain research documented that early care has a significant impact on development and learning as well as a child's ability to regulate their emotions (Shore, 1997). While there may be confounding variables, one possible explanation might be that the ability to control emotions plays a role in the outcomes mentioned above. An example could be an infant who, despite the caregiver's efforts, has difficulty falling asleep for their naps. The caregiver may attribute the baby's fussiness to temperament, when really, the child is not receiving proper health care and is suffering from chronic ear infections.

Brain research is also conclusive as it relates to learning through hands-on experiences, which is the seventh principle of developmentally appropriate practice. As a child engages in learning activities, such as an infant feeling the texture of sand, different areas in the brain are simultaneously set in motion, demonstrating that more happens when the child can be a part of the learning experience (Rushton & Larkin, 2001).

In studies done with the senses and brain effects, it was demonstrated that environmental inputs through all the senses at once, or even one at a time, affect the brain's ability to learn (Rushton & Larkin, 2001). As the senses become keener with maturation, what is taken in through the child's surroundings can positively or negatively affect learning. This shows that biological factors, such as the ability to see or hear,

combined with experience impacts the development of the child. This further supports developmentally appropriate principle eight.

Further, brain research supports Maslow's theory and the twelfth developmentally appropriate principle. High levels of stress and perceived threats have been shown to inhibit learning, along with evidence of the brain's survival mechanism. The brain will not attain maximum learning unless there is an environment to support it (Rushton & Larkin, 2001).

Studies Supporting Developmentally Appropriate Practice

While much of the research done to validate the use of developmentally appropriate practice has been done with children in the primary grades instead of with infants and toddlers, these implications are powerful examples of the overall goals of developmentally appropriate practice.

In a 2007 study, researchers compared two different kindergarten classrooms with conflicting guidance philosophies. The teachers chosen for this study were reported as adhering to the philosophy of the school, which were both private institutions serving children grades K-12. The first classroom had 14 students and used positive guidance strategies such as self-selected play, freedom of movement during group items, and redirection for misbehavior. The teacher in this classroom served as a coach and guide, offering choices and support.

The second classroom consisted of 23 students and demonstrated negative guidance. The teacher determined what would be done throughout the day and was in control of the time students could engage in independent activities. Children were

expected to sit still and listen while the teacher was giving instructions and asking test questions. If a child disobeyed, his or her name would be placed on the board after one warning and subsequent violations would get them sent to the principal's office.

Three dyads were selected and videotaped as they interacted in a controlled setting. The researchers set up the play-school center to represent a classroom and the children were given props and materials to use. They were videotaped three different times for 20 minutes each and were told that the adults wanted to learn what it was like to be in kindergarten. One child was to act as the teacher and the other was to act as the student. They were also told that they could use any of the materials provided. At the end of their last play session, the children were also individually interviewed using the School Life interview which consisted of 19 open-ended questions. This was used to better understand the children's perceptions of school life, authority figures, and peer relationships.

From this comparison, it was demonstrated that children in developmentally appropriate classrooms showed higher levels of shared experiences and negotiation strategies when compared to the children in the negative guidance classroom. Researchers implied that this created an atmosphere where friendships could be maintained. In addition, from interviews conducted with the individual children, it was noted that those in the developmentally appropriate classroom exhibited more autonomy and problemsolving abilities when compared to the other group. The children who came from the negative guidance classrooms seemed to rely more on adults for solutions to their problems, and were less empathetic toward their peers (Schmidt, Burts, Durham, Charlesworth, & Hart, 2007).

In a review and meta-analysis of seven different studies conducted over the past 20 years, Vermeer and van IJzendoorn (2006) examined the stress that young children experience when they are cared for outside the home. Specifically, they looked for patterns associated with cortisol, a physiological measure of stress in young children. Their main finding was that children who attended daycare did display higher levels of cortisol compared with their levels at home. However, an important discussion point was mentioned that relates to developmentally appropriate practice. The authors note that cortisol levels in the various studies were not consistent across settings, and they postulate that the specific framework of the daycare may impact the stress level of the children attending.

A report presented at the Society for Research in Child Development Child reported on measures of stress as it relates specifically to developmentally appropriate practice. It was reported that in classrooms where there were developmentally inappropriate practices (DIP) children showed more signs of stress which was related to anger, hostility and hyperactive and distractible behavior (as cited in Schmidt et al., 2007).

To better understand how developmentally appropriate practice may influence varying populations, studies have also been conducted with different minority groups, specifically those who are considered at-risk. This aim of one particular study was to test the validity of the argument that at-risk minority students do better with rote learning versus applied knowledge, which actually supports DIP. As the researchers examined kindergarten and first grade classrooms, they found that achievement was significantly higher on letter-word recognition and applied problems when there were higher levels of

DAP. The authors argue that these findings support the hypothesis that DAP encourages both application and rote knowledge because the curriculum focuses on the individual developmental differences that are inherent (the eleventh principle of developmentally appropriate practice; Huffman & Speer, 2000).

While this research with young children confirms the impact developmentally appropriate practice can have on various levels of development, much is unknown about how developmentally appropriate practice may influence an infant/toddler classroom. More research is needed to understand whether these same principles, when applied with infants and toddlers, promote developmental gains. In addition it is important to understand how teachers acquire knowledge about developmentally appropriate practice and how it is applied in a classroom setting. In this study, the training of teachers in both content knowledge and applied practice will be examined.

Teacher and Caregiver Education and Training

In relation to care settings and the developmentally appropriate principles, a key component to examine is the teacher and or caregiver of young children. Just as the need for quality physical locations have increased, so has the need for competent teachers and caregivers. Unfortunately, over 50% of the childcare force quits each year (Howes, James, & Ritchie, 2003) and much of this turnover is attributed low wages. Using Utah as an example, the average childcare worker makes a meager $7.33 an hour, or $15,250 a year (Children's Defense Fund, 2005).

Another hypothesis for the lack of teachers and caregivers in early childhood programs involve older classrooms. Many of the primary grades are now required to be

assessed using standardizing testing, so the need for more educated teachers in public schools has changed the job market. As such, there are fewer educated teachers working with pre-k children and many of these individuals are largely unaware of developmentally appropriate practice (Early et al., 2007).

Understanding how education and training correlate with positive outcomes in the classroom has been an important tool with regard to teachers and caregivers. In a review of 13 of the most influential studies regarding educational attainment and classroom outcomes, Whitebook (2003) concludes that teacher preparation is the best way to attain quality in the classroom. Studies conducted in the late 70s and 80s were more general in their findings, noting that "some training is better than none, and more child-related education is better than less" (p. 6). Recent studies tend to focus specifically on levels of education and differing measures of quality and child outcomes. Some noted that overall education is linked with teacher's positive behaviors, and that college-level education is more predictive of quality programs (Whitebook).

In a 2002 study (Burchinal, Cryer, Clifford, & Howes), researchers attempted to clarify the differences between early childhood training and more formal education. Gathering data from 553 childcare centers from four different locations throughout the United States, researchers observed preschool and infant toddler classrooms. They gathered information on child outcomes, such as language comprehension, through observations, parent surveys, and individual assessment. They also observed structural characteristics of the classroom and child-teacher ratios. Training questions were asked teachers whereby they could report if they received on-site training or had more formal education. Quality was determined using well known measures such as the Early

Childhood Environment Rating Scale (ECERS) and the Infant-Toddler Environment Rating Scale (ITERS). Through their analysis, the authors (Burchinal et al.), report that classroom quality was related to the highest levels of formal education, even after controlling for potential confounds. They also found evidence that workshops and on-site training can be effective in improving the quality of early childhood classrooms. In their effort to clarify the potential differences between formal education and other training venues, they found it difficult to tease out specific results, since most of the teachers with higher levels of formal education were also those who reported attending more workshops. Notwithstanding these complex variables, this study demonstrates that there are clear relations between education/training and quality outcomes.

Even though the educational attainment of teachers and quality classrooms have been related in a number of studies for young children (Early et al., 2007; Howes et al., 2003; Ota, Dicarlo, Burts, Laird, & Gioe, 2006), many states do not require specific educational training as a prerequisite for caregiving. If a degree in higher education, such as a Bachelor's or Master's, is not required, a high school diploma, G.E.D, or other training may be enough to be considered qualified. However, in some states, such as Utah, home-based providers or teachers hired to work in care centers are not required to have any early childhood education background (Children's Defense Fund, 2005).

While it has been demonstrated that education is linked with classroom quality, research has been unable to pinpoint the specific amount of education that determines quality caregiving. The only thing that is conclusive is that the higher level of education the teacher has, the higher the quality of the classroom (Tout, Zaslow, & Berry, 2005). While this is an important finding, questions have been raised with regard to educational

attainment alone, and whether experience can have an equal impact on child outcomes and quality programs (Early et al., 2007, Wilcox-Herzog, 2004). This may, in part, explain why the educational prerequisites vary so much among the different care settings. If a care center director, for example, believes that experience is more valuable than an actual degree, this may influence her decisions when she is hiring teachers.

In an analysis of seven major studies, Early and colleagues (2007) examined the predictability of classroom quality and child outcomes in relation to the educational attainment and degree of the teachers. Contrary to the researcher's hypotheses, this analysis provided no clear evidence that teacher's education or major had any association with quality in the classroom or child outcomes. Among the explanations for such findings, one suggestion from the authors is that teachers are inadequately prepared to teach young children. They suggest that while teachers might be given content knowledge, they may lack the skills needed to form relationships, which is critical in working with young children. In addition, they point out that the field lacks information on how training and actual application in a classroom setting helps to better prepare teachers.

In a discussion about strengthening early childhood teachers, Chen and McNamee (2006) make an important observation about the balance that should occur between content knowledge and experience. They state that the long standing tradition in training early childhood educators has been to give little attention to specific content areas, thus taking a more general approach. While the above authors hypothesized that teachers are receiving content knowledge without acquiring other necessary skills (Early et al., 2007), these authors argue that, too often, content knowledge is not specific enough to allow the

teachers to be effective and provide quality services. The fear has been that if an early childhood educator receives more specific ways to incorporate, say, literacy in their classroom, it would then lead to overemphasizing rote mastery skills, which are not appropriate for young children. As such, many teachers fail to recognize ways in which they can embed subject matter into activities where children can be engaged and involved (Chen & McNamee). A teacher or caregiver in an infant-toddler classroom may rightly feel that forcing a child to sit down and learn letters at this young age is inappropriate, but misunderstand how literacy activities can play a role in the classroom. Providing opportunities for children to see and handle print throughout the day by having small board books and signs throughout the classroom would still allow early literacy to emerge, without the use of developmentally inappropriate practices. So, perhaps another explanation for the lack of significant findings with regard to educational attainment and quality settings is that teachers are not receiving enough *specific* content knowledge. By using only general education, correlations may be non-significant due to ambiguous applications.

The Role of Experience

Just as the research supports the fact that children learn and develop best through active, hands-on experiences (Bredekamp & Copple, 1997), it has also been demonstrated that adult learners benefit from fieldwork and experience. It has been reported that the best teacher preparation programs are those that have coursework and fieldwork closely linked with capable supervisors (International Reading Association, 2007).

In an effort to understand the role of experience, Wilcox-Herzog (2004) explored teacher background variables in relation to specific behaviors. The 47 early childhood teachers who participated in this study were videotaped during their interactions with children and then were rated on their sensitivity and involvement. When these scores were then correlated with the educational background and experience of the teachers, it was determined that the longer the teacher had been working with children, the less sensitive they were. However, those with more experience were more involved and had more frequent verbalizations with the children. In their discussion of these findings, the author suggested that caregiver burnout, low wages, and physical demands all contribute to experience being a poor predictor of quality care. Further, they propose that expertise may be the combination of domain specific knowledge coupled with purposeful time spent with young children. In their suggestions for future research, they put it this way:

> It would be interesting to determine if teachers with training that included practicum experience differed from those who had training lacking in this dimension. Perhaps further research studies need to gauge the utility of practicum experiences that surround the measure of appropriate practice with young children…. (Wilcox-Herzog, 2004, p. 16)

In a 2004 study, Guzell and Stringer looked at the preparation of 74 early childhood teachers and caregivers. Many of the participants were majoring in pre-kindergarten programs, and others were earning childcare certificates. The researchers not only wanted to examine child development knowledge, but also wanted to learn more about the teacher's complexity of reasoning in child development and how experience

impacts these abilities. They point out that, because young children are at various developmental levels, a teacher's ability to adapt and integrate strategies for positive child outcomes requires complex reasoning. They wanted to know if prior experience with children and more specifically, laboratory experiences, would provide insight about these necessary skills.

Through questionnaires and a measure assessing teacher's knowledge of child development, the results of this study provide significant insight on the role of experience. In their results, the authors report that there were not significant associations between child development knowledge and complexity of reasoning. However, complexity of reasoning was predicted by the number of teacher-preparation courses and laboratory courses, demonstrating the importance of real life applications. This contributes to evidence that it may be the combination of coursework and experience that build expertise in early childhood teachers and caregivers (Guzell & Stringer, 2004).

Another area of current research that strengthens the push for more fieldwork, laboratory experiences and practicum involves mentors. Both quantitative and qualitative studies have shown that having a mentor is related to quality outcomes in the training teacher or caregiver (Chung, Marvin, & Churchill, 2005; Kontos & Wilcox-Herzog, 2001). In addition, teachers and caregivers that are given the opportunity to be engaged in active learning followed by reflection, collaboration, and dialogue with mentors and other teachers, have been shown to have increased creativity and sensitivity to the children's needs (Elliot, 2004; Ling Li, 2007).

To sum up the role of experience, a 2006 review by Buchanan and colleagues analyzes a training done through the University of Wyoming. Since much is still

unknown about the pathways to effective teacher development, this research was designed to assess the legitimacy of the methods used in this particular training.

To evaluate this training, 28 out of the 65 who attended participated in telephone interviews. Of these, there were all types of teachers and caregivers, some working with infants and toddlers, some with preschool children and others who were primary grade teachers. Different from other trainings, this program included not only keynote speakers but also had specific applications through interactions with other attendees. There were cohort groups guided by experts in their related field during break-out sessions designed to focus on individual needs (Buchanan, Morgan, Cooney, & Gerharter, 2006).

In their results, the authors report that all 28 of the attendees who were interviewed felt that any changes made in their thinking and practice related specifically to their ability to be active participants in the training. In addition, the participants reported that other inspirations for change came through hands-on activities, modeling they were able to observe of the part of the experts, and the process of reflection that occurred within their small break out groups (Buchanan et al., 2006). Even though this is limited to only one very small sample, like other research, this report validates the potential impact experience can have. It also inspires further research in an effort to better understand the processes of teacher development and training.

Summary and Research Questions

The need for care in the United States has never been as prevalent as it is today. Of special interest is the need for infant and toddler care. More than 5 million children under the age of three are cared for 25 hours or more per week (Behrman, 2001). While

there are a number of childcare settings for these children to be in, many are of poor quality, with caregivers and teachers that have little or no training with young children (Bardige, 2006).

Even though the NAEYC's developmentally appropriate practice principles and guidelines have been in existence for over 20 years, many professionals in the field of child development are unaware of them, or simply choose not to use them. In the most recent NAEYC position statement, it says:

> A high-quality early childhood program is one that provides a safe and nurturing environment that promotes the physical, social, emotional, aesthetic, intellectual, and language development of each child while being sensitive to the needs and preferences of families. (Bredekamp & Copple, 1997, p. 8)

While this can be done in a number of different ways, many programs fall short. Various centers for infants and toddlers have been unable to meet even the most basic safety standards and have been rated mediocre at best (Crowley, 2000; Tietze & Cryer, 2004).

While there is evidence that education and teacher training has an impact on the quality of programs (Early et al., 2007; Howes et al., 2003; Ota et al., 2006), very little research has been done to examine the impact coursework may have when combined with a practicum experience. In a recent publication of *The Journal of Early Childhood Teacher Education*, the editors even call for research specifically targeted at better understanding the preparation of early childhood teachers (Rust, 2006). Additionally, very little research has examined the professional development of teachers working

specifically with infants and toddlers. In this project, the following research questions will be addressed:

1. Do demographic characteristics such as martial status, college major and number of children at pretest relate to developmentally appropriate beliefs and practices?

2. Does coursework and coursework taken concurrently with a practicum relate to student teachers' developmentally appropriate beliefs and practices at the beginning of the semester as compared to the end?

3. Is there a difference in beliefs and practices at pretest and posttest between students who have only coursework and those who take the coursework and lab concurrently?

CHAPTER III

METHODS

Participants

A convenience sample of 390 undergraduate college students was used in this study. These students were recruited while enrolled in an undergraduate Infancy and Early Childhood course (FCHD 3510) at Utah State University from the fall of 2002 through the spring of 2006. Each of these students completed a pretest survey at the beginning of the semester and posttest survey 15 weeks later. Of these 390 students, 95% (371) were female and 5% (19) were male. Most of these students were juniors or seniors in their programs (see Table 1). The majority (83%) of the students were majoring in Family, Consumer, and Human Development with 17% (67) emphasizing in Human Development and 52% (203) emphasizing in Family and Community Services. In addition, 14% (54) were doing a dual major. The other 17% (66) were students from other departments majoring in various fields, such as deaf education, psychology, and elementary education (see Table 2). Among the participants, 38% (148) were married and less than 10% (33) had children of their own.

Procedures

The duration of this study was nine university semesters. Students with a Human Development emphasis in the Family, Consumer, and Human Development major were

Table 1

Participants Based on Class Rank

Year in school	Frequency	Percent
Sophomore	5	1.3
Junior	209	53.6
Senior	174	44.6
Graduate	1	0.3
Unspecified	1	0.3
Total	390	100

Table 2

Participants by College Major

Major – emphasis	Frequency	Percent
FCHD – Family and Community Services	203	52
FCHD – Human Development	67	17
FCHD – Dual	54	14
Other	66	17
Total	390	100

required to not only take the Infancy and Early Childhood course (FCHD 3510), but also a corresponding Infant-Toddler Lab offered through the Adele and Dale Young Child Development Laboratory (FCHD 3550) on campus. Those with other areas of emphasis

or majors were free to take the lab, but were not required in order to fill major requirements. Participants were informed that they would fill out a questionnaire at the beginning of the course and then again at the end of the semester. The instructor described the purpose of the data collection and encouraged students to take part. To reduce bias, all students were given participation points whether they filled out the survey or merely handed it in blank.

All participants at the beginning of the semester were instructed to fill out the questionnaire according to an "ideal" classroom setting. Those not involved with the Infant-Toddler Lab were instructed to complete the posttest questionnaire with this same ideal classroom in mind. Those who were involved with the lab were instructed to fill out the posttest questionnaire based on their beliefs and practices after having the experience in the Infant-Toddler Lab. The questionnaire took approximately 15 minutes to fill out each time it was administered, and was given to the students to complete in their regularly scheduled Infancy and Early Childhood class. Since the questionnaire was administered 15 weeks apart, there was little concern about practice effects.

The Infant-Toddler Lab (FCHD 3550) was held at Utah State's Adele and Dale Young Child Development Laboratory. The premise for the lab experience is driven by a Social Competency Model, which in effect provides a framework where children have the opportunity to explore their environment through active participation. In each classroom, developmentally appropriate activities are planned in order to meet the specific needs of the individual children. Activities focus on providing rich sensory experiences, open exploration, and opportunities for social skills to be established

through interactions with other children and teachers. Independence and cooperation are encouraged by using both self-selected activities as well as group-interaction activities.

In the Infant-Toddler Lab, there are 12 children enrolled each semester with ages ranging from birth to two years old. The children attend lab three times a week for one hour. The majority of the time (45 minutes) is spent in self-selected activities, where the children are free to move around the lab, choosing the activities in which they are interested. Towards the end of the day, a snack time takes place where the children gather together and with the help of the teachers, enjoy nutritious foods. For the last 10 minutes, the children assemble for a large group where the head teacher directs the whole class in an activity and or song.

The purpose of the lab is for the student teachers to have hands-on experience in congruence with their course work in the Infancy and Early Childhood course. For this reason, the teachers spend one day each week either planning or teaching. During one week a group of four to seven student teachers meet and plan age appropriate activities for self-selected time, snack and large group activity under the direction of an experienced head teacher. The following week this plan is implemented with the children. The teachers' responsibilities include not only coming for the hour that the children are in the classroom, but actually coming early enough to set up the activities and discuss the day's plans and the specific needs of the children in a pre-conference. After the children depart, the teachers are also responsible for the clean up of the classroom, and discussed in a post-conference how the day went. In summary, the

student teachers attend the lab for two hours, one spent with the children and one spent in preparation, clean up, and reflection over the day.

Measurement

The measure used to collect data for this study was a questionnaire entitled *Teacher Beliefs and Practices Survey: Infants and Toddlers* (Burts & Sciaraffa, 2001; see Appendix A). This questionnaire was designed to measure teachers' beliefs and their actual application of Developmentally Appropriate Practices (DAP) in an early childhood classroom.

The survey has two different parts. The participant is asked to rate certain statements based on their beliefs and then in a subsequent section, rate statements as to the actual practices in their classroom. Statements about beliefs were rated from 1 (*not at all important*) to 5 (*extremely important*) and included phrases like, "It is _____ to follow a daily schedule." The practices statements were rated differently starting with 1 (*almost never*) to 5 (*very often*) and included things like, "How often do children in your class sing and/or listen to music?" There are 28 statements for the beliefs section and 17 statements for the practices section. All students filled out both the beliefs and the practices section at both the pretest and the posttest.

Since the measure is still in the pilot testing stage, data are still being gathered to establish reliability and validity. However, an earlier measure entitled *The Teacher Questionnaire* written by Charlesworth, Hart, Burts, and Hernandez (1991) was a forerunner for the measure described above. Although designed for kindergarten teachers, this questionnaire was based on the guidelines given by the National

Association for the Education of Young Children (NAEYC), which includes specifically Developmentally Appropriate Practice (DAP). Diane Burts, who was one of the authors of this measure, is also the author of the measure chosen for the current study.

To establish validity for the measure for the older children, the researchers had the authors of the NAEYC guidelines review the items and then the scales were administered to undergraduate and graduate students in a childhood methods class for further revisions (Charlesworth et al., 1991).

In a follow-up study to further establish reliability, Charlesworth et al. (1993) did factor analysis on six items within the Teacher Beliefs Scale (which correlates with the beliefs portion of the *Teacher Beliefs and Practices Survey: Infants and Toddlers* questionnaire) and obtained Cronbach's alphas ranging from .58 to .84. On the Instructional Activities Scale, (which correlates with the practices portion of the *Teacher Beliefs and Practices Survey: Infants and Toddlers* questionnaire) there were seven reliable factors with Cronbach's alpha ranging from .60 to .79 (Charlesworth et al.).

In a more current analysis of reliability, Olsen (2004) examined internal consistency for both the beliefs and practices portion of the *Teacher Beliefs and Practices Survey: Infants and Toddlers* questionnaire. Responses for the pretest and posttest were both analyzed. The Cronbach's alpha scores for the beliefs section ranged from .84 to .86 showing high within-test consistencies. The alphas for the practices section was more wide spread ranging from .66 to .89.

The demographics for this study were measured using a one-page questionnaire that was the first page of the survey mentioned above. It included nine items that asked

about the location for the student's practicum, their educational status, degree, major, ethnic background, marital status, number of children, and gender.

Ethical Considerations

Risks were minimal for the participants, as the questionnaire only took about 15 minutes to complete and participants were assured of confidentiality by the coding system that was used with the data. Each individual questionnaire was given a number in order to identify their pretest and posttest questionnaires and all names and personal information was discarded after the posttest was completed. Another precaution that was taken to ensure confidentiality and minimize risk was that the data remained in a secure, locked place so that no one, except the research team, had access to the records. Participants were also informed that they were free to withdraw from the study at any time without penalty.

All participants were given two Informed Consent letters (see Appendix B). One was for them to sign and to be kept for the study's records, and the second was for them to keep for their own personal records. It was on this form that they were given an overview of what would be required if they chose to participate and additional contact information if they had any further questions about the study. They were also given the option of offering their name and address if they were interested in knowing the results of the study. In addition, this project was reviewed and approved by the Institutional Review Board for Protection of Human Subjects at Utah State University before the data were collected.

The research questions are as follows:

1. Do demographic characteristics such as martial status, college major and number of children at pretest relate to developmentally appropriate beliefs and practices?

2. Does coursework and coursework taken concurrently with a practicum relate to student teachers' developmentally appropriate beliefs and practices at the beginning of the semester as compared to the end?

3. Is there a difference in beliefs and practices at pretest and posttest between students who have only coursework and those who take the coursework and lab concurrently?

CHAPTER IV

RESULTS

This chapter focuses on overall findings beginning with preliminary analyses examining the reliability of the measure, along with an examination of specific variables to identify parameters. In addition, the results of the individual research questions will be presented.

Preliminary Analysis

Reliability

Preliminary analyses were conducted to determine the internal consistency of the measure. Cronbach's alphas were calculated for pretest and posttest scores separately for the beliefs and practices sections of the *Teacher Beliefs and Practices Survey: Infants and Toddlers* (Burts & Sciaraffa, 2001). Reliability for the beliefs section was α =.86 at the pretest and α =.86 at the posttest, replicating the evidence of reliability of this section of the measure already demonstrated through other research (Charlesworth et al., 1991, 1993; Olsen, 2004).

For the practices section, there are a total of 17 items. These statements describe classroom practices and are rated starting with 1 (*almost never*) to 5 (*very often*). It was determined that 5 of these items needed to be recoded so that one represented a high score and vice versa. When Cronbach's alphas were calculated after the recoding, reliability scores decreased to unacceptable levels (.54 at pretest and .60 at posttest). In

order to solve this problem, reliability was measured on the recoded items (.65 at pretest and .75 at posttest) separate from the un-recoded items (.75 at pretest and .71 at posttest) and while lower than the beliefs sections, these alphas were acceptable. However, when a factor analyses was used to justify these groups for further analyses, the results did not support the classifications. Instead, results indicated that the practices items grouped differently at pretest and posttest. Therefore, it was determined that the analyses for the practices scores would be conducted by using individual *t* tests for each item comparing pretest and posttest scores and group membership (class and class/lab) scores, rather than the proposed ANCOVAs. Potential reasons for the discrepancies on the practice items will be discussed in Chapter V.

Variable: Laboratory Teacher

The data used for this study span nine university semesters, when students were enrolled in the Infancy and Early Childhood course (FCHD 3510) and some were also enrolled in the Infant-Toddler Lab (FCHD 3550). During the time that data were collected, two teachers oversaw the lab, acting as head teacher supervising the undergraduate students. To determine whether this variable would be related to the participants' scores, teacher was added as an independent variable in an ANCOVA with the posttest serving as the dependent variable and pretest being the covariate. By doing this, initial differences between the two groups were accounted for. The variance on the beliefs scores, when partitioned based on teacher, was not statistically significant, F (1, 372) = .75, p = .386. Initially, analyses for the practices scores were conducted separately for the un-recoded items verses the recoded items. These results were also not

statistically significant. On the un-recoded variables, F (1, 368) = 1.03, p = .311 and the recoded variables showed F (1, 368) = .29, p = .589. However, when a factor analysis showed that these groupings were not legitimate, independent samples t tests were used for each of the practices items to determine if teacher had any relationship with pretest and posttest scores. The number of items that showed statistical significance at pretest was 3 out of 17 and at posttest there were 7 out of 17 (see Appendix C). However, the practices that showed statistical significance (such as "use balls inside") may not have been most important of the developmentally appropriate items. In addition, many tests were run and some of the statistically significant results may have only occurred by chance. Based on these findings, it was determined that all of the participants' data, regardless of which head teacher they worked with, would be combined for further analysis.

Research Question 1

Research Question 1 states, "Do demographic characteristics such as martial status, college major and number of children at pretest relate to developmentally appropriate beliefs and practices?" To analyze this for beliefs, a one-way ANOVA was used where college major (4 levels) was the independent variable, and the pretest scores was the dependent variable. Independent sample t tests were used for number of own children and marital status comparisons for beliefs scores. Since practice items needed to be reported individually, mean differences were examined at pretest.

College major was not statistically significantly related to beliefs pretest scores, F (3, 340) = .57, p = .636. The practices mean scores also showed very little variability for

Table 3

Descriptive Statistics for Demographic Variables on Pretest Practices Scores

Demographic	*M*	*SD*	*N*
Major			
Family and community	59.68	7.68	199
Human development	60.24	6.93	63
Dual	59.98	7.53	53
Other	62.12	6.73	26
Number of children			
1	59.67	6.90	18
2	61.50	4.04	4
More than 2	55.18	8.57	11
Marital status			
Single	59.70	7.45	234
Married	60.38	7.09	145

the four majors at pretest (see Table 3), demonstrating that the participants' major was not related to developmentally appropriate beliefs or practices.

When the number of own children was partitioned out, it was clear that the sample was lopsided. The participants who had no children of their own ($N = 356$) compared to those that had 1, 2, or more children of their own ($N = 33$) made it implausible to do an analysis of variance. However, to examine differences, independent sample *t* tests were used on combined beliefs scores and individual practices items comparing those who had no children and those who did, but using pretest data. These findings for beliefs found no statistically significant relationships ($t = 1.27$, $p = .199$). The individual practices items showed few statistically significant relationships (only 2 of 17), and these results are reported in Appendix C. When examining the mean pretest

scores on practices, the number of children participants had showed some interesting distinctions (see Table 3). Of particular interest is the fact that the mean for those participants who had more than 2 children was lower than any of the other categories. However, it is important to note the small sample of participants with children. They account for less than 10% of the total sample and as such, these means should be interpreted with caution.

Since marital status was divided into only two categories (single or married), an independent *t* test was used with marital status acting as the independent variable and pretest scores on beliefs as the dependent variable. Results indicated that there was no statistically significant relationship, $t = -.06$, $p = .950$, between marital status and students' pretest beliefs scores. The means for practices scores are also reported individually (see Table 3), and again show very little difference, thus demonstrating that marital status did not play a role in students' pretest scores.

Research Question 2

The second research question asks, "Does coursework and coursework taken concurrently with a practicum relate to student teachers' developmentally appropriate beliefs and practices at the beginning of the semester as compared to the end?" A paired samples *t* test was used to compare participants' pretest and posttest scores. In this analysis, all participants were combined regardless of group membership (class or class/lab, $N = 381$). Results indicated that for beliefs, $t = -4.147$, $p = .000$, which demonstrates that there was a statistically significant increase on DAP belief scores from

Table 4

Paired Samples t *Test for Practices Items from Pretest to Posttest*

Item		Pretest Practices		Posttest Practices				
	N	*M*	*SD*	*M*	*SD*	*t*	*df*	*p*
1 – Go outside	375	4.16	.84	4.12	.87	.69	374	.487
2 – Take walks outside	374	3.64	.94	3.23	1.21	6.19	373	.000[b]
3 – Have books read	375	4.63	.68	4.35	.88	5.28	374	.000[b]
4 – Sing and/or listen to music	374	4.63	.64	4.70	.52	-1.77	373	.078
5 – Select toys by themselves	372	4.50	.69	4.80	.48	-7.74	371	.000[a]
6 – Get placed in time-out (such as isolation in a bed or on a chair	373	3.55	1.08	4.30	.96	-11.79	372	.000[a]
7 – Remain in the same place for long periods of time	375	3.69	1.00	3.88	.99	-3.23	374	.001[a]
8 – Play with battery powered or wind up toys	373	3.51	1.02	4.12	.92	-10.07	372	.000[a]
9 – Do finger plays and hear simple stories	375	4.05	.89	3.71	1.09	4.94	374	.000[a]
10 – Use balls inside	375	3.09	1.04	3.31	1.11	-3.19	374	.002[a]
11 – Use climbing equipment inside	375	2.77	1.17	3.32	1.05	-7.63	374	.000[a]
12 – Have enough time to complete an activity at their own pace	377	4.23	.75	4.51	.59	-7.04	376	.000[a]
13 – Eat sugary foods as treats	376	4.02	.96	4.45	.86	-8.64	375	.000[a]
14 – Follow a strict time schedule	373	2.58	1.17	2.47	1.22	1.53	372	.127
15 – Stay with the same caregiver all day	374	2.74	1.11	3.02	1.30	-3.86	373	.000[b]
16 – Participate in pretend play with a variety of safe household items	377	4.19	.85	4.49	.73	-5.80	376	.000[a]
17 – Have books with people of different ages, racial and cultural groups, family types, occupations, and abilities	377	4.33	.88	4.39	.88	-1.05	376	.296

[a]DAP scores significantly increased
[b]DAP scores significantly decreased

the beginning of the semester (*M* = 120.27, *SD* = 9.51) to the end (*M* = 122.15, *SD* = 9.15).

For the practices section, paired sample *t* tests were used for individual items to compare pretest and posttest scores. Out of the 17 practice items, 13 showed statistically significant changes from pretest to posttest, with some of the developmentally appropriate scores going up (10 items) and some going down (3 items; see Table 4). Reasons for these changes on the individual items will be discussed in Chapter V.

Research Question 3

The last research query raises the question, "Is there a difference in beliefs and practices at pretest and posttest between students who have only coursework and those who take the coursework and lab concurrently?" An ANCOVA was used with the beliefs scores to test pretest and posttest differences where group membership (class or class/lab) was the independent variable and posttest scores was the dependent variable. To adjust for initial differences, the pretest scores served as the covariate. For practices, independent samples *t* tests were used on the individual items to compare differences between group membership (class or class/lab).

The ANCOVA for beliefs compared participants' group membership (class or class/lab) when adjusted based on initial differences at pretest. The results indicated that those who participated in the class alone had lower belief scores than those who had the class and the lab, but it was not statistically significant, F (1, 374) = 3.21, p = .074 (see Appendix C). However, these differences remained constant from pretest to posttest (see Figure 1).

For the 17 practices items, independent samples *t* tests were used to identify differences between group membership (class or class/lab) at pretest and posttest. At

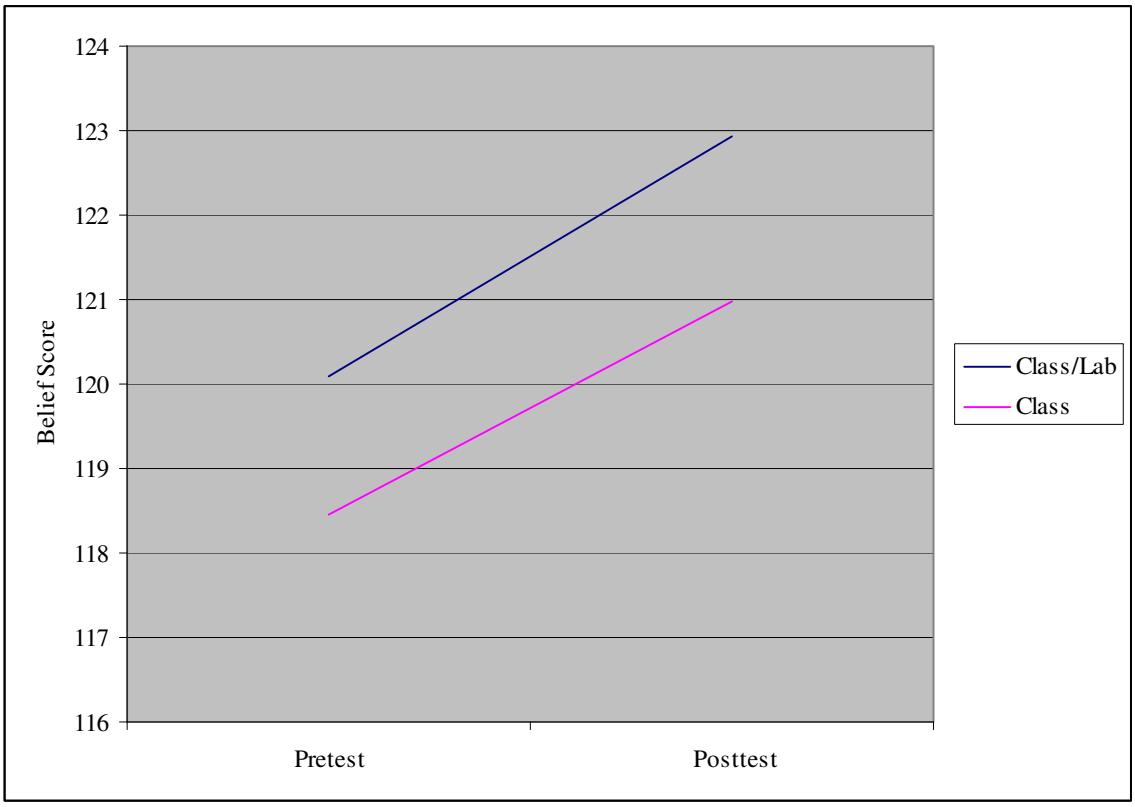

Figure 1. Pretest and posttest scores for DAP beliefs based on group membership.

pretest, only 4 of the 17 items were statistically significantly different between group membership (class or class/lab; see Table 5). For three of these four, scores were more developmentally appropriate for the participants who were enrolled the class and the lab compared to those who were in the class alone. However, at posttest it is interesting to report that 12 of the 17 items were statistically significantly different between groups (class or class/lab; see Table 6). Whether these scores were higher or lower based on group membership (class or class/lab) varied item to item, where 8 items were more developmentally appropriate for the participants enrolled in class and lab and 5 items were more developmentally appropriate for the class alone participants. It is interesting

Table 5

Independent Sample t *Tests for Practices at Pretest by Group Membership (Class or Class/Lab).*

Item	Class N = 100		Class/Lab N = 264				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
1 – Go outside	4.32	.78	4.09	.86	2.42	372	.016[b]
2 – Take walks outside	3.68	.90	3.62	.95	.60	372	.546
3 – Have books read	4.68	.58	4.60	.71	1.03	372	.305
4 –Sing and/or listen to music	4.52	.66	4.68	.62	-2.21	372	.028[a]
5 – Select toys by themselves	4.44	.71	4.51	.69	-.94	370	.347
6 – Get placed in time-out (such as isolation in a bed or on a chair	3.51	1.09	3.57	1.09	-.50	372	.611
7 – Remain in the same place for long periods of time	3.59	.93	3.71	1.02	-1.08	372	.283
8 – Play with battery powered or wind up toys	3.44	.97	3.54	1.04	-.92	371	.355
9 – Do finger plays and hear simple stories	3.96	.95	4.08	.85	-1.15	372	.249
10 – Use balls inside	3.15	.96	3.08	1.07	.60	372	.546
11 – Use climbing equipment inside	2.80	1.10	2.77	1.20	.26	372	.793
12 – Have enough time to complete an activity at their own pace	4.26	.75	4.22	.75	.48	373	.631
13 – Eat sugary foods as treats	3.64	.96	4.18	.90	-5.17	373	.000[a]
14 – Follow a strict time schedule	2.73	1.04	2.53	1.15	1.61	370	.109
15 – Stay with the same caregiver all day	2.35	1.09	2.89	1.08	-4.34	370	.000[a]
16 – Participate in pretend play with a variety of safe household items	4.10	.86	4.22	.85	-1.26	373	.209
17 – Have books with people of different ages, racial and cultural groups, family types, occupations, and abilities	4.25	.93	4.36	.85	-1.18	373	.240

[a]DAP scores significantly higher for class/lab participants
[b]DAP scores significantly higher for class participants

Table 6

Independent Sample t *Tests for Practices at Posttest by Group Membership (Class or Class/Lab)*

Item	Class *N = 100*		Class/Lab *N* = 264				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
1 – Go outside	4.41	.69	4.01	.89	4.12	378	.000[b]
2 – Take walks outside	3.85	.88	2.99	1.24	6.69	377	.000[b]
3 – Have books read	4.69	.65	4.23	.89	4.88	348	.000[b]
4 – Sing and/or listen to music	4.73	.46	4.69	.55	.72	377	.470
5 – Select toys by themselves	4.69	.50	4.85	.43	-2.98	377	.003[a]
6 – Get placed in time-out (such as isolation in a bed or on a chair	3.55	.97	4.60	.79	-10.89	376	.000[a]
7 – Remain in the same place for long periods of time	3.65	.96	3.97	1.00	-2.88	378	.004[a]
8 – Play with battery powered or wind up toys	3.53	.86	4.33	.85	-8.22	377	.000[a]
9 – Do finger plays and hear simple stories	4.14	.84	3.55	1.12	5.07	378	.000[b]
10 – Use balls inside	3.40	.92	3.28	1.17	.97	378	.331
11 – Use climbing equipment inside	3.05	.94	3.42	1.06	-3.27	378	.001[a]
12 – Have enough time to complete an activity at their own pace	4.50	.53	4.51	.62	-.19	379	.847
13 – Eat sugary foods as treats	3.78	.90	4.72	.68	-11.16	378	.000[a]
14 – Follow a strict time schedule	2.77	.94	2.34	1.29	3.20	378	.002[b]
15 – Stay with the same caregiver all day	2.34	1.10	3.29	1.26	-6.96	378	.000[a]
16 – Participate in pretend play with a variety of safe household items	4.27	.73	4.60	.67	-4.24	379	.000[a]
17 – Have books with people of different ages, racial and cultural groups, family types, occupations, and abilities	4.54	.67	4.34	.93	2.00	379	.047

[a]DAP scores significantly higher for class/lab participants
[b]DAP scores significantly higher for class participants

to compare the items that were statistically significantly different at pretest and posttest. On the single item where the class alone participants were higher than class/lab

participants at pretest, differences remained at posttest, but increased. This pattern was also true for the items where class/lab participants were higher at pretest than class participants. At posttest, class/lab participants were still higher than those in class alone, but the differences increased as well. Potential reasons for these differences are discussed in Chapter V. There was only one item that was statistically significant at pretest that did not show significance at posttest and the remaining 9 items thatwere statistically significantly different at posttest were not statistically significant at pretest.

To further examine differences between group membership (class or class/lab) and practices scores, the five items that were scored as the most developmentally appropriate, and three that were scored as the most inappropriate were compared at pretest and posttest. It is interesting that for the class alone participants, the top five scores of developmentally appropriate practices remained the same for pretest and posttest, although the order changed (see Table 7). Further, the three lowest developmentally appropriate practices scores for class alone participants remained the same from pretest to posttest. In addition, the order also remained the same for these items.

When examining the class/lab participants' scores, only three of the five most developmentally appropriate practices remained the same from pretest to posttest and the order of these items changed (see Table 7). In addition, only one of the three lowest scored items remained the same from pretest to posttest. These results are further discussed in Chapter V and are important for future implications in the Infancy and Early Childhood course, as well as the Infant Toddler Lab.

Table 7

Participants' Top 5 Developmentally Appropriate Practices Scores on Pretest and Posttest Based on Group Membership (Class or Class/Lab)

Class (N = 100)

	Pretest Item	*M*	*SD*
1	Have books read (practices item 3)	4.68	.58
2	Sing and/or listen to music (practices item 4)	4.52	.66
3	Select toys by themselves (practices item 5)	4.44	.71
4	Have enough time to complete an activity at their own pace (practices item 12)	4.26	.75
5	Have books with different ages, racial and cultural groups, family types, occupations, and abilities (practices item 17)	4.25	.93

	Posttest Item	*M*	*SD*
1	Sing and/or listen to music (practices item 4)	4.73	.46
2	Have books read (practices item 3)	4.69	.65
3	Select toys by themselves (practices item 5)	4.69	.50
4	Have books with different ages, racial and cultural groups, family types, occupations, and abilities (practices item 17)	4.54	.67
5	Have enough time to complete an activity at their own pace (practices item 12)	4.50	.53

(table continues)

Class/Lab (N =264)

	Pretest Item	*M*	*SD*
1	Sing and/or listen to music (practices item 4)	4.68	.62
2	Have books read (practices item 3)	4.60	.71
3	Select toys by themselves (practices item 5)	4.51	.69
4	Have books with different ages, racial and cultural groups, family types, occupations, and abilities (practices item 17)	4.36	.85
5	Have enough time to complete an activity at their own pace (practices item 12) And Participate in pretend play with a variety of safe household items (practices items 16)	4.22 4.22	.75 .85

	Posttest Item	*M*	*SD*
1	Select toys by themselves (practices item 5)	4.85	.43
2	Eat sugary foods as treats (practices item 13 – recoded so high score indicates fewer occurrences)	4.72	.68
3	Sing and/or listen to music (practices item 4)	4.69	.55
4	Get placed in time-out (practices item 6 – recoded so high score indicates fewer occurrences)	4.60	.79
5	Participate in pretend play with a variety of safe household items (practices items 16)	4.60	.67

CHAPTER V

DISCUSSION

The aim of this research project was to address, in part, the need for current research in relation to infant and toddler teacher training. Specifically, this project examined Developmentally Appropriate Practice, as outlined by the NAEYC (Bredekamp & Copple, 1997), which has been linked with positive outcomes in young children (Huffman & Speer, 2000; Schmidt et al., 2007; Vermeer & van IJzendoorn, 2006). A sample of 390 undergraduate students at Utah State University participated over nine semesters from the fall of 2002 through the spring of 2007.

Demographic variables were of interest in looking at effective pathways to teacher training. It was important to understand underlying variables that could have potentially impacted students' developmentally appropriate beliefs and practices outside of classroom training and applied experiences. It is interesting, however, to note that all three variables that were examined, college major, marital status, and number of children showed no statistically significant association with developmentally appropriate beliefs and practices.

A possible reason for this might be that the participants had experienced similar coursework up until their Infancy and Early Childhood course. Since the majority of them were already juniors and seniors in the FCHD major, prerequisites would have been comparable, making their overall understanding of development similar, notwithstanding other demographic variables. This was important in this study because it served as a way of controlling for potential confounds that may have skewed other results.

One major goal of this study was to examine how student teachers' developmentally appropriate beliefs and practices would change over time. It was important to look at differences in the participants' beliefs and practices scores comparing the beginning and end of the semester to see what relationships, if any, were present. It is interesting to note that participants' beliefs scores statistically significantly increased from the beginning of the semester to the end. These results indicate what has already been demonstrated in prior research, supporting the claim that as teachers are educated about overall development and appropriate practices, they are more likely to alter their beliefs (Burchinal et al., 2002; Whitebook, 2003).

When practices items were examined individually at pretest and posttest, 13 of the 17 items statistically significantly changed over the course of the semester. Of these, three decreased from pretest to posttest. These items were "taking walks outside," "have books read," and "do finger plays and hear simple stories." While this particular research question did not investigate differences among group membership (class or class/lab), these declines in developmentally appropriate practice may be related, in part, to the classroom procedures in the Infant-Toddler Lab. For example, considering item 3, "have books read," the designated DAP answer would be high. However, because the children in the Infant-Toddler Lab only attend for one hour, and the student teachers were there for a limited time, there existed a schedule that may not be present in settings offering longer services. In addition, the children are free to self-select activities for the majority of the hour, which, in some cases, might not include reading books. Many of the children participating in the lab are read to in their homes, and as such, may have preferred activities they did not always get a chance to do, such as painting or sensory play.

Therefore, when rating this item, especially on the posttest, participants made decisions based on experience in only one setting. The measure did not take into account the environment and what would be developmentally appropriate for a different set of conditions. Finally, it is important to note the classroom set up in the Infant and Toddler Lab. The book area is located right next to the door where the children come in the classroom. It is isolated by a ramp that leads to other activities around the room. Most of the time the children are led to their cubbies to drop off their personal belongings, passing the book area and then become involved in other activities around the room. In addition, upset children are often brought away from the entrance (and thus, the book area) in an effort to get them involved in the activities, and over the separation from their caregiver. This might be another possible explanation for the drop in scores on the reading items because the children are inadvertently taken away from the area that involves books. Furthermore, students in this study participated in lab at different times of the year which, at times, limited certain outdoor activities. Thus, practice items such as "taking a walk," or "going outside" may have been ambiguous in the questionnaire.

Of the remaining 10 items, all of which increased from pretest to posttest, 4 were recoded variables which indicate that the participants idealized practices (for group membership – class) and actual practices (for group membership – class/lab) changed to be more developmentally appropriate. These items included "get placed in time-out," "remain in the same place for long periods of time," "play with battery powered or wind up toys," and "eat sugary foods as treats," where an increase in score was recoded to infer a decrease in classroom practices. This again supports previous research findings that

indicate that teacher preparation and training are more predictive of quality classrooms (Whitebook, 2003).

The final six practice items which statistically significantly increased from pretest to posttest were, “select toys by themselves,” “use balls inside,” “use climbing equipment inside,” “have enough time to complete an activity at their own pace,” “stay with the same caregiver all day,” and “participate in pretend play with a variety of safe household items.” From these results we can conclude, supporting previous findings, that teachers’ education, particularly education at higher level institutions (Whitebook, 2003), is related to developmentally appropriate practices (Burchinal et al., 2002).

The final research question in this study examined potential differences between the participants who took only the Infancy and Early Childhood course compared to those who also took the Infant-Toddler Lab. On the beliefs scores, results indicated that while the class/lab group scores were somewhat higher at both pretest and posttest than the class only scores, the differences were not statistically significant. This refers back to the initial argument of similarity among participants. As mentioned earlier, much of the prerequisite coursework is very similar, perhaps making the participants more homogeneous overall. However, it is interesting to note class/lab participants were higher at pretest and posttest in developmentally appropriate beliefs, since this may be indicative of the participants’ previous experience and/or future goals. Because the Infant-Toddler Lab was required for those students emphasizing in Human Development or the Dual degree (Family Community combined with Human Development), perhaps higher belief scores were due to higher interest and attention to developmentally

appropriate practice because future career goals include working with young children and families in preschool and educational settings.

The differences between group membership (class or class/lab) for the practice items on the pretest and the posttest offer additional insight for teacher training. Out of the 17 items at pretest, there were only 4 significant differences between those that were in class versus class/lab. The first item, "go outside" showed that class only participants had higher scores. The second item, "sing and/or listen to music," was higher for class/lab participants, along with "stay with the same caregiver all day." The final item, "eat sugary foods as treats" was also higher for the class/lab participants, but it must be remembered that this item was recoded, so a higher score indicated fewer occurrences. Again, some of these differences may be due to the level of attention paid to child development and developmentally appropriate practice among those training to work with young children.

At posttest, results indicate that 12 of the 17 practice items were statistically significantly different based on group membership (class or class/lab). Once again, class alone participants were higher on the item "go outside," but in addition they were also higher on three other items which included, "take walks outside," "have books read," and "do finger plays and hear simple stories." While this may seem counterintuitive, it actually follows other patterns demonstrated in similar research. A study exploring preschool, kindergarten, and first grade teachers reports that while teacher's beliefs were strongly, and consistently, related to practices, many of the teachers reported that they were unable to implement fully their beliefs into their programs due to factors they felt were out of their control (Stipek & Byler, 1997). In the current study, this seems to be a

possible explanation. While the class alone participants were marking their questionnaire according to the "ideal" classroom at posttest, class/lab participants were reporting actual practices that occurred in the Infant Toddler Lab. The argument then is that class/lab participants at pretest idealized higher levels of certain practices, but then were unable to implement them due to other circumstances. Such circumstances might include, as mentioned before, the time constraints imposed on the class/lab participants to be with the children, thus limiting opportunities to do a variety of activities. In addition to the limited time per day (1 hour), it is important to note that the student teachers were only in the classroom every other week, because they spent the other assigned days constructing lesson plans. This gave them only six, one hour sessions, upon which to base their responses.

Much like the basic pretest and posttest differences, recoded practices items were statistically significant with class alone participants having lower scores. The 5 items were, "get placed in time-out," "remain in the same place for long periods of time," "play with battery powered or wind up toys," "eat sugary foods as treats," and "follow a strict time schedule." While class/lab participants had higher scores on these items, they represent lower occurrences of developmentally inappropriate practices. Therefore, we can conclude that having applied experience with young children is related to an increase in developmentally appropriate practices.

The final three practice items which were statistically significant indicate higher scores for the class/lab participants when compared to the class participants. These were, "select toys by themselves," "use climbing equipment inside," and "stay with the same caregiver all day." This may be related to the developmentally appropriate structure that

exists in the Infant-Toddler Lab. Children are given the opportunity to self-select not only specific activities to engage in, but also the materials they use. In addition, large motor activities, such as a climbing dome, are encouraged for the children's development of gross motor skills. And finally, consistent teachers, specifically a head teacher and assistant are present each day in order to provide stability and security for even the youngest children. These components of the Infant-Toddler Lab curriculum are a part of teacher training that the class alone participants would not have had exposure to, perhaps explaining the differences.

To further examine the differences between group membership (class or class/lab) the five items that were scored by participants as the most developmentally appropriate and the three scored as the least developmentally appropriate were examined at pretest and posttest. It is interesting to note that the top five scores at pretest for both groups (class and class/lab) were the same, although the rankings were slightly different. These items included, "have books read," "sing and /or listen to music," "select toys by themselves," "have enough time to complete an activity at their own pace," and, "have books with different ages, racial and cultural groups, family types, occupations, and abilities."

For the class alone participants, these top five items remained the same from pretest to posttest with a small amount of variability in ranks. Additionally, all three practices items that received the lowest scores remained the same from pretest to posttest. This may be related to the way the questionnaire was administered. The class alone participants were asked to fill out the practices section based on how often the items

would ideally occur in the classroom. This may imply that these "ideals" remained constant in the absence of real life experience.

On the other hand, the items scored as the most developmentally appropriate at posttest for the class/lab participants included only three of the top five pretest items. Of particular interest are the two items that did not appear at posttest. They were "have books read," and "have books with different ages, racial and cultural groups, family types, occupations, and abilities." At first, this seems opposite of what we would expect, since we would hope that applied experience would increase the reports of literacy activities. However, as was mentioned earlier, the time constraints the class/lab participants had with the children may have decreased the number of times they read books, notwithstanding their understanding of this important developmentally appropriate practice. Also children's choice of activities and set up of the classroom may have played a role. When the mean scores were examined for the class alone participants, there is no difference from pretest ($M = 4.68$, $SD = .58$) to posttest ($M = 4.69$, $SD = .65$) on the item, "have books read." However, scores for class/lab participants from pretest ($M = 4.60$, $SD = .71$) to posttest ($M = 4.23$, $SD = .89$) show not only a drop in scores, but more variability among participants. This may suggest that the class/lab participants had higher ideals before their lab experience, but due to a variety of circumstances, many could not meet these ideals in real life. This supports other research findings that conclude that ideals are difficult to implement (Stipek & Byler, 1997).

This finding also identifies one area that can be improved in the Infant and Toddler classroom. Perhaps in the future, more books can be available throughout the

classroom, instead of just in the book area. In addition, more books could be incorporated into other activities done throughout the day.

For the class/lab participants, the two items that scored in the top five at posttest but not at pretest were, "eat sugary foods as treats," and "get placed in time-out," where high scores for these items indicated fewer occurrences. This perhaps illustrates an emphasis placed on decreasing specific negative practices in the Infant Toddler Lab, which students in the class would not be able to experience through coursework alone. We might conclude then, that applied experience trains teachers not only on what developmentally appropriate practices should be used, but in this case, what practices should be minimized.

When examining the differences between items scored lowest at pretest and posttest for the class/lab participants, results show that while two of the three remained the same, one item was different at posttest. This item was "take walks outside," and as was discussed earlier, this may be due to the circumstances surrounding the Infant-Toddler Lab. While the children may choose to take walks and play outside, these opportunities are contingent on weather, and the climate at Utah State University is cold for much of the two semesters the lab is offered. In addition, the Adele and Dale Young Child Development Laboratory has other classrooms operating at the same time as the Infant-Toddler Lab, where the children are four and five years of age. As such, the Infant-Toddler Lab has a separate gated playground to ensure the safety of the youngest children, which may explain why "taking walks outside" was scored so low.

Limitations and Directions for Future Research

The first limitation of this study is that the participants came from a convenience sample, instead of a random sample, which makes the results ungeneralizable to the larger population. There were no efforts made to ensure that the sample was representative of the larger student population at Utah State University, or students in this major enrolled in other programs. In the future, it would be interesting to see how coursework and applied experience may be related to a more representative sample.

When the pretest questionnaire was administered, participants were instructed to fill it out based on what they felt would be ideal in the classroom, without any prior experience. This was especially important when considering the practices section where the students had to rate how many times certain practices or behaviors occurred. This meant there was individual interpretation for the questions, which may have contributed to the large variability of certain practice items.

The measure used in this study is still being pilot tested and as such, reliability and validity have not been fully established. The low reliability scores, especially on the practices section, indicate that further work is needed to determine which items in the questionnaire are viable for further research. Because of these low reliability scores, analyses had to be done on individual practices items, thus requiring many tests to be run. Based on these high frequencies, we would expect to see some signs of significance based on chance alone. In addition, because the measure was not written specifically for the Adele and Dale Young Child Development Lab, there were items, specifically in the practices section, that may have created ambiguity (which was discussed earlier).

An additional limitation of this study is that for three of the nine semesters when data were collected, only students also enrolled in the lab filled out the questionnaire. This meant that, for this study, 70% (263) of the participants were in the class and lab and only 30% (110) were in the class alone.

The procedure used in this study included only self-reports of developmentally appropriate beliefs and practices. In the future, it would be valuable to have observations of the classroom to coincide with self-reports. Adding this component would allow for an unbiased assessment of actual practices and perhaps reveal discrepancies that occur when teachers self-report. Moreover, it would be interesting in future research to compare potential differences in teachers and children between infant classrooms where developmentally appropriate practices were implemented versus settings where policies have not adopted the NAEYC's position on best practices.

Summary

It is clear from prior research that there is a lack of understanding about how teachers and caregivers of young children, particularly infants and toddlers, are best educated and trained to use developmentally appropriate practices (Chen & McNamee, 2006; Early et al., 2007; Tout et al., 2005; Wilcox-Herzog, 2004). This study was designed to look at the process used at Utah State University, assessing specifically the undergraduate students learning about Infancy and Early Childhood. The results demonstrate that beliefs about developmentally appropriate practice did increase after participants were involved in both the class alone and the class combined with a laboratory experience, with those in the class/lab rising slightly more. When participants

were compared based on group membership, whether they were in the class alone or took the lab concurrently, results showed that while not statistically significant, belief scores were higher for those who were in the class and lab combined. On some of the practice items, we learned that idealized postulations of developmentally appropriate practice may not be realistic in actual classrooms. However, many specific practices items were statistically significantly different between groups, especially at posttest, where those in the class and lab had higher scores for developmentally appropriate practice. While the results cannot be generalized to the whole population, the findings are important because they offer insight about how coursework and applied fieldwork can be used to better prepare teachers. More specifically, the information is important for teachers at the Adele and Dale Young Child Development Laboratory, in assessing how the Infant Toddler Lab can be better utilized with the Infancy and Early Childhood course.

REFERENCES

Bardige, B. (2006). Infants and toddlers: Providing responsive and supportive care. *Young Children,* 12-13.

Behrman, R. E. (2001). Caring for infants and toddlers. *The Future of Children, 11*(1), 7-19.

Bergen, D. (2002). The role of pretend play in children's cognitive development. *Early Childhood Research & Practice, 4*(1). Retrieved November 11, 2007, from http://ecrp.uiuc.edu/v4n1/bergen.html

Berk, L. E., & Winsler, A. (1995). *Scaffolding children's learning: Vygotsky and early childhood education.* Washington, DC: National Association for the Education of Young Children.

Bredekamp, S., & Copple, C. (1997). *Developmentally appropriate practice in early childhood programs* (Rev. ed.). Washington, DC: National Association for the Education of Young Children.

Bronfenbrenner, U. (1979). *The ecology of human development.* Cambridge, MA: Harvard University Press.

Buchanan, M. L., Morgan, M., Cooney, M., & Gerharter, M. (2006). The University of Wyoming early childhood summer institute: A model for professional development that leads to changes in practice. *Journal of Early Childhood Teacher Education, 27*, 161-169.

Burchinal, M. R., Cryer, D., Clifford, R. M., & Howes, C. (2002). Caregiver training and classroom quality in childcare centers. *Applied Developmental Science, 6*(1), 2-11.

Burts, D. C., & Sciaraffa, M. (2001). *Teacher beliefs and practices survey: Infants and toddlers.* Unpublished manuscript.

Charlesworth, R., Hart, C. H., Burts, D. C., & Hernandez, S. (1991). Kindergarten teachers beliefs and practices. *Early Child Development and Care, 70*, 17-35.

Charlesworth, R., Hart, C. H., Burts, D. C., Thomasson, R. H., Mosley, J., & Fleege, P. O. (1993). Measuring the developmental appropriateness of kindergarten teachers' beliefs and practices. *Early Childhood Research Quarterly, 8*, 255-276.

Chen, J., & McNamee, G. (2006). Strengthening early childhood teacher preparation: Integrating assessment, curriculum development, and instructional practice in student teaching. *Journal of Early Childhood Teacher Education, 27*, 109-128.

Chenfeld, M. B. (2006). Wanna play? *Young Children, 62*, 34-35.

Childcare Aware. (2007). Types of care. Retrieved November 11, 2007 from http://www.childcareaware.org/en/child_care_101/types_of_care/

Children's Defense Fund. (2005). Early childhood development facts. Retrieved November 11, 2007, from http://www.childrensdefense.org/

Chung, L., Marvin, C. A., & Churchill, S. L. (2005). Teacher factors associated with preschool teacher-child relationships: Teaching efficacy and parent-teacher relationships. *Journal of Early Childhood Teacher Education, 25*(2), 131-142.

Clarke-Stewart, A., & Allhusen, V. D. (2005). *What we know about childcare.* Cambridge, MA: Harvard University Press.

Cohany, S. R., & Sok, E. (2007). Trends in labor force participation of married mothers of infants. *Monthly Labor Review, 130*(2), 9-16.

Crowley, A. A. (2000). Childcare health consultation: The Connecticut experience. *Maternal and Child Health Journal, 4*(1), 67-75.

Early, D. M., Maxwell, K. L, Burchinal, M., Bender, R. H., Ebanks, C., Henry, G. T., et al. (2007). Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development, 78*(2), 558-580.

Elliott, E. (2004). Building a partnerships through collaboration, reflection, dialog. *Journal of Early Childhood Teacher Education, 24*(4), 247-255.

Erikson, E. (1950). *Childhood and society.* New York: W. W. Norton.

Federal Interagency Forum on Child and Family Statistics. (2007). *America's children: Key national indicators of well-being.* Federal Interagency Forum on Child and Family Statistics, Washington, DC: U.S. Government Printing Office.

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences.* New York: Basic Books.

Gallagher, K. C. (2005). Brain research and early childhood development. A primer for developmentally appropriate practice. *Young Children, 60,* 12-20.

Guzell, J. R., & Stringer, S. A. (2004). Complexity of reasoning about children's development: Links with teacher-preparation content courses and supervised laboratory experience. *Journal of Early Childhood Teacher Education, 24*(4), 227-235.

Howes, C., James, J., & Ritchie, S. (2003). Pathways to effective teaching. *Early Childhood Research Quarterly, 18*, 104-120.

Huffman, L. R., & Speer, P. W. (2000). Academic performance among at-risk children: The role of developmentally appropriate practices. *Early Childhood Research Quarterly, 15*(2), 167-184.

International Reading Association. (2007). *Teaching reading well: A synthesis of the International Reading Association's research on teacher preparation for reading instruction.* Newark, DE: International Reading Association.

Iruka, I. U., & Carver, P. R. (2006). *Initial results from the 2005 NHES Early Childhood Program participation survey* (NCES 2006-075). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Joesch, J. M., Maher, E. J., & Durfee, A. (2006). Childcare arrangements for toddlers and preschoolers: Are they different for youngest children? *Early Childhood Research Quarterly, 21*(3), 253-266.

Kontos, S., & Wilcox-Herzog, A. (2001). How do education and experience affect teachers of young children? Research in review. *Young Children, 56*(4), 85-91.

Lally, J. R. (2003). Infant-toddler childcare in the United States: Where has it been? Where is it now? Where is it going? *Zero to Three, 24*(1), 29-34.

Ling Li, Y. (2007). Teachers talking about effective practice: Understanding the knowledge and practice of teachers. *Journal of Early Childhood Teacher Education, 28*(3), 301-310.

Maslow, A. H. (1954). *Motivation and personality.* New York: Harper & Brothers.

Mulligan, G.M., Brimhall, D., & West, J. (2005). Childcare and Early Education Arrangements of Infants, Toddlers, and Preschoolers: 2001 (NCES 2006-039). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

National Association for the Education of Young Children. (2005). Historical overview. Retrieved December 2, 2007, from http://www.naeyc.org/about/history.asp

National Center for Education Statistics. (2007). Digest of Education Statistics, Washington, DC: NCES.

National Resource Center for Health and Safety in Childcare and Early Education. (2007). Utah Regulations. Retrieved November 11, 2007, from http://nrc.uchsc.edu/STATES/UT/utah.htm

Olsen, K. (2004). *Practicum students' beliefs about developmentally appropriate practice for infants and toddlers.* Unpublished master's thesis, Utah State University, 2004.

Ota, C., Dicarlo, C. F., Burts, D. C., Laird, R., & Gioe, C. (2006). The impact of training on caregiver responsiveness. *Journal of Early Childhood Teacher Education, 27*, 149-160.

Piaget. J. (1969). *The psychology of the child.* New York: Basic Book.

Rushton, S., & Larkin, E. (2001). Shaping the learning environment: Connecting developmentally appropriate practices to brain research. *Early Childhood Education Journal, 29*(1), 25-33.

Rust, F. O. (2006). Greetings from the guest editor. *Journal of Early Childhood Teacher Education, 28*(3), 201-204.

Schmidt, H. M., Burts, D. C., Durham, R. S., Charlesworth, R., & Hart, C. H. (2007). Impact of the developmental appropriateness of teacher guidance strategies on kindergarten children's interpersonal relations. *Journal of Research in Childhood Education, 21*(3), 290-301.

Shonkoff, J. P., & Phillips, D. (2000). *From Neurons to neighorhoods: The science of early childhood development.* Washington, DC: National Academies Press.

Shore, R. (1997). *Rethinking the brain: Insights into early development.* New York: Families and Work Institute.

Siegler, R., Deloach, J., & Eisenberg, N. (2006). *How children develop.* New York: Worth Publishers.

Stipek, D. J., & Byler, P. (1997). Early childhood education teachers: Do they practice what they preach? *Early Childhood Research Quarterly, 12*, 305-325.

Thompson, R. A., & Nelson, C. A. (2001). Developmental science and the media. *American Psychologist, 56*(1), 5-16.

Tietze, W., & Cryer, D. (2004). Comparisons of observed process quality in German and American infant/toddler programs. *International Journal of Early Years Education, 12*(1), 44-62.

Tout, K., Zaslow, M., & Berry, D. (2005). Links between professional development and quality in early care and education settings. *Critical Issues in Early Childhood Profession Development.* Baltimore, MD: Paul H. Brooks.

U.S. Department of Health and Human Services. (2007). Office of Head Start. Retrieved November 11, 2007, from http://www.acf.hhs.gov/programs/hsb/about/index.html#mission

Vermeer, H.J., & van IJzendoorn, M. H. (2006). Children's elevated cortisol levels at daycare: A review and meta-analysis. *Early Childhood Research Quarterly, 21*(3), 390-401.

Vygotsky, L. S. (1978). *Mind in society: The developmental of higher psychological processes.* Cambridge, MA: Harvard University Press.

Whitebook, M. (2003). *Early education quality: Higher teacher qualification for better learning environments-A review of the literature.* Berkeley, CA: Center for the Study of Childcare Employment. Retrieved January 16, 2007, from http://www.iir.berkeley,edu/cscce/pdf/teacher.pdf

Wilcox-Herzog, A. (2004). Actions speak louder than words: How experience and education relate to teachers' behaviors. *Journal of Early Childhood Teacher Education, 25*, 11-18.

Zill, N., Sorongon, A., Kim, K., Clark, C., & Woolverton, M. (2006). *FACES 2003 Research Brief: Children's Outcomes and Program Quality in Head Start.* Washington, DC: U.S. Department of Health and Human Services.

APPENDICES

Appendix A. Teacher Beliefs and Practices Survey:
Infants and Toddlers

Teacher Beliefs & Practices Survey
Infants and Toddlers

Researchers will be careful to keep your answers to this survey confidential

Reports of findings will not use names of respondents.

PLEASE TELL US ABOUT YOURSELF:

1. Are you attending the Adele and Dale Young Child Development Lab for: ____Infant/toddler lab ____Level II
____3 credits ____6 credits

2. Are you attending the Child Development Lab in the ____East AM ____East PM ____North AM
____West AM ____West PM ____North PM

3. Educational Status
____Freshman, total semester hours completed_____
____Sophomore, total semester hours completed_____
____Junior, total semester hours completed_____
____Senior, total semester hours completed_____

PLEASE TELL US ABOUT YOUR CURRENT MAJOR:

4. Department granting degree:

FHD	ELED	SPED	HENV
1	2	3	4

5. Major/Area(s) of Specialization:

Emphasis Human Development	Emphasis Family and Community	Dual ECE/SpEd Certificate	Dual FCSEd Certificate

ECE Certificate

Deaf Education Emphasis

6. What is your ethnic background?
____European American (Caucasian) ____Asian American
____African American ____Native American
____Hispanic/Latin-American ____Other_____

7. What is your marital status?
____Married ____Divorced ____Single

8. How many children do you have?

Sex	Age

9. What is your gender?
____male ____female

TEACHER BELIEFS SURVEY
INFANT VERSION (Birth to 18 months)

Recognizing that some things in child care programs are required by external sources, what are YOUR OWN PERSONAL BELIEFS about infant/toddler programs? Please circle the number that most nearly represents YOUR BELIEFS about each item's importance for infant/toddler care. (1=Not at all important; 5= Extremely important)

	Not at all Important	Not very Important	Fairly Important	Very Important	Extremely Important
2.It is _____ for every child to form a one-to-one relationship with a caregiver.	1	2	3	4	5
3.It is _____ for a caregiver to be warm, nurturing, responsive, and supportive.	1	2	3	4	5
4. It is _____ for a caregiver to have interactions with the child throughout the day.	1	2	3	4	5
5. It is ____ for a caregiver to describe her actions during routine care such as diapering.	1	2	3	4	5
6. It is _____ for a caregiver to observe and comment on the child's activities.	1	2	3	4	5
7. It is _____ for a Caregiver to quickly Complete routine activities.	1	2	3	4	5
8. It is _____ to talk, sing, and read to infants.	1	2	3	4	5
9. It is _____ to greet each child and their families each morning.	1	2	3	4	5

TEACHER BELIEFS SURVEY
INFANT VERSION (Birth to 18 months)

	Not at all Important	Not very Important	Fairly Important	Very Important	Extremely Important
10. It is ____ to allow infants to cry, to them become independent.	1	2	3	4	5
11. It is ____ to know individual feeding and sleeping schedules.	1	2	3	4	5
12.It is _____ to ensure children treat each other gently.	1	2	3	4	5
13. It is ___ for the caregiver to handle stress in a calm manner, as a model for the children.	1	2	3	4	5
14. It is _____ to model positive attitudes about children's bodies and bodily functions.	1	2	3	4	5
15. It is ____ to listen and respond to children's beginning sounds and words.	1	2	3	4	5
16.It is_____ to follow a daily schedule.	1	2	3	4	5
17. It is ____ to have many opportunities for active, large muscle play both indoors and outdoors.	1	2	3	4	5
18. It is____ to have soft places for the children to explore.	1	2	3	4	5
19.It is ____ to display things above the children's eye level so they won't hurt themselves.	1	2	3	4	5
20.It is ____ to have books where children can reach them.	1	2	3	4	5

TEACHER SURVEY
INFANT VERSION (Birth to 18 months)

	Not at all Important	Not very Important	Fairly Important	Very Important	Extremely Important
21.It is ____to have similar toys grouped together on a low, open shelf.	1	2	3	4	5
22.It is ____to hold infants while they are using a bottle.	1	2	3	4	5
23.It is____to use small tables to feed mobile infants who can sit.	1	2	3	4	5
24.It is ____to have sleeping areas separate from active areas.	1	2	3	4	5
25.It is _____to have daily communication with children's families.	1	2	3	4	5
26.It is ____to know that children's family members are the primary source of affection and care.	1	2	3	4	5
27. It is _____to consult with family members when making decisions about the care of the child.	1	2	3	4	5
28.It is ____ to have low adult/child ratios-- (1 adult to 3 infants)	1	2	3	4	5
29. It is ____ to follow health and safety procedure, such as handwashing before and after changing a diaper.	1	2	3	4	5

TEACHER BELIEFS SURVEY
INFANT VERSION (Birth to 18 months)

FOR THE FOLLOWING QUESTIONS, PLEASE THINK ABOUT HOW OFTEN CHILDREN IN YOUR CLASSROOM DO THE FOLLOWING ACTIVITIES.

INSTRUCTIONAL ACTIVITIES SURVEY
INFANT VERSION (Birth to 18 months)

Please circle the number that best represents the average frequency of each activity.

	Almost Never (less than a month)	Rarely (monthly)	Sometimes (weekly)	Regularly (2-4 times a week)	Very Often (daily)
HOW OFTEN DO CHILDREN IN YOUR CLASS:					
1. go outside	1	2	3	4	5
2. take walks outside	1	2	3	4	5
3. have books read	1	2	3	4	5
4. sing and/or listen to music	1	2	3	4	5
5. select toys by themselves	1	2	3	4	5
6. get placed in time-out (such as isolation in a bed or on a chair)	1	2	3	4	5
7. Remain in the same place for long periods of time.	1	2	3	4	5
8. play with battery powered or wind up toys.	1	2	3	4	5
9. Do fingerplays and hear simple stories.	1	2	3	4	5
10. use balls inside	1	2	3	4	5
11. use climbing equipment inside	1	2	3	4	5

INSTRUCTIONAL ACTIVITIES SURVEY
INFANT VERSION (Birth to 18 months)

Please circle the number that best represents the average frequency of each activity.

	Almost Never (less than a month)	Rarely (monthly)	Sometimes (weekly)	Regularly (2-4 times a week)	Very Often (daily)
HOW OFTEN DO CHILDREN IN YOUR CLASS:					
12. have enough time to complete an activity at their own pace	1	2	3	4	5
13. eat sugary foods as treats	1	2	3	4	5
14. follow a strict time schedule	1	2	3	4	5
15.stay with the same caregiver all day	1	2	3	4	5
16. participate in pretend play with a variety of safe household items	1	2	3	4	5
17. .have books with people of different ages, racial and cultural groups, family types, occupations, and abilities.	1	2	3	4	5

Appendix B. Informed Consent

Utah State
UNIVERSITY

DEPARTMENT OF FAMILY AND HUMAN DEVELOPMENT
College of Family Life
2905 Old Main Hall
Logan UT 84322-2905
Phone 1-435-797-1501
FAX 1-435-797-3845

Informed Consent

Title of Study: Student Teachers' Beliefs about Developmentally Appropriate Practice.

June 4, 2001

Dear Student Teacher,

I am working on my master's degree in Family and Human Development. I am interested in finding out ways to teach students about effectively implementing Developmentally Appropriate Practice (DAP). I would like to find out about your beliefs about teaching and the specific things you do in your classroom.

If you agree to participate in this study, you will be asked to complete a questionnaire before and after completing your practicum experience. The questionnaire consists of two parts. The first section will ask you to respond to statements reflective your beliefs about what early childhood programs should entail. Second, you will be asked to assesses your beliefs about the frequency of activities within the early childhood classroom. It will take no more than 15 minutes to complete the questionnaire.

All information gained in this study will be kept confidential. There will be code numbers instead of names used on the forms. The data will be kept in a locked cabinet in a locked room. There are no risks by participating in this study and you may withdraw at anytime without penalty. A possible benefit will be learning more about Developmentally Appropriate Practice.

You have been given two copies of this Informed Consent. Please sign both copies and keep one copy for your files. If you have any questions, please feel free to contact me or my advisor, Dr. Shelley Lindauer.

Sincerely,

Megan Sedgwick
M.S. Candidate
435-797-1525

Shelley L. Knudsen Lindauer, Ph.D
Professor
435-797-1532

Utah State
UNIVERSITY

DEPARTMENT OF FAMILY AND HUMAN DEVELOPMENT
College of Family Life

Informed Consent

Title of Study: Student Teachers' Beliefs about
Developmentally Appropriate Practice.

June 4, 2001

I have read the information about the study and would like to participate. I understand that I will fill out a questionnaire prior to the practicum experience and another upon completion of the practicum. This will take no more than fifteen minutes. If I choose to do so, I may withdraw from the study at any time without penalty.

Signature:_____

Date:_____

Please send me the results of this study when completed.

Name:_____

Address:_____

_____

_____

2905 Old Main Hill Logan UT 84322-2905 • Phone (435) 797-1501 • FAX (435) 797-3845
Child Development Laboratory (435) 797-1544 • MFT Program Family Life Center (435) 797-7430 • FHD Web (435) 797-1543

Appendix C. Tables

Table 8

Independent Samples t Tests for Pretest by Teacher

Item	Teacher 1			Teacher 2					
	N	*M*	*SD*	*N*	*M*	*SD*	*t*	*df*	*p*
1 – Go outside	199	4.18	.83	180	4.13	.86	.55	377	.580
2 – Take walks outside	199	3.66	.94	180	3.61	.94	.60	377	.551
3 – Have books read	199	4.62	.69	180	4.62	.69	-.06	377	.953
4- Sing and/or listen to music	199	4.63	.64	180	4.63	.64	-.01	377	.996
5 – Select toys by themselves	198	4.45	.74	179	4.53	.66	-1.12	375	.264
6 – Get placed in time-out (such as isolation in a bed or on a chair	199	3.49	1.11	180	3.64	1.05	-1.32	377	.190
7 – Remain in the same place for long periods of time.	199	3.74	1.07	180	3.64	.91	.97	377	.331
8 – Play with battery powered or wind up toys	198	3.60	1.05	180	3.43	.99	1.60	376	.111
9 – Do finger plays and hear simple stories	199	4.00	.89	180	4.09	.91	-.97	377	.335
10 – Use balls inside	199	2.93	1.07	180	3.27	.97	-3.25	377	.001[a]
11 – Use climbing equipment inside	199	2.83	1.18	180	2.71	1.15	1.03	377	.303
12 – Have enough time to complete an activity at their own pace	200	4.19	.77	180	4.27	.73	-1.06	378	.289
13 – Eat sugary foods as treats	200	4.08	.92	180	3.97	.99	1.10	378	.272
14 – Follow a strict time schedule	197	2.60	1.15	180	2.58	1.09	.18	375	.855
15 – Stay with the same caregiver all day	200	2.85	1.11	177	2.62	1.09	2.01*	375	.045
16 – Participate in pretend play with a variety of safe household items	200	4.06	.92	180	4.39	.86	-3.14	378	.002[a]
17 – Have books with people of different ages, racial and cultural groups, family types, occupations, and abilities	200	4.27	.89	180	4.39	.86	-1.44	378	.151

[a]DAP scores significantly higher for Teacher 2

Table 9

Independent Samples t Tests for Posttest by Teacher

Item	Teacher 1			Teacher 2					
	N	*M*	*SD*	*N*	*M*	*SD*	*t*	*df*	*p*
1 – Go outside	203	4.11	.88	182	4.14	.87	-.33	383	.745
2 – Take walks outside	202	3.28	1.14	182	3.19	1.29	.68	382	.495
3 – Have books read	203	4.35	.88	182	4.36	.87	-.09	383	.929
4- Sing and/or listen to music	202	4.73	.49	182	4.66	.56	1.17	382	.245
5 – Select toys by themselves	203	4.78	.48	181	4.80	.49	-.36	382	.718
6 – Get placed in time-out (such as isolation in a bed or on a chair	202	4.39	.94	181	4.19	.99	2.06	381	.041[a]
7 – Remain in the same place for long periods of time.	203	3.97	.95	182	3.77	1.05	1.97	383	.049[a]
8 – Play with battery powered or wind up toys	202	4.25	.91	182	3.93	.94	3.32	382	.001[a]
9 – Do finger plays and hear simple stories	203	3.51	1.17	182	3.93	.95	-3.81	383	.000[b]
10 – Use balls inside	203	3.04	1.17	182	3.60	.97	-5.04	383	.000[b]
11 – Use climbing equipment inside	203	3.44	1.07	182	3.19	.97	2.42	383	.016[a]
12 – Have enough time to complete an activity at their own pace	205	4.49	.60	181	4.53	.59	-.70	384	.484
13 – Eat sugary foods as treats	205	4.59	.77	180	4.30	.95	3.27	383	.001[a]
14 – Follow a strict time schedule	205	2.55	1.21	180	2.40	1.21	1.22	383	.223
15 – Stay with the same caregiver all day	205	3.07	1.23	180	2.97	1.32	.77	383	.440
16 – Participate in pretend play with a variety of safe household items	205	4.49	.73	181	4.49	.74	.01	384	.990
17 – Have books with people of different ages, racial and cultural groups, family types, occupations, and abilities	205	4.37	.90	181	4.41	.84	-.49	384	.625

[a]DAP scores significantly higher for Teacher 1
[b]DAP scores significantly higher for Teacher 2

Table 10

Independent Samples t *Tests for Pretest by Number of Own Children*

Item	No Children			Children					
	N	*M*	*SD*	*N*	*M*	*SD*	*t*	*df*	*p*
1 – Go outside	346	4.15	.86	33	4.21	.65	-.42	377	.674
2 – Take walks outside	346	3.65	.95	33	3.48	.80	.97	377	.335
3 – Have books read	346	4.62	.69	33	4.64	.65	-.14	377	.886
4- Sing and/or listen to music	346	4.63	.62	33	4.58	.79	.49	377	.624
5 – Select toys by themselves	344	4.49	.71	33	4.52	.67	-.23	375	.817
6 – Get placed in time-out (such as isolation in a bed or on a chair	346	3.53	1.09	33	3.94	1.00	-2.10	377	.036[a]
7 – Remain in the same place for long periods of time.	346	3.66	.98	33	4.00	1.15	-1.87	377	.062
8 – Play with battery powered or wind up toys	345	3.52	1.03	33	3.58	.97	-.32	376	.748
9 – Do finger plays and hear simple stories	346	4.06	.88	33	3.82	1.01	1.51	377	.133
10 – Use balls inside	346	3.10	1.01	33	3.00	1.30	.53	377	.594
11 – Use climbing equipment inside	346	2.78	1.16	33	2.70	1.26	.38	377	.705
12 – Have enough time to complete an activity at their own pace	347	4.23	.75	33	4.21	.78	.13	378	.893
13 – Eat sugary foods as treats	347	4.02	.93	33	4.09	1.16	-.39	378	.697
14 – Follow a strict time schedule	345	2.55	1.12	32	3.00	1.11	-2.18	375	.030[a]
15 – Stay with the same caregiver all day	344	2.75	1.08	33	2.64	1.37	.55	375	.584
16 – Participate in pretend play with a variety of safe household items	347	4.18	.88	33	4.27	.63	-.58	378	.560
17 – Have books with people of different ages, racial and cultural groups, family types, occupations, and abilities	347	4.33	.87	33	4.30	.95	.16	378	.873

[a]DAP scores significantly higher for those with Children

Table 11

Tests of Between-Subjects Effects for Beliefs Based on Group Membership

Measure	*Source*	*Type III Sum of Squares*	*df*	*MS*	*F*	*p*
Beliefs	Class vs. Class/Lab	187.30	1	187.30	3.21	.074
	Error	21793.12	373	58.43		