FROM THEORY TO PRACTICE: A FIRST LOOK AT

SUCCESS FOR LIFE - A BRAIN

RESEARCH-BASED EARLY

CHILDHOOD PROGRAM

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*Success For Life (SFL)* is a brain research-based program for children, birth through age six. This research examined the development and implementation of *SFL* in 13 early childhood settings. Participants were 24 female early childhood teachers and 146 (73 male) children. Teachers included seven infant, four toddler, nine preschool and four kindergarten teachers. Children included infants (n=29), toddlers (n=27), and prek-kindergartners (n=90). A Request for Proposals was disseminated to identify possible implementation sites. After participation was confirmed, teachers attended a full day’s training which included a description of brain development/function, the latest brain research, how to implement *SFL* and other logistics of the study. Program implementation occurred over approximately four months. A field site coordinator visited each site
bimonthly to provide on-going technical assistance. This was an intervention project with a pre and post implementation design. Four instruments were used: a teacher questionnaire, a classroom environment measure, a child measure and teacher journals. Results suggested that teachers became more knowledgeable about brain development research and about how children grow and learn. Teachers were better able to make connections between brain research findings and how to apply these findings to their programs and daily activities. Likewise, the environment measure indicated that teachers were better able to arrange environments for learning. They reported that children showed significant increases in skills development and performance in the following areas: physical mastery, social relations/interactions, cognitive development, and language/communications. Additionally, teachers reported improvements in emotional expression and well-being among infants and toddlers. Toddlers and preschoolers showed significant increases in creative/artistic expression. Finally, teachers indicated that preschoolers showed increases in initiative, use of logic/mathematics skills, and musical coordination and movement. Research findings suggest that Success For Life is
able to bridge the gap between theory and practice and benefits children, teachers and programs.
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CHAPTER I

INTRODUCTION

Although neuroscientists continue to make new inroads into brain research, only recently has this research become a focal point of attention for our nation. The growing concern about the status of children in America has served, in part, as a catalyst that has stimulated interest in brain research (Shore, 1997). The early years of a child’s life are critically important for brain development. Children’s ability to learn and succeed in school begins prenatally with the development of the brain. Initial stages of neurological development can “dramatically influence a child’s life options and possibilities” (Institute for Educational Leadership, 1991). Unfortunately, some children are often forced to attend low quality programs. In a time when both parents work, high quality child care and education programs are essential. The current focus on brain research reflects an increasing concern across the nation about young children’s learning and overall well-being. Research is needed to discover what programs work best in providing stimulating and enriched learning experiences.
during the important first few years of life (Kotulak, 1997).

Inspired by the new interest and research on the brain, *Success For Life* was developed by a team of early childhood researchers at the University of North Texas under the guidance of George S. Morrison, Ed.D. *SFL* is a brain research-based program for children from birth to age six (0-6) which supports the development of the whole child across all developmental levels. *Success For Life* focuses on bridging the gap between brain research findings and practice by providing age appropriate activities and enriched environments for children. The *SFL* Program has the potential to bring about increased public awareness and support for high quality early childhood education and care.

*Success For Life* is comprised of five major components. Curriculum Development is the first component. The *SFL* curriculum uses an interdisciplinary approach to apply brain research-based activities and enriched learning environments for children birth to age six. The development of the curriculum component of *SFL* is ongoing and therefore, continually updated.

The second component is Teacher Training and Technical Assistance. Teachers are educated to incorporate brain research-based activities into their classrooms in order to
create stimulating environments for young children. At the same time, a field site coordinator visits implementation sites regularly, and provides teachers with technical assistance and support to further improve teaching and learning.

The third component, Family Education and Support, includes the development and distribution of informational brochures and a home learning kit. The goal is to educate families to create enriched, supportive learning environments in the home.

Research and Evaluation, the fourth component, involves evaluating the effectiveness of SFL and determining changes in teacher knowledge and understanding of brain research. This component also includes assessing children’s physical, cognitive, social, emotional and language development through observational and rating scale methods.

The fifth component, Technology, seeks to incorporate technology into early childhood programs and develop processes by which technology can support young children’s learning. Each component addresses the training needs and issues of quality programs for children and families.

Interest in and focus on brain research resulted from many different developments, events and occurrences. New technologies such as brain scans enable scientists to gain a
much clearer picture of the brain’s inner workings, structure and development (Nelson & Bloom, 1997). For example, Positron Emission Tomography (PET) and functional Magnetic Resonance Imaging (fMRI) produce three-dimensional images of the brain that reveal which parts of the brain are involved in performing various activities. Likewise, methods such as the electroencephalogram (EEG) and the event-related potential (ERP) are utilized to record brain activity by placing electrodes on the scalp (Sylwester, 1994; Jones, 1995; Nelson and Bloom, 1997). These technologies allow scientists to study aspects of brain development. For instance, scientists can analyze PET scans of infants and toddlers at various ages in order to visualize which brain areas are undergoing development at each stage. The EEG, for example, identifies and documents brain waves and is utilized to investigate the brain’s reaction to several environmental factors such as stressful situations or comforting care. As a result, these technologies permit new insights into early development, such as how the normal brain develops in the first years of life and the effects of different environmental conditions on the brain (Shore, 1997; Newberger, 1997).

In addition to new technologies, medical and cognitive sciences and pedagogic research provide useful information
about how the brain develops and functions (Abbott, 1997; Newberger, 1997). For example, forming and reinforcing early synaptic connections are the key tasks of early brain development. Positive interactions with caring adults stimulate children’s brains profoundly in terms of establishing new synapses and strengthening existing connections for future brain development (Kotulak, 1997; Abbott, 1997; Shore, 1997).

Only in the last decade, however, has the understanding and utilization of brain research been applied to early childhood education and care. Research has increased public awareness of the importance of the early years. Recently, the media have focused on learning in the early years and the significance of new research on brain development and learning. For example, articles such as “Fertile Minds” in Time and “I Am Your Child” in Newsweek have received widespread attention (Nash, 1997; Begley, 1996). In addition, early childhood experts launched the “I Am Your Child” Campaign ABC-TV special. This campaign is an early childhood public engagement effort coordinated by the Families and Work Institute, a non-profit organization “committed to finding research-based strategies that foster mutually supportive connections among workplaces, families and communities” (Shore, 1997). The "I Am Your Child"
campaign brings national attention to the significance of the first three years of life and encourages family involvement in the healthy development of children. Likewise, it helps engage communities to act on behalf of children and families. Furthermore, the "I Am Your Child" campaign is an unprecedented collaboration among sectors of society such as public health professionals, business leaders, pediatricians, policy makers, education leaders and early childhood educators that do not normally work together on social issues. This diversity is significant because, in some cases, it represents the first time that so many groups have partnered together to help young children and families. This campaign made significant contributions to the growing interest in brain research and its application to early childhood education and care (Families and Work Institute, 1997; Shore, 1997).

However, technological breakthroughs and media coverage have not only contributed to new insights about and interest in brain activity and function, they have also stimulated dialogue between scientists and educators (Newberger, 1997). In 1996, the Families and Work Institute sponsored a conference on “Brain Development in Young Children: New Frontiers for Research, Policy and Practice” at the University of Chicago. The conference provided a setting to
discuss new knowledge about early brain development and its implications for the nation’s children. This national effort was initiated on the conviction that the whole nation, not just parents and families, has a vital stake in helping children learn and develop to their maximum potential. Likewise, the conference provided the opportunity to bring together professionals from the neurosciences, medicine, education, human services, the media, business and public policy to decipher brain research and its contributions toward guiding efforts to improve the development, education and well-being of children and families (Shore, 1997; Newberger, 1997).

Similarly, on April 17, 1997 President William Clinton and first lady, Hillary Rodham Clinton, hosted “The White House Conference on Early Childhood Development and Learning: What New Research on the Brain Tells Us About Our Youngest Children.” This conference highlighted brain development research and underscored the importance of children’s earliest experiences in providing the foundations for a strong and healthy start. Moreover, the conference focused on the practical applications of the latest brain research findings. This way the information could be utilized by parents, teachers and caregivers in ways that
strengthen and support children and families (Southern Early Childhood Association, 1997).

In summary, the new interest in brain research has been influenced by a number of events such as new tools of imaging technology, media coverage, conferences and discoveries about the brain, all working together toward helping the nation realize the importance of the early years. The challenge to early childhood professionals is that “research findings in neuroscience must have some implications for how we approach education; now educators must tell us what they are” (Education Commission of the States, 1996). Educators and neuroscientists have only begun to bridge the gap between the two disciplines (Newberger, 1997).

Statement of the Problem

More needs to be done to bridge the gap between neuroscience and education (Newberger, 1997). Unfortunately, neither teachers nor administrators in most states are required to know much about how children learn (Hancock, 1996). Knowledge about brain research needs to be integrated throughout the field of education. Bridging the gap between neuroscience and education is one key to helping children develop and grow to their full potential.
Daily, scientists discover more about the formation and development of children's brains. Likewise, teachers strive to find practical ways of helping children use their brains to their fullest potential. Therefore, it makes sense to attempt to establish a connection between the two disciplines. In 1996 the Education Commission of the States (ECS) and the Charles A. Dana Foundation co-sponsored the "Bridging the Gap Between Neuroscience and Education Workshop" to encourage discussion and mend a "historical communications gap" (Education Commission of the States, 1996). The workshop brought together neuroscientists, education researchers and practitioners, cognitive psychologists, and policy makers to explore the possible relevance of recent developments in neuroscience to early childhood education and care. This workshop also "provided a fascinating look at the possibilities and the potential for neuroscientists and educators to learn from one another" (Education Commission of the States, 1996). Educators had the opportunity to voice their needs and concerns to researchers with first-hand experiences in conducting brain research. Both sides recognized the significant implications of brain research for education, but agreed that much work was still ahead before transitioning these implications into the classroom. Participants made several
recommendations to encourage communication, collaboration and guide public policy. Such recommendations included creating incentives and requiring schools to research, understand and increase the teaching of early childhood education and care. However, much work still needs to be done.

Early childhood professionals must use neuroscience contributions as tools to make connections between brain research findings and early childhood education and care. The question remains, how do we bridge the gap between brain research and practice in early childhood education and care? Researchers need to do more to help make a connection between brain research and early childhood education and curriculum (Slegers, 1997). With plans to link theory and practice, Success For Life (SFL) has the potential to bring about public awareness and support for early childhood education and care. SFL is a step in the right direction toward bridging the gap between brain research and practice. It incorporates the latest brain research into a program designed to meet the needs of young children, families and early childhood educators.

During the early years of life, a child’s brain requires continuous stimulation in order to foster healthy growth and development (Education Commission of the States,
The Carnegie Corporation (1994) reported that only half of parents with infants and toddlers routinely read to their children. Likewise, teachers reported that more than a third of kindergartners are not ready to learn when they start school. Additionally, fifty-six percent of mothers with children under age four work outside the home (Carnegie Task Force, 1994). Despite the enormous need for childcare and early childhood education, no national standards exist regarding qualification and experience requirements for childcare providers (Kantrowitz, 1997). Consequently, children are often forced to attend programs that lack high quality.

In a time when both parents work, high quality childcare and education programs are crucial. Children need experiences with adults who are aware and responsive to how children grow and learn. Educating teachers and caregivers about brain research findings and how to provide enriched environments is a key factor in shaping children’s healthy growth and development. *Success For Life*, in addition to making connections between brain research and practice, attempts to provide such quality and educate teachers to help children develop and learn to their full potential.
Purpose

Now that medical researchers, biologists and cognitive scientists and neuroscientists are learning more about the brain and its functions, educators must seize this opportunity "to keep informed, to study, and to apply what they have learned to the classroom" (Brandt, 1997). Success For Life applies the latest brain research findings to the early childhood classroom. It bridges the gap between theory and practice by utilizing an interdisciplinary approach that integrates knowledge from neurobiology, music, visual arts, sociology, psychology, child development and early childhood for the education and development of children and families.

What are the results of this interdisciplinary collaboration? This study assessed the effectiveness of Success For Life by answering the following research questions:

1. Does Success For Life (SFL) change the teaching behaviors and thinking of teachers?
2. Does SFL enable teachers to provide enriched classroom environments?
3. Does SFL influence the development and behaviors of children?
4. Is SFL an effective way of translating brain research into practice in early childhood programs?

5. What changes are needed to improve the development and implementation of SFL?

**Definition of Terms**

The following definitions will clarify the meaning of terms applicable to this research.

Neuroscience – any of the branches of science that deal with the anatomy, physiology, biochemistry or molecular biology of the nervous system, especially as related to behavior and learning (Morris, 1992).

Brain-based Learning – theory of how people learn based on current research in the cognitive and neurosciences (Caine and Caine, 1995).

Critical Periods (Window of Opportunity) – periods in the growth of the organisms during which specific biological or environmental events must occur for development to proceed normally (Cole & Cole, 1993) and the time span when a particular part of the brain is most apt to change and most vulnerable to environmental influence (Shore, 1997).

Magnetic Resonance Imaging (MRI) – a medical technology that produces computerized images of tissues and organs using magnetic energy (Shore, 1997) and permits scientists
to watch blood flow to different parts of the brain so they can see what areas are activated for neural firings that mean connections are being made and learning is taking place (Kotulak, 1996).

Electroencephalograph (EEG) – an instrument that detects and graphs the brain’s electrical activity in the form of waves (Shore, 1997) and outlines localized brain activity (Kotulak, 1996).

Positron Emission Tomography (PET) – a brain imaging technology that generates a computerized image not only of the brain’s structure, but also of activity levels in various parts of the brain (Shore, 1997).

Brain Scan – a computerized image of the brain produced by brain imaging technologies such as fMRI and PET (Shore, 1997).

Plasticity (neuroplasticity) – flexibility which enables the brain to constantly undergo physical and chemical changes as it responds to the environment (Kotulak, 1997) or the ability to adapt to the environment and to recover from deprivations, illnesses and injuries to the brain (Peterson, 1994). It is also the capacity of the brain to change or adapt in response either to experience or to damage (Shore, 1997).
Limitations

As with any pilot study, it is necessary to identify potential limitations. The following are some limitations concerning this first look at Success For Life.

In this study, there were 13 sites, 24 teachers and 146 children. The sites who collaborated in this study did so on a voluntary basis, and thus are not necessarily representative of all early childhood programs or schools. At the same time, each individual site was given the sole responsibility of selecting which particular classrooms and teachers would participate. Therefore, the participating teachers were not randomly selected, and are not necessarily representative of all early childhood teachers. The time frame for this project was four months from January to May 1998. This first look at Success For Life focused on three of the five components of the program: 1) curriculum development, 2) teacher training and technical assistance and 3) research and evaluation.
CHAPTER II

REVIEW OF LITERATURE

Although it is only recently that the understanding and application of brain research has been applied to early childhood education and care, the field of neuroscience has contributed to brain research for several decades. It is important to highlight significant studies, findings and contributors to the field of brain research and its relevance to early childhood education.

Imaging Technologies

New research on brain development and function has had a profound impact on the field of early childhood education and care. During the past two decades, the rapid development of computer technology has made brain-imaging technology possible and “revolutionized brain research” (Sylwester, 1995). New technologies such as brain scans have enabled scientists to gain a much clearer picture of the brain’s inner workings, structure and development (Nelson & Bloom, 1997). Two of the most common brain scans are the Positron Emission Tomography (PET) and Functional Magnetic Resonance imaging (fMRI). These usually involve
the coupling of some element of metabolism (e.g. uptake of glucose) with ongoing cognitive activity such as speaking or solving a problem. In the PET procedure, scientists inject an individual with a tracer chemical, a compound that simulates glucose. Since such substances are fuels for the brain, whatever region is performing a particular function will require more fuel. Therefore, scientists are able to localize in which part of the brain any activity is occurring by using a special camera that is sensitive to tracer chemicals. The camera also enables scientists to see the fine structures of the brain. PET scans can also be used to observe the blood flow to different parts of the brain and examine which areas are activated (Nelson & Bloom, 1997; Jones, 1995; Shore, 1997). As a result, neuroscientists can document and quantify information regarding brain activity and function. Scientists can employ this information to produce models of brain function. Similarly, the fMRI makes images of the brain possible. When a particular area of the brain is required to perform a task, that area receives increased blood flow, and as a result, more oxygen. Slight changes in oxygen are then tracked on a moment to moment basis. The fMRI provides data about fluctuations in the flow, volume or oxygen level of blood when an individual performs a task such as squeezing a
hand or speaking. By taking consecutive slices of the brain, the MRI scanner has the ability to rebuild where the greatest areas of activation in the brain transpired (Nelson & Bloom, 1997). Functioning MRI machines can now differentiate between neural groups that are only one millimeter apart (Sylwester, 1994). Although the fMRI and PET are utilized mainly for diagnostic intentions, they have provided insights into normal brain development and function (Shore, 1997).

Whereas metabolic procedures such as the PET and fMRI reflect the fuel requirements of neural activity, electrophysiologic procedures reflect the outgrowth of synaptic activity. The purpose of these electrophysiologic procedures is to make a connection between electrical activity and ongoing emotion. The electroencephalogram (EEG) and the event-related potential (ERP) are the two most widely used electrophysiological methods. The EEG is recorded from electrodes placed on the scalp surface and is generated throughout the brain. It is especially fitting to study behaviors that are spread out in time such as expression of emotion and experience. Similarly, the ERP is recorded by placing electrodes on the scalp. However, the ERP is different from the EEG because the ERP is time locked to some discreetly presented occurrence. The ERP can
perform hundreds of trials in a matter of minutes because of its "superb temporal resolution (e.g. it resolves time in milliseconds)" (Sylwester, 1995). It can be argued that increases in the ability to image the brain will be followed by the drive to further understand the "neural basis of human behavior" (Nelson & Bloom, 1997). As a result, new tools of imaging technology have given scientists the opportunity to learn about the circuitry of the brain, its development during the early years and the impact of the environment on brain development and function.

Nature/Nurture

Nature refers to the "inborn, genetically coded biological capacities and limitations of individuals", while nurture refers to "the influence of the environment exerted on the individual by the social group, particularly the family and the community" (Cole and Cole, 1993). On the nature side, Rousseau (1911) asserted that a child is born with innate goodness. Locke (1938), on the nurture side, argued that children came into this world with a clean slate (tabula rasa) upon which experiences were written.

Some theorists contend that nature plays a primary role in an individual’s development, while other theorists assert that it is the experiences the child encounters that determine what he/she becomes (Spodek, Saracho, & Davis,
1991). Atkins (1998) suggested that the nature/nurture argument is somewhat circular in nature. There is no beginning and no end. Most acknowledge the importance of nature, while still recognizing the nurture influence and the significance that an enriched environment plays in developing one’s full potential (D. H. Atkins, personal communication, September, 1998).

Demonstrations of the genetic influence for various behaviors do not mean that heredity is solely responsible for individual differences. Research indicates that certain behaviors are inherited. The chances of inheriting beliefs or behaviors such as schizophrenia are in the range of 30%. Specific cognitive abilities, personality and delinquency are in the range of 40% inheritable. This suggests that the preponderance of variance for behaviors is a result of “nongenetic factors, the environment” (Plomin, 1990).

Emerging brain theories contend that innate factors play a larger role in determining the brain’s capacity than was formerly believed. According to Sylwester (1995), “our profession has historically and optimistically focused on nurturing factors that can increase our brain capabilities”. However, neither nature nor nurture can exist alone. Children’s development and learning are dependent on the “interplay” between nature (genetic make-up) and nurture
(environment, stimulation, nutrition) (Shore, 1997).

Gardner (1995) states, "I reject the inherited versus learned dichotomy and instead stress the interaction, from the moment of conception, between genetic and environmental factors."

**Importance of Enriched Environments and Early Experiences**

Many discoveries have emerged regarding the impact of early experiences on the organization of a child’s brain. For example, findings affirm that early interactions and experiences that are provided or encouraged influence children’s emotional development and learning abilities. Neuroscientists are now discovering that the type of caregiving parents provide has a more powerful effect on the development of the brain than was once thought (Families and Work Institute, 1997; Schiller, 1997; Ounce of Prevention Fund, 1996). This implicates the important role and daily opportunities that parents/caregivers have in shaping children’s lives.

Although most of the brain's neurons are in place shortly after birth, many connections are formed after birth as the brain slowly adapts to its environment as a result of its own experiences (Diamond, 1988; Black, Sirevaag, Wallace, Savin, & Greenough, 1989; Sylwester, 1995). Studies, in a variety of species such as monkeys and cats,
now indicate that both positive or negative early life experiences and environments can change both the structure and function of the brain (Nelson & Bloom, 1997).

Researchers study rats because their "overall mammalian brain development pattern" resembles human development of the brain (Sylwester, 1995). Marian Diamond (1975) is one of many researchers who studies the effects of an enriched environment on rats. In one experiment, both mature rats and younger rats were placed together in an enriched environment with a variety of toys. The mature rats dominated the environment by constantly interacting with the toys and not allowing the younger rats to do so. As a result, the mature rats' brains developed thicker cortexes, while the younger rats did not experience "positive brain development." Similar studies by Diamond (1988) revealed further effects of environmental stimulation and deprivation on rats' brains. For example, rats raised in enriched laboratory environments performed certain cognitive tasks better than rats raised in isolation. However, researchers have discovered "significant general cortical improvements" after only a few days in rats that were relocated from isolated cages to an enriched social environment (Sylwester, 1995). Enrichment research affirms that the basic networks that regulate the brain's interaction with the environment
retain their plasticity throughout life provided they are stimulated to do so (Sylwester, 1995).

Like Diamond, Greenough et al. (1997) has studied the effects of the environment on rat brain’s synapse formation. In various experiments, Greenough raised rats in “complex environments.” In complex environments, a few rats live together in large cages equipped with obstacles and toys. His research found that the rats raised in the complex environments faired better on learning tasks such as mazes and visual discrimination compared to other rats raised in individual or small cages with no toys. Results also indicated that the rats in the complex environment had 20% to 25% more synapses per neuron in the visual cortex. Other brain areas also seemed to have more connections per neuron, but the difference was not as large (Greenough, 1987).

Ramey (1996) investigated similar environmental influences in children. He provided a group of impoverished inner-city children, as young as six weeks, with an enriched environment that included playmates, toys, and good nutrition. A similar group of children was designated as a control. Twelve years later, Ramey tested their IQ level. The benefits of early intervention seemed to withstand the test of time. The children provided with the enriched environment had revealed significantly higher IQ scores than
the children in the control group. These findings suggest that children’s experiences during development can have "profound and enduring effects on brain organization and behavior" (Institute for Educational Leadership, 1991).

Research reveals that much of a child’s learning capacity is developed and formed during the earliest years from birth to age three (Morrison, 1998). The latest brain research findings assert that good parental care, warm and loving attachments, and positive age-appropriate stimulation at birth all contribute to and make a lifetime impact on a child’s development (Newberger, 1997). A child is born with trillions of brain cells and synapses. Positive interactions with caring adults stimulate children’s brain profoundly in terms of establishing new synapses and strengthening existing connections. If a child receives little or no stimulation during the early years synapses will not develop and the brain will have fewer connections. Early stimulation sets the stage for future cognitive processes (Ounce of Prevention Fund, 1996; Kotulak, 1997). Painting a clear picture of the importance of early experiences Diamond (1998) writes, "the brain, with its complex architecture and limitless potential, is a highly plastic, constantly changing entity that is powerfully shaped by our experiences in childhood and throughout life".
Impact of Stress

Children’s experiences can increase or decrease stress hormone levels. Trauma, for example, increases the release of stress hormones such as cortisol. High cortisol levels from birth to age three result in increased activity in brain structures associated with attention and arousal. When a child experiences a trauma such as abuse, certain areas of the brain are activated. These same areas are reactivated each time the child is reminded of the trauma. This results in the release of a new flow of stress hormones. Consequently, children from high-stress environments may exhibit signs of hyperactivity, anxiety and impulsive behaviors (Institute for Educational Leadership, 1991; Begley, 1997).

Gunnar (1996) indicates that by the end of the first year of life children exposed to consistent, warm and responsive care produce lower levels of cortisol. When these children become upset they tend to “turn off their stress reaction more quickly” suggesting that they are likely to be well equipped to respond to the challenges of life. (Gunnar, Brodersen, Krueger, & Rigatuso, 1996). Warm, responsive care and positive, stimulating experiences in the early years result in the ability to better adapt to life’s future challenges, while stressful environments can
dramatically change the way a young child’s brain develops (Institute for Educational Leadership, 1991; Schiller, 1997).

*Windows of Opportunity/Critical Periods*

Neurobiologists contend that early experiences during critical periods or windows of opportunity are so powerful that they can completely change the way a person develops (Chugani, 1996; Begley, 1996). Learning continues throughout the lifespan. However, there are certain times that are conducive to the development of specific skills which are referred to as critical periods (Schiller, 1997). Diamond (1998) defines critical period as “special time slots of childhood development that seem to depend on neural connecting and pruning.” Early learning opportunities for young children are of crucial importance (Jones, 1995). Although the brain retains the ability to make new neural connections throughout the lifespan, these connections occur more easily during the first five to six years of life.

Although the brain does exhibit plasticity to a certain extent, it does have its limits. In certain cases, the brain may not be able to escape the effects of environmental deprivation during a critical brain period (Sylwester, 1995). Wiesel and Hubel (1963) studied the effects of sensory deprivation. In the 60’s, they sewed shut one eye
of newborn kittens. Several weeks later the sewn eyes were opened, and the kittens could not see with them. However, vision in the eye that had remained open was better than a normal eye. The brain cells from the closed eye that were not being used seemed to have helped the other eye. In other words, after the visual deprivation of the sewn eye, most cells in the primary visual cortex responded only to stimulation of the experienced eye (Wiesel & Hubel, 1963). This demonstrated that sensory experience is essential for teaching brain cells their function, and after a critical period brain cells lose the opportunity to perform that function. Based on this, surgeons now opt to remove child cataracts as early in infancy as possible. If cataracts are removed early, visual experiences are allowed to reach the brain, and thus blindness is alleviated (Kotulak, 1996; Ounce of Prevention Fund, 1996). As a result, it is imperative that parents and teachers be cognizant of any sensory problems children may have such as cataracts, eye misalignment, and chronic ear infections. Normal development cannot occur if children cannot hear or see stimuli from the environment (Bruer, 1997).

Researchers suggest that the right input at the right time is crucial for children to fully utilize potential cognitive abilities. Early childhood professionals and
neurobiologists are trying to understand exactly which kinds of experiences or sensory input wire the brain in which ways (Sylwester, 1995; Ounce of Prevention Fund, 1996).

Vision seems to have a critical period. The development of visual perception can be stunted if the brain does not obtain appropriate sensory input early in life (Education Commission of the States, 1996). Research conducted in the area of visual perception suggests that the circuit for vision has a neuron growth spurt at the age of two to four months. Thus, this allows a child to begin to notice the total shape of objects or the visual gestalt of an object (Lamb and Campos, 1982). This neuron growth spurt peaks at eight months when connections are established among these neurons. Hence, it is important to provide appropriate visual stimuli to establish connections in the visual cortex (Begley, 1996).

The critical period for language development occurs early in a child's life from birth to age 10 (Jones, 1995; Begley, 1996). Research discloses that the words children hear before age three largely determine an adult's potential vocabulary (Simmons & Sheehan 1997). Research on language development indicates that sounds in different languages formulate different auditory maps. For instance, children raised in English-speaking homes will have different
auditory maps from children reared in Spanish-speaking homes. Children are functionally deaf to sounds that are not present in their native tongue. Those auditory maps may account for distinguishing national accents and the difficulty in learning other languages later on in life (Kuhl, 1994; Education Commission of the States, 1996). Kuhl et al. (1997) states that "by twelve months infants have lost the ability to discriminate sounds that are not significant in their language, and their babbling has acquired the sound of their language." This underscores the significance of reading and talking to children from birth. The ability to learn a new language quickly diminishes after about the age of twelve (Kotulak, 1996). These findings implicate that second language learning should perhaps occur in the early years and not be postponed until children reach high school.

In addition to talking and reading, providing children with musical experiences has a significant impact on young children’s development. Rauscher et al. (1993) showed that 10 three year old children scored substantially higher, on a specific spatial reasoning test after just a few months of music lessons. Throughout the nine month period of the study, this improvement continued which suggested that music
training can provide “long-term enhancements of non-verbal cognitive abilities.”

Rauscher et al. (1994) conducted another study to determine the effects of early music training on spatial abilities. The researchers provided 22 preschool children with eight months of keyboard and singing, while 15 others did not receive any music training. The spatial reasoning of the two groups of children was compared. The children who received lessons scored significantly higher on an Object Assembly task (e.g. child arranges pieces of puzzle to form a meaningful whole) than those who had not received training. Furthermore, the group exposed to music improved on the Object Assembly task after just four months of training. These findings replicated those of the earlier pilot study. Shaw notes that when children listen to classical music, they are not only exercising cortical neurons, but also reinforcing circuits utilized for math skills (Rauscher, Shaw, Levine, & Ky, 1994; Rauscher, Shaw, Levine, & Wright, 1993).

Additionally, Flohr et al. (1996) examined electrophysiological differences between baseline EEG frequencies and EEG frequencies that were obtained while listening to music. Researchers compared the experimental group who received special music instruction twice a week to
the control group who did not receive any music instruction. An EEG was recorded for two minutes while the children sat quietly, listened to classical music, and assembled puzzles. The music instruction group had significantly different EEG frequencies than did the control group. Flohr and his colleagues suggested that understanding the manifestation of music in brain activity can lead to "developing better instructional strategies for early education in music" (Flohr, Persellin, & Miller, 1996).

During windows of opportunity the foundation for many important processes is set. Chugani (1996) stresses that parents and educators should focus on ways to take advantage of critical periods in brain development to help children reach their highest potential in all areas of development.

Other Noteworthy Contributors

The work of Caine & Caine has contributed significantly toward the progress of linking theory to practice. They stress that "educators, in particular, need to learn how to think about brain research because no one works more closely with living brains that we do" (Caine & Caine, 1998). In researching the neurosciences, Caine and Caine’s goal was to encourage educators to reflect on and interpret research and apply it to the world of education. They developed a set of principles that would integrate research in many fields and
serve as a guide to thinking about the brain. In *Education on the Edge of Possibility*, Caine & Caine (1997) outline 12 principles for how people learn based on current research in the cognitive and neurosciences (brain-based learning) which include:

1. The brain is a complex adaptive system: Body mind and brain are one dynamic entity.
2. The brain is a social brain.
3. The search for meaning is innate.
4. The search for meaning occurs through patterning.
5. Emotions are critical to patterning.
6. The brain/mind processes parts and wholes simultaneously.
7. Learning involves both focused attention and peripheral perception.
8. Learning always involves conscious and unconscious processes.
9. We have at least two ways of organizing memory: a spatial memory system and a set of systems for rote learning.
10. Learning is developmental.
11. Complex learning is enhanced by challenge and inhibited by threat.
12. Each brain is uniquely organized.
Caine and Caine applied their theory at Dry Creek Elementary in California. Most of the children who attended this school were from low socio-economic levels and had done poorly on standardized tests. Caine and Caine wanted to implement their brain-based principles at Dry Creek Elementary. After three years of immersion in brain-based learning Dry Creek internalized a model of how teachers and students learn. By the end of the third year their standardized test scores steadily improved. This is one clear example of brain research applications to the classroom (Caine & Caine, 1995; Caine & Caine, 1990; Caine & Caine, 1997).

Likewise, Howard Gardner (1983) has contributed to early childhood education and the application of brain research. Gardner’s multiple intelligence theory (MI theory), based on his empirical work with normal and gifted children, proposes that people use eight different kinds of intelligence to “approach problems and create products.” These include: musical, logical/mathematical, interpersonal, intrapersonal, bodily-kinesthetic, linguistic, spatial and naturalist. Although the intelligences are not dependent on one another, they infrequently work in isolation. The average person possesses varying degrees of each intelligence which accounts for the varied combinations from
one individual to another. The intelligences are designed to be incorporated into classroom programs. Project Spectrum, a collaboration with David Feldman of Tufts University, is based on Gardner’s theory of multiple intelligences. This project developed “intelligence-fair assessment measures” to identify and assess children’s diverse intellectual strengths by using evaluation measures such as number games, storytelling activities and creative movement exercises. Since these measures are a part of the curriculum, children can be assessed in a familiar and non-threatening environment (Blythe & Gardner, 1990). Project Spectrum correlates museum exhibits with preschool themes. This is accomplished with kits that include activities for use at either school, home or the museum. Children are free to investigate and ask questions. Throughout the year, the classroom teacher documents children’s interests, progress and skills. A Spectrum Report is sent to parents at the end of the year. It contains the child’s intellectual profile and activity suggestions to remedy areas of concern (Blythe & Gardner, 1990). Gardner (1995) stresses that it is more meaningful to find and build on areas of strength than to worry about areas of weakness (Gardner, 1995).

The literature on brain research and development reveals some of the most significant findings and their
importance to the field of early childhood education and care. After careful analysis by the researcher, it is clear that more information is necessary regarding program/curriculum development and its effect on children. Researchers and educators need to do more to make a connection between brain research findings and early childhood education and curriculum (Slegers, 1997). Evidently, much work needs to be done to bridge the gap between theory and practice in early childhood programs. Therefore, it makes sense to attempt to establish a program that provides a foundation of learning consistent with brain research findings. SFL attempts to bridge the gap between neuroscience and education and make further links between theory and practice.
CHAPTER III

METHODOLOGY

Description of Success For Life (SFL)

Inspired by the new interest and research on the brain, Success For Life (SFL) was developed by a team of early childhood researchers under the guidance of George S. Morrison, Ed.D. This innovative brain research-based program was intended to enable children to successfully engage in processes of development during the critical years for learning from birth to age six. SFL focuses on providing age appropriate programs and activities for children and supports the development of the whole child. The program aims to provide children with the cognitive, linguistic, social, emotional, physical and behavioral skills necessary for successful learning and living. Success For Life was designed to be applicable to all children and families regardless of economic or ethnic status.

The framework for Success For Life incorporates brain-based research. Concurrently, SFL aligns the curriculum
development component with the Texas Essential Knowledge and Skills (TEKS), the Head Start Performance Standards and Developmentally Appropriate Practices. Success For Life utilizes an interdisciplinary approach by integrating knowledge from various disciplines such as Neurobiology, Music, Visual Arts, Psychology, Child Development and Early Childhood Education.

As mentioned, Success For Life is comprised of five major components which address the training needs and issues of quality programs for children and families: 1) Curriculum Development 2) Teacher Training 3) Family Support and Education 4) Research and Evaluation and 5) Technology. Appendix A contains a brief description of each component. However, this study does not attempt to address all five components. The study focuses on curriculum development, teacher training and research components of the program.

Sites

A Request for Proposals (RFP) was disseminated to identify public and private child care centers, preschools and kindergartens to collaborate with the implementation of Success For Life. Thirteen (13) early childhood programs, preschools and kindergartens in the Dallas-Fort Worth Metroplex participated in the implementation of Success For Life. Each individual site was given sole responsibility of
selecting which particular classrooms and teachers would participate in this pilot study. A list of all pilot sites appears in Appendix B.

Subjects

Participants were 24 female early childhood teachers in classrooms from the different pilot sites. The participating teachers included seven infant, four toddler, nine preschool, and four kindergarten teachers. Infant teachers were defined as those with children up to 12 months, while toddler teachers were those with children up to two and a half (2½) years. Preschool teachers included teachers with children from two and a half (2 ½) up to four years of age, whereas kindergarten teachers included those teachers with five and six year old children. All the participating teachers were female. There were 12 Caucasian, five African-American, five Hispanic, one Asian and one Native-American teachers in the study. Appendix C contains more detailed teacher descriptive characteristics.

Participating teachers attended a teacher training session before program implementation. At that training session, each teacher completed a pretraining teacher questionnaire. In addition, participants also attended two other training sessions throughout the study. Teachers also kept a bimonthly journal, evaluated the environment using
the Program Implementation Profile [PIP] (High Scope, 1995) and observed children using the Child Observation Record [COR] (High Scope, 1992), Infant Observation Record [IOR] (Cataldo, 1983) or Toddler Observation Record [TOR] (Cataldo, 1983). The teacher questionnaire, PIP and child measures were all implemented in a pretraining and posttraining format.

Parents gave permission for 146 children from the various sites to participate. Children included infants (n=29), toddlers (n=27), and prek/kindergarteners (n=90). Of these, there were 73 female and 73 male children. Thirteen percent of the children were African-American, 63.7% were Caucasian, 19.2% were Hispanic, 2.1% were Asian, 1.4% were Indian and 0.7% were Pakistani. The primary language of a large percent of the children was English (87.7%). Other primary languages reflected in the children were Spanish (9.6%), Vietnamese (0.7%), Hindi (1.4%) and Korean (0.7%). Appendix D contains a complete summary of child descriptive characteristics.

Research Design

This study was an intervention project with a pre-training and post-training design. Paired t-tests and descriptive statistical tests were utilized to determine significant changes before and after training/program
implementation. The comparison of data gathered at two different points of time enabled the researcher to measure changes in the knowledge and understanding of teachers, changes in the classroom physical environment and changes in the behavior and developmental progress of children. In addition, this research provided data supporting the effectiveness of the program and gathered qualitative data from teachers’ bimonthly journals. The data were coded and divided into response categories, which in turn were analyzed qualitatively.

**Instruments**

Four major instruments were utilized for this study. The first was a *Teacher Knowledge and Practices Survey Questionnaire*. The questionnaire collected data on teacher’s understanding of the growth and development of children as well as their awareness and knowledge of brain development and function. Components of the questionnaire included: knowledge of brain development, knowledge about how children learn/grow, relationship with child, relationship with parents, teacher’s role/philosophy, physical learning environment, interesting/stimulating environment, developmentally appropriate materials and methods. Two different teacher questionnaires were developed by the *Success For Life* team. One was intended for Infant/Toddler
teachers and the other for Preschool/Kindergarten teachers. Both questionnaires entailed the same basic areas, yet each addressed particular situations and behaviors appropriate to the age levels.

A questionnaire was administered before program implementation (pre-training) in order to estimate the initial knowledge of teachers. This questionnaire provided data about teachers’ knowledge regarding how children grow and learn and their awareness of brain development and function. After program implementation, teachers filled out another Teacher Knowledge and Practices Survey Questionnaire (posttraining). This questionnaire was identical to the questionnaire teachers had filled out at the beginning of the study, except this one contained additional items concerning teacher opinions and experiences. The comparison of data collected at two different points of time permitted the researcher to measure changes in the knowledge and understanding of teachers regarding brain research and the implementation of SFL. The Infant/Toddler Teacher Questionnaires (Pretest and Posttest) and the Preschool/Kindergarten Teacher Questionnaires (Pretest and Posttest) appear in appendices E, F, G and H.

The second instrument was the Program Implementation Profile (PIP). This is an observational rating instrument
created by the High Scope Foundation used to assess the classroom environment. Assessing the physical environment is a crucial aspect in providing age appropriate stimulating environments because research reveals that even a few hours of enrichment can have beneficial effects on children’s development (Sylwester, 1995). Teachers were asked to rate the physical environment of their classrooms before and after program implementation. As a result, the researcher measured changes in the physical environment of the classrooms.

A third source of data was bimonthly journals kept by the teachers participating in the study. The nine journal entries required teachers to write about changes made in the classroom environment, experiences provided for the children relating to brain research, any exciting/inspiring experiences, old thinking versus new thinking and thoughts/feelings about the process of implementing the Success For Life program. Each of the nine journal entries requested the same type of information. Teachers were asked to either mail or fax their bimonthly journal entries to the researcher. Journal entries provided a valuable combination of both qualitative and quantitative data. A sample of journal entry questions appears in Appendix I.
Finally, the fourth instrument included three different child measures: the Child Observation Record (COR) for ages 2 ½ to 6 years, the Toddler Observation Record (TOR) for ages 1 ½ to 2 ½, and the Infant Observation Record (IOR) for ages 6 weeks to 18 months. Teachers observed the children in relation to the criteria found in the COR, IOR and TOR. Two observers were asked to observe each child with permission to participate. Therefore, each child had two (2) separate COR, TOR or IOR scores.

Procedure

The researcher disseminated a Request for Proposals (RFP) to public and private childcare centers, preschools and kindergartens within a fifty mile radius of the Dallas-Fort Worth Metroplex. The RFP helped to identify sites to collaborate with the implementation of Success For Life. The Directors and Administrators of the 15 sites that indicated an interest in participating in the study were invited to an information session in November 1997. The meeting provided the Directors and Administrators with an overview of the entire project. Administrators and directors were briefed on the project requirements and responsibilities and those of their participating teachers. The meeting provided an opportunity to discuss important issues or concerns such as the specific role of each
participant including teachers and children. At the conclusion of the meeting, 13 of the 15 Directors and Administrators confirmed in writing their decision and consent to participate in this project. Confirmed sites were announced in December of 1997.

Each participating site was given the sole responsibility of selecting which classrooms and teachers would participate in the pilot study. Administrators were asked to choose two teachers from each site, so that they could work together and support each other during the implementation process.

Teachers selected from each site attended a full day of training on January 15\textsuperscript{th}, 1998 at the University of North Texas. The initial training included several procedures. First, teachers were given an overview of Success For Life and its basic components. Second, the teacher survey questionnaire (pre-training) was administered during this training workshop before the teachers received any knowledge or information and before implementation of the program began. Third, teachers received information on brain development, function, and current brain research findings. Fourth, the instruments utilized in the study were described and explained. Finally, teachers were divided into three groups according to the age of the children they taught:
1) Infant/Toddler, 2) Preschool and 3) Kindergarten. During this time teachers learned how to implement Success For Life in their classrooms. Each teacher received extensive training along with an information packet that included: a SFL chart of the five components, sample COR/PIP forms, a journal entry booklet, assessment timeline, teacher information sheet and a training evaluation form. In each separate group, the trainer gave teachers concrete, hands-on examples of the kinds of experiences to implement in their early childhood classroom. Each group also received a handout containing brain research findings and possible learning experiences to support those findings. The experiences were grouped according to developmental area: emotional, physical, social, language and cognitive. Teachers had the opportunity to ask questions. At the conclusion of the training, teachers were ready and prepared to begin program implementation.

The implementation of Success For Life occurred over a period of approximately four months from January 15th through May 15th, 1998.
### Time Line

**1997**
- November: Administrators meeting
- December: Final Notification to Sites

**1998**
- January: Teacher Training
  - Obtaining Parental Consent
  - Pre-test (Teacher Questionnaire, PIP, Child Measures)
- February: Continue Implementation
- March: Mid-Study Teacher Training/Meeting
  - Continue Implementation
- April/May: Continue Implementation
- May: Post-test (Teacher Questionnaire, PIP, Child Measures)
- June: Final Meeting With Teachers

Teachers’ first task was the dissemination of parental consent letters and forms to their students. The letter informed parents of the nature of the study and how their children would be observed and evaluated. Parental consent was required for children’s participation. Parents gave permission for 146 children to participate. At the same time, teachers were asked to complete the PIP assessment of the environment during the week of January 19-23 and the
initial child measures during the week of January 26-30. Program implementation continued through May 1998. Teachers were asked to continue making journal entries every two weeks.

At mid-study (March 27th), teachers were brought together for further training and the opportunity to share their SFL experiences. This training session included several objectives. First, participants were given the opportunity to share some of their meaningful experiences in the implementation of Success For Life. Teachers provided their experiences in writing and these were posted on a SFL chart. They took turns sharing their thoughts and feelings aloud with the rest of the group. This allowed teachers to receive insights from others who concurrently participated in the program. Some examples of the types of experiences they reported include: introduction of classical music, gross motor activities, room arrangement changes (making centers) and visual stimulation for infants such as large pictures of human faces. Second, a new curriculum format was discussed. Participating teachers wanted a curriculum template with more specific experiences and activities that related to brain research findings. Based on their recommendations, teachers had the opportunity to provide their ideas for a new curriculum format to be implemented in
future larger scale Success For Life studies. Since these teachers had first hand experiences with the implementation of Success For Life, their input was considerably important. Third, teachers voiced their thoughts about topics (e.g. visual arts, language and special needs) which they felt should be included or covered in more detail in future Success For Life training sessions. Finally, John W. Flohr, Ph.D. (Professor of Performing Arts) trained participants on music activities based on brain research. This mid-study training allowed teachers to be conversant about the types of experiences relating to brain research that they were providing for young children. Teachers were able to learn new ideas from each other and also discuss both the positive and negative encounters they experienced throughout program implementation. On a final note, this training empowered teachers because it allowed them to be active contributors to improve the development and implementation of SFL.

Teachers attended a final meeting on June 10th. This meeting was designed to disseminate and share research results with the participants. Additionally, participants were asked to make suggestions for future SFL studies.

One crucial element of Success For Life was the use of a Field Site Coordinator who provided on-going support and technical assistance throughout program implementation. The
field site coordinator visited each of the 13 sites twice a month. The site visits served to provide guidance for teachers during Success For Life implementation. Each participating teacher had different needs, so the field site coordinator offered assistance that corresponded to those needs. Sometimes, teachers had specific questions, required clarification about measures or just needed moral support. Other times, the field site coordinator offered activity or room arrangement suggestions as needed. Site visits helped reassure and support teachers and were also opportunities for monitoring progress.
CHAPTER IV

RESULTS

SAS Institute Inc. Statistical Software, Version 6.12 was used to analyze data. Many variables were analyzed in this project. A complete list of variables is outlined in Appendix J. The researcher summed questions under each variable and derived a sum for each (variable sum). In most cases, a variable sum was possible. However, a number of questions were either not answered, marked as “N/A” or skipped by the teacher who completed the measure. Reasons for missing data values are unknown. In order to compensate for such cases, the researcher used the following prorating formula to determine a corrected variable score: a) if the number of missing items for the variable is >20%, then do not use in analysis; b) sum scores for all non-missing items; c) divide this sum by the number of non-missing items to get a mean response of non-missing items; d) multiply (c) by maximum/total number for this variable to get a pro-rated total score (D. H. Atkins, personal communication, June, 1998).
Changes in the Classroom Environment

Paired t-tests evaluated changes in the environment before and after training/program implementation. Five variables on the Program Implementation Profile (PIP) were analyzed: Physical Environment, Daily Routine, Adult/Child Interaction, Staff Development and Parent Involvement. The researcher summed questions under each variable and derived a sum for each variable (variable sum). To examine changes in the environment paired t-tests for each variable sum were computed separately. Results indicated a significant difference in four of the five variables analyzed. Physical environment \( t = 5.53, p < .0001 \), daily routine \( t = 4.85, p < .0002 \), staff development \( t = 4.20, p < .0005 \), and parent involvement \( t = 3.69, p < .0016 \), variables were significant. The adult/child interaction \( t = 1.45, p < .1623 \), variable did not reach the .05 level of significance. Table 1 provides a detailed summary of results on the environment measure.
Table 1 - Program Implementation Profile-Teachers  N =24

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean Diff (Pre/Post)</th>
<th>SE</th>
<th>t</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Environment</td>
<td>5.33</td>
<td>0.96</td>
<td>5.53</td>
<td>.0001*</td>
</tr>
<tr>
<td>N = 21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily Routine</td>
<td>5.06</td>
<td>1.04</td>
<td>4.85</td>
<td>.0002*</td>
</tr>
<tr>
<td>N = 18</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult-Child Interaction</td>
<td>0.10</td>
<td>0.07</td>
<td>1.45</td>
<td>.1623</td>
</tr>
<tr>
<td>N = 21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff Development</td>
<td>3.30</td>
<td>0.79</td>
<td>4.20</td>
<td>.0005*</td>
</tr>
<tr>
<td>N = 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent Involvement</td>
<td>2.40</td>
<td>0.65</td>
<td>3.69</td>
<td>.0016*</td>
</tr>
<tr>
<td>N = 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL PIP</td>
<td>21.20</td>
<td>3.17</td>
<td>6.69</td>
<td>.0001*</td>
</tr>
<tr>
<td>N = 20</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

* Represents significant difference between Pre and Post-training scores.

The researcher also investigated whether or not a significant difference existed on the measure as a whole. A total sum, including each of the individual variable sums, was calculated. Paired t-tests on the total of all the variables t=6.69, p<.0001, indicated significance. Mean differences and standard error based on all data are shown.
for completeness in Table 1. As the table further illustrates, there was a positive significant change in the way teachers arrange environments for learning.

*Changes in the Teaching Behaviors and Thinking of Teachers*

The researcher administered a teacher questionnaire (pretraining) at the beginning of the study. After approximately four months, participating teachers were mailed another questionnaire with additional questions (posttraining). To examine differences in the teaching behavior and thinking of teachers, paired t-tests were computed separately for each of the nine variables on the teacher questionnaire: knowledge of brain development, knowledge of growth, knowledge of learning, relationship with child, relationship with parents, teacher’s role/philosophy, physical environment, interesting/stimulating environment, and appropriate materials/methods. Table 2 provides a complete summary of results on the teacher questionnaire.

Table 2 - Teacher Questionnaire Variables—Teachers N=24

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean Diff (Pre/Post)</th>
<th>SE</th>
<th>t</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of Brain Development N = 21</td>
<td>16.19</td>
<td>1.74</td>
<td>9.29</td>
<td>.0001*</td>
</tr>
<tr>
<td>Variables</td>
<td>Mean Diff (Pre/Post)</td>
<td>SE</td>
<td>t</td>
<td>p value</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------</td>
<td>-----</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>Knowledge of Growth</td>
<td>N = 22</td>
<td>3.50</td>
<td>0.78</td>
<td>4.50</td>
</tr>
<tr>
<td>Knowledge of Learning</td>
<td>N = 23</td>
<td>2.22</td>
<td>0.64</td>
<td>3.46</td>
</tr>
<tr>
<td>Relationship with Child</td>
<td>N = 24</td>
<td>1.04</td>
<td>0.56</td>
<td>1.86</td>
</tr>
<tr>
<td>Relationship with Parents</td>
<td>N =</td>
<td>1.13</td>
<td>0.59</td>
<td>1.91</td>
</tr>
<tr>
<td>Teacher’s Role and Philosophy</td>
<td>N = 23</td>
<td>0.61</td>
<td>0.53</td>
<td>1.15</td>
</tr>
<tr>
<td>Physical Environment</td>
<td>N = 23</td>
<td>3.57</td>
<td>0.94</td>
<td>3.81</td>
</tr>
<tr>
<td>Interesting/Stimulating</td>
<td>Environment</td>
<td>N = 24</td>
<td>4.50</td>
<td>1.68</td>
</tr>
<tr>
<td>Appropriate Materials and</td>
<td>Methods</td>
<td>N = 23</td>
<td>1.74</td>
<td>0.83</td>
</tr>
<tr>
<td>TOTAL</td>
<td>N = 23</td>
<td>33.61</td>
<td>5.42</td>
<td>6.20</td>
</tr>
</tbody>
</table>

* Represents significant difference between Pre and Post-training scores.
Paired t-tests revealed significant effects on the pre and post training scores in six of the nine variables analyzed on the Teacher Questionnaire. Significant variables included: teacher knowledge of brain development \((t=9.29, p<.0001)\), knowledge of children's growth \((t=4.50, p<.0002)\), knowledge of children's learning \((t=3.46, p<.0022)\), positive changes in the classroom physical environment \((t=3.81, p<.0010)\), more interesting and stimulating environments \((t=2.68, p<.0133)\), and increased use of appropriate materials and methods \((t=2.11, p<.0467)\). Results indicated significant change in teachers’ knowledge about brain development and how children grow and learn. At the same time, results suggested that teachers have significantly changed how they arrange environments for learning. Three variables (relationship with child, relationship with parents and teacher’s role/philosophy) did not reach a level of significance although the means for each did show a slight positive increase. Finally, paired t-tests revealed significance \((t=6.20, p<.0001)\) on the teacher questionnaire as a whole. Mean differences and standard error based on all data are shown for completeness in Table 2. As Table 2 further illustrates, teachers are more knowledgeable and better able to provide children with
appropriate, interesting and stimulating environments and materials.

Moreover, the posttraining teacher questionnaire contained some additional questions. Additional items included questions about teachers’ beliefs and general response to *Success For Life*. These questions required teachers to select the best answer on a Likert Scale based on their participation in the study. Teachers reported the following after participating in the *Success For Life* Program:

- 91.6% of participating teachers believed that implementation of brain research-based curriculum in early childhood programs would improve their overall quality.
- 100% of participating teachers believed that they had gained an understanding of brain research and its relationship to how children learn.
- 95.8% of participating teachers were able to make connections between research facts and classroom applications.
- 95.8% of participating teachers became more aware of the emotional and social needs of children.
• 100% of participating teachers felt that their students had benefited from experiences and activities implemented as part of the program.

• 100% of participating teachers felt that the program had contributed to their professional development.

• 100% of participating teachers felt that their classrooms had benefited from participation and collaboration with the Success For Life team and the University of North Texas.

Appendices K and L contain the additional questions on the posttraining questionnaire. Each appendix includes a listing of frequencies and percents that correspond to each question.

Changes in the Development and Behaviors of Children

Paired t-test results revealed that teachers reported significant positive changes between pre and post training across all evaluated areas of children’s development. Teachers reported that all children participating in Success For Life revealed significant increases in skill development and performance in several key areas. Infants (ages 6wks-6mos, 7-12 mos and 12-18mos) showed significant increases in physical mastery ($t=4.46, p<.0029$; $t=5.22, p<.0006$; $t=5.06, p<.0005$), social interaction ($t=5.47, p<.0016$; $t=4.44$, $p<.0005$).
$p<.0016; t=4.99, p<.0005$), cognitive development $(t=7.26,$ $p<.0002; t=3.58, p<.0090; t=9.13, p<.0001)$ and language/communication $(t=12.69, p<.0001; t=3.43, p<.0075; t=5.72, p<.0002)$. Likewise, toddlers showed significant increases in physical mastery $(t=8.80, p<.0001)$, social interaction $(t=8.45, p<.0001)$, cognitive development $(t=7.79, p<.0001)$, language/communication $(t=6.95, p<.0001)$. Similarly, preschoolers/kindergartners showed significant increases in social relations $(t=12.39, p<.0001)$ and language/literacy $(t=13.42, p<.0001)$. In addition, teachers reported improvements in emotional well-being among infants $(t=5.27, p<.0012; t=3.11, p<.0126; t=5.34, p<.0003)$ and toddlers $(t=9.50, p<.0001)$. Significant increases in arts/creative expression/creative representation were shown in toddlers $(t=6.74, p<.0001)$ and preschoolers/kindergartners $(t=11.62, p<.0001)$. Finally, preschoolers/kindergartners showed increases in initiative $(t=14.65, p<.0001)$, use of logic/mathematics skills $(t=15.23, p<.0001)$ and musical coordination and movement $(t=13.05, p<.0001)$. Table 3 provides a complete summary of changes in the development and behavior of children. Mean differences and standard error based on all data are also shown for completeness in Table 3.
### Table 3 - Child Questionnaire – Teacher-report

Children (N = 146)

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean Diff (Pre/Post)</th>
<th>SE</th>
<th>t</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infants</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6wks-6mos</strong></td>
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<tr>
<td>Physical</td>
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<td>4.75</td>
<td>1.06</td>
<td>4.46</td>
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<td>.0016*</td>
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<tr>
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<td>0.96</td>
<td>7.26</td>
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</tr>
<tr>
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<td>0.45</td>
<td>12.69</td>
<td>.0001*</td>
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<td><strong>Infants</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7-12 mos</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td>1.01</td>
<td>4.44</td>
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<td>3.58</td>
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<td>5.10</td>
<td>1.49</td>
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<td>.0075*</td>
</tr>
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<td></td>
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<td></td>
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<tr>
<td><strong>12-18mos</strong></td>
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<tr>
<td>Physical</td>
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<td>3.63</td>
<td>0.66</td>
<td>5.06</td>
<td>.0005*</td>
</tr>
<tr>
<td>Emotional W-B</td>
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<td>0.58</td>
<td>5.34</td>
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<td>0.67</td>
<td>9.13</td>
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<td>1.26</td>
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<td></td>
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<tr>
<td>Physical</td>
<td>27</td>
<td>10.07</td>
<td>1.14</td>
<td>8.80</td>
<td>.0001*</td>
</tr>
<tr>
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<td>0.68</td>
<td>9.50</td>
<td>.0001*</td>
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<tr>
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<td>0.57</td>
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<td>9.67</td>
<td>1.24</td>
<td>7.79</td>
<td>.0001*</td>
</tr>
<tr>
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<td>10.73</td>
<td>1.54</td>
<td>6.95</td>
<td>.0001*</td>
</tr>
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<td>Arts/Creative</td>
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<td>3.73</td>
<td>0.55</td>
<td>6.74</td>
<td>.0001*</td>
</tr>
</tbody>
</table>
Table 3 - Child Questionnaire – Teacher-report
Children (N = 146) cont’d

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean Diff (Pre/Post)</th>
<th>SE</th>
<th>t</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PreK and K</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiative</td>
<td>90</td>
<td>3.16</td>
<td>0.22</td>
<td>14.65</td>
<td>.0001*</td>
</tr>
<tr>
<td>Social Rel.</td>
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<td>4.63</td>
<td>0.35</td>
<td>12.39</td>
<td>.0001*</td>
</tr>
<tr>
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<td>1.98</td>
<td>0.17</td>
<td>11.62</td>
<td>.0001*</td>
</tr>
<tr>
<td>Music/Movmt.</td>
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<td>3.14</td>
<td>0.24</td>
<td>13.05</td>
<td>.0001*</td>
</tr>
<tr>
<td>Language</td>
<td>90</td>
<td>4.09</td>
<td>0.30</td>
<td>13.42</td>
<td>.0001*</td>
</tr>
<tr>
<td>Logic/Math</td>
<td>90</td>
<td>6.91</td>
<td>0.45</td>
<td>15.23</td>
<td>.0001*</td>
</tr>
</tbody>
</table>

* Represents significant difference between Pre and Post-training scores.

Data Gathered From Teachers’ Bimonthly Journals

Teachers were asked to complete bimonthly journal entries throughout the course of this study. Each journal entry required teachers to write about changes made in the classroom environment and experiences provided for the children related to brain research. The data gathered through these journals was divided into categories based on the suggestions provided by Bogden and Biklen (1992). They recommend the development of a coding system. The development of this coding system required the researcher to read through the data and look for patterns and topics. Bogden and Biklen refer to these topics and patterns as coding categories. Coding categories are “a means of sorting the descriptive data so that the material bearing on
a given topic can be physically separated from other data” (Bogden and Biklen, 1992). Researchers carefully examined several sets of journals looking for categories or patterns. This process continued until researchers reached an agreement on the categories and the types of responses that would be included in each. The researcher was then able to individually sort each response, from the 158 journal entries, into the appropriate category. Table 4 provides a complete listing of the final journal response categories.

Table 4 – Journal Response Categories  Teachers N = 24  Analyzed Journals N = 158

<table>
<thead>
<tr>
<th>Question #1 – Classroom Environment Changes</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physically Moving/Changing Furniture/Fixture</td>
<td>64</td>
</tr>
<tr>
<td>Activity/Routine Changes/Additions</td>
<td>104</td>
</tr>
<tr>
<td>Material and Toy Changes/Additions</td>
<td>108</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
<tr>
<td>Response Category</td>
<td>Frequency</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Physical (Gross Motor Exercises)</td>
<td>56</td>
</tr>
<tr>
<td>Music</td>
<td>67</td>
</tr>
<tr>
<td>Emotional/Nurturing/Attachment</td>
<td>53</td>
</tr>
<tr>
<td>Intellectual/Cognitive Stimulation</td>
<td>124</td>
</tr>
<tr>
<td>Tactile/Sensory Touch (Fine Motor)</td>
<td>62</td>
</tr>
<tr>
<td>Social Interaction</td>
<td>37</td>
</tr>
<tr>
<td>Routines/Repetitive Activities</td>
<td>26</td>
</tr>
<tr>
<td>Creativity</td>
<td>45</td>
</tr>
<tr>
<td>Arts</td>
<td>49</td>
</tr>
<tr>
<td>Cooking</td>
<td>9</td>
</tr>
<tr>
<td>Materials/Supplies</td>
<td>10</td>
</tr>
<tr>
<td>Self-concept</td>
<td>28</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
</tr>
</tbody>
</table>

Based on the frequencies, it is evident that many classroom environment changes were noted. A large number of the responses (freq=212) that teachers reported related to activity, routine or material changes. However, there was still a notable number of responses (freq=64) related to classroom arrangement. All of this data supports results
from the environment measure that revealed significant
changes in program environments. Examples of teachers’
responses included: rearranging furniture to make smaller
areas, enlarging areas, adding areas (centers), changing
routines, activities and materials based on new knowledge
gained from their participation in Success For Life.

Other derived categories pertained to experiences
provided related to brain development and research. The six
largest response categories were: 1) Intellectual/Cognitive
Stimulation/Language (freq=124), 2) Music (freq=67), 3) Tactile/
Sensory/Touch (freq=62), 4) Physical/Gross Motor (freq=56),
5) Emotional/Nurturing/Attachment (freq=53) and 6) 
Arts (freq=49). Although the categories were defined so that
each response clearly fit a specific category, some
categories were related. For instance, tactile experiences
can also cater to the emotional needs of children. At the
same time, art experiences can also relate to tactile
experiences. The kinds of experiences provided support the
development of the whole child, especially the emotional and
cognitive domains. Emotional experiences included the use
of bubbles, fish tanks, nature walks, and one to one
experiences to develop warm secure relationships, alleviate
stress and lower cortisol levels. Examples of cognitive
experiences included introduction of big books, vocabulary
building through flashlight play and memory games to help children link concepts and receptive and expressive language. Classical music and music with rhythm stimulates cortical areas in the brain responsible for logic, spatial reasoning and problem solving (Rausher, Shaw, Levine and Ky, 1994). Teachers provided a large number of experiences (freq=116) related to music such as: soft, soothing music during the day and naptime, a variety of music with defined rhythm and rhyme, and music accompanied with gross motor movements to provide physical interaction and muscle exercise necessary for stimulating brain growth. Teachers also provided activities related to arts (freq=49), creativity (freq=45) social interaction (freq=37), and self-concept (freq=28). Table 4 illustrates the number of responses corresponding with each response category.
CHAPTER V
DISCUSSION/CONCLUSIONS

Results indicate that after the SFL teacher training program teachers were more able to apply new knowledge about brain research and development to their programs. Not only were they more knowledgeable about new research on the brain, but also about information relating to how children grow and learn. Similarly, they were better able to make decisions about how to effectively apply that research to their daily activities.

Moreover, teachers believed that the implementation of a brain research-based curriculum in early childhood programs would improve their overall quality. Participants also reported that they felt SFL had contributed to their professional development. At the same time, teachers are more comfortable speaking about brain research and SFL experiences. This became more evident when some of the teachers became presenters at an early childhood education conference and spoke about their participation in SFL. Consequently, teachers are better able to make connections between the findings of brain research and classroom
applications and provide children with appropriate, stimulating and enriched environments and materials.

Research on the enriched environment is critical for early childhood educators. Reflecting back on Diamond’s (1975, 1988) work, one experiment placed both mature rats and younger rats together in an enriched environment. The mature rats dominated the environment and developed thicker cortexes, while the younger rats did not experience positive brain development. These results can be applied to the classroom environment. It is not enough for children to be placed in a stimulating environment, they need to help create it. They need opportunities to directly interact with the environment.

Along those same lines, other studies indicated that rats placed in a small cage with only a running wheel stayed active, but did not result in increased cortical thickness. The rats needed opportunities to interact and problem solve, suggesting the wheel was not enough. The same is true for children. It is not sufficient to build an environment that merely occupies children’s time. Children need opportunities to problem solve and be actively involved, not sit at a desk with countless dittos. A stimulating social setting provides “the only appropriate environment” for skills mastery (Sylwester, 1995). “Years of research have found
patterns of positive cortical effects only in changing, stimulating, social environments” (Sylwester, 1995).

Neurons thrive in an environment that stimulates them. Therefore, the challenge for educators is to provide children with a learning environment and program that stimulates them emotionally and intellectually and caters to the development of the whole child. SFL focuses on providing that type of environmental stimulation. Success For Life enabled teachers to provide enriched learning environments. SFL has changed how teachers teach children and arrange environments for learning. The kinds of experiences provided support the development of the whole child, especially the emotional and cognitive components. Teachers reported that they were more aware of the need to teach all areas of children's development - the emotional, social, cognitive, physical and linguistic.

Through the examination of teacher journals the researcher was able to gain insights into many of the changes that took place in classroom environments and contributed to the significant difference found before and after program implementation. Journal entries revealed many changes in the classroom environment. Based on new knowledge teachers were able to rearrange furniture to make smaller, well-defined areas or make routine changes such as
the addition of movement to counting activities based on the needs of the children. Likewise, teachers were able to provide SFL activities to support children’s brain development. Both the teacher questionnaire and the environment measure indicated a significant change in the environment. Teacher journals provided specific information about the nature of the changes made in the classroom environments and the types of experiences provided related to brain research.

As mentioned previously, enrichment research affirms that the basic networks that regulate the brain’s interaction with the environment retain their plasticity throughout life provided they are stimulated to do so (Sylwester, 1995). Therefore, even a few hours of enrichment in the classroom can benefit children who otherwise live in impoverished environments.

Results indicated that Success For Life has influenced the development and behaviors of children. Teachers reported that all children participating in the SFL program showed significant increases in skill development and performance in the following areas: physical mastery, social relations/interactions, cognitive development, and language/communications. In addition, teachers reported improvements in emotional expression and well-being among
infants and toddlers. Significant increases in creative/artistic expression were shown in toddlers and preschoolers. Finally, preschoolers showed increases in initiative, use of logic/mathematics skills, and musical coordination and movement. Teachers reported their children benefited from *Success For Life* information, experiences and activities.

As discussed earlier, several initiatives by groups such as the Families and Work Institute, the Education Commission of the States (ECS) and the Ounce of Prevention Fund have focused and promoted the significance of brain research findings in relation to young children’s learning. For example, the workshop sponsored by the ECS explored ways to bring together neuroscientists, cognitive psychologists, education researchers/practitioners, and policy makers to explore the relevance of developments in neuroscience to early childhood education and care. Likewise, *Success For Life* efforts have focused on developing an interdisciplinary approach by bringing together knowledge from various disciplines such as neurobiology, music, visual arts, psychology, child development and early childhood education. *Success For Life* has shown support for these national efforts and has demonstrated success in implementing a program of enrichment that incorporates current knowledge of
brain development and supports the optimal development of the whole child.
CHAPTER VI

RECOMMENDATIONS

One of the most important benefits of a pilot study is the opportunity to implement a smaller study that can make significant contributions to and pave the way for future research. This research helped to identify changes needed to improve the future development and implementation of Success For Life. Several key recommendations emerged throughout the course of the study. First, participants reported that the initial training session would be more beneficial to participants if it had been divided into two separate training days. Participants in the pilot study indicated that the first training session contained too much information for one day. They found it difficult to assimilate and synthesize so much information at one time. In future SFL studies it may be helpful to provide two initial training sessions. As a result, participants will have sufficient time to integrate information and fully understand their roles and responsibilities. On the second day, teachers may be in a better position to ask the types of questions that will benefit the entire group. In
addition, future SFL participants would likely benefit from more information on brain and physiological research presented in a way that makes it easy for them to understand and comprehend.

A second recommendation concerns teacher journals. On several occasions, participating teachers shared their concerns about the amount of time invested in journaling. They felt that completing three page journal entries every two weeks (nine entries total per teacher) was too time-consuming. Teachers had a hard time keeping up with this task and expressed difficulty mailing or faxing their journal entries on a timely basis. In the future, perhaps the field site coordinator could remedy this issue by asking teachers similar questions on each visit. In addition to lessening the paperwork for teachers, this would help minimize ambiguity in the teachers’ responses. The field site coordinator would be able to effectively prompt teachers to elaborate on their responses.

Third, future SFL studies should consider the implementation of a single developmental child measure for both infants and toddlers. This study used two separate measures for the two groups without difficulty. In future SFL studies that are more longitudinal, however, some infants may move into the toddler age group during program
implementation. This may affect the pretest posttest design of a study. Furthermore, careful considerations should be made to determine where the cutoff for each age group (infant, toddler, prek and k) will occur.

Fourth, it is interesting to note that toward the end of the study, the Denton Benefit League generously provided a modest grant to Success For Life. Each teacher was allocated $80.00 to purchase new classroom materials that supported SFL activities. For future studies, it is important to continue to search for ways to provide teachers with materials that enrich and enhance classroom environments.

Finally, it is necessary to address the issue of implementing a control group into the research design. To address questions regarding evaluation of the effectiveness of Success For Life, Atkins (1998) suggested that two primary themes have emerged related to the use of a control group. First, children’s developmental progress will be measured. If research results can indicate above average increases than would normally be expected in low-mid SES groups, then some correlation or association could be inferred in relation to the enriching experiences and activities implemented through Success For Life. Second, “Success For Life ‘value-added’ benefits to children,
teachers, and families may not be wholly or adequately assessed through measures such as questionnaires or surveys that require ordinal scale responses. Such measures may not capture discrete specific affective or emotional influences such as teacher attention, warmth and overall positive increases in attitude when interacting with the children” (D. H. Atkins, personal communication, July, 1998). These benefits, however, may be realized through the teacher’s consistent interactions with the field site coordinator and the time, effort and energy directed to the assessment materials. As a result, these arguments suggest that the use of a control group design may not be completely suitable to ever address the real influence of the program’s initiatives. Although it is likely that some developmental progress will occur with all children, those who are provided with an enriched, stimulating learning environment and attentive teachers will likely show greater progress than those children who are not provided these experiences (D. H. Atkins, personal communication, July, 1998).

What are some recommendations for future research relating to *Success For Life*? Future SFL studies should focus on finding ways to reach out to parents and families. Parents have important roles in stimulating and nurturing children. However, parents may not have the resources,
support or information they need to provide children with experiences that foster brain growth and maximize their potential. Future research should focus on finding ways to educate parents and families on creating enriched and supporting learning environments in the home. Parents should be included in the process of gathering data. They can provide crucial information about their children’s development and behaviors. Information from parents can contribute to making connections between the home and school.

Other studies relating to SFL could attempt to investigate the relationship between what teachers say they believe and what they actually do. Do teachers practice what they believe? Are teachers implementing brain research-based SFL activities in their classrooms that support their reported beliefs? This would be time consuming and would require the researcher to spend a great deal of time in the classroom environment. However, it could provide some critical insights in recommending appropriate applications and connecting theory to practice.

The early years are critical to brain development. It would be interesting to investigate administrators’ beliefs and knowledge about early childhood education, brain research findings and developmentally appropriate practices.
Other SFL studies could include administrators in the process of implementing SFL activities and the gathering of data. Teachers sometimes have a difficult time defending their practices to principals and administrators. Do administrators value the importance of the early years? Are administrators aware of current brain research findings and their significance in relation to the development of young children? What steps can be taken to encourage them to do so?

In conclusion, it is necessary to continue to find opportunities to bring together neuroscientists, cognitive psychologists, educators and others to analyze brain research and its implications for early childhood education and care. Such collaborations are likely to be more productive than traditional discipline teams. This may prove to be difficult at first, but once communication is established, the possibilities for increasing the quality of early childhood education could be endless. Only through continued research efforts, and reflections on such efforts will attempts to improve the quality of early childhood programs continue to move forward.

Results suggest that Success For Life is able to link theory and practice in efforts to promote optimal learning in young children. Moreover, it is possible to translate
theory into practice. Researchers and early childhood educators can take the latest findings from current brain research and develop programs beneficial to children, teachers and parents. Participation in the Success For Life program enhanced teachers’ abilities to positively influence all areas of children’s development including their social, emotional, cognitive, physical, artistic-creative and linguistic skills. Furthermore, Success For Life can increase the caliber of teaching and environments, thereby enhancing the quality of early childhood education programs. Through collaboration with early childhood professionals, Success For Life program is able to develop a brain research-based curriculum framework that benefits children, teachers, and programs. Success For Life is a step in the right direction toward bridging the gap between theory and practice. However, additional efforts are still needed to continue to find ways to implement the latest brain research findings into early childhood programs that will be conducive to helping children maximize their successes and develop to their fullest potential.
APPENDIX A

SUCCESS FOR LIFE CHART
# Velma E. Schmidt Programs in Early Childhood Education
College of Education, University of North Texas

## SUCCESS FOR LIFE

A Program Designed to Incorporate Brain Research Into the Early Childhood Education Curriculum

### Curriculum Development
- Quality education and care from birth through age six
- Application of brain research to curriculum for children 0-6 years
- Enriched learning environments that promote learning
- Encompass Developmentally Appropriate Practices, Texas Essentials of Knowledge and Skills (TEKS), and Headstart Performance Standards in a brain-based curriculum
- Interdisciplinary approach to the curriculum including music, art etc.

### Teacher Training
- Educate teachers about brain research and its implications for teaching and learning
- Train teachers in developmentally appropriate practices
- Help teachers develop skills to create enriched and stimulating environments for young children
- Help teachers provide emotionally satisfying environments
- Train teachers to develop sensitivity to children’s learning needs

### Parent Education
- Development and distribution of informational brochures regarding brain research and implications for parenting
- Training in how to create enriched learning environments in the home
- Promote university, Community, and family collaboration

### Research and Evaluation
- Study the effectiveness of the Success for Life Curriculum
- Study teacher effectiveness relating to the implementation of the Success for Life Curriculum
- Determine teacher knowledge and understanding of brain research and developmentally appropriate practices
- Assess children’s physical, cognitive, social, emotional, and language development through observational and rating scale methods

### Technology
- Incorporate technology into early childhood programs
- Evaluate available software and educational programs for use in early childhood programs
- Analyze how technology influences cognition and learning
- Analyze how technology can promote and support young children’s learning
LIST OF PILOT SITES

1. SER Child Development Center
   1525 W. Mockingbird Lane
   Suite 300
   Dallas, TX 75235
   Executive Director – Ms. Alice Escobar
   Phone: (214) 637-8307
   Classrooms: 1) Infant, 2) Toddler

2. Dallas Early Head Start Program
   6670 Military Parkway
   Dallas, TX 75227-9579
   Mailing Address:
   P.O. Box 271410
   Dallas, TX 75227
   Director – Ms. Mary D. Lynn
   Phone: (214) 275-4072 (Early Head Start)
   (214) 634-8704 (Central Office)
   Classrooms: 1) Infant, 2) Infant/Toddler

3. Glenwood Dayschool
   2446 Apollo Rd.
   Garland, TX 75044
   Director – Ms. Furrie Steelman
   Phone: (972) 530-4460
   Classrooms: 1) Pre-K, 2) Pre-K

4. Hillcrest Dayschool
   6275 Hillcrest Rd.
   Frisco, TX 75035
   Director – Ms. Danna Cawthon
   Phone: (972) 335-7171
   Classrooms: 1) Infant, 2) Toddler
LIST OF PILOT SITES (cont’d)

5. Mi Escuelita (1st site)
   4231 Maple Ave.
   Dallas, TX 75219
Mi Escuelita (2nd site)
   5200 Bryan (Munger Place)
   Dallas, TX 75219
   Director – Ms. Carolyn Strickland
   Phone: (214) 526-0220 (Maple)
         (214) 824-4664 (Munger)
   Classrooms: 1) Pre-K, 2) Pre-K

6. Lamb of God Lutheran Church Early Childhood Ministry
   1401 Cross Timbers Rd.
   Flower Mound, TX 75208
   Director – Ms. Khin Sanders
   Phone: (972) 539-0055
   Classrooms: 1) Pre-K, 2) Pre-K, 3) Pre-K

7. Aubrey ISD
   415 Tisdell St.
   Aubrey, TX 76227
   Site: Aubrey Elementary
   900 Chestnut
   Aubrey, TX 76227
   Superintendent – Dr. James A. Monaco
   Phone: (940) 365-9048
   Classrooms: 1) Kinder, 2) Kinder, 3) Kinder

8. Little Elm ISD
   Site: Little Elm Primary
   300 Lobo Lane
   Little Elm, TX 75068
   Assistant Superintendent – Dr. Linda Monaco
   Principal – Alicia Richmond
   Phone: (972) 292-1847 (Assistant Superintendent)
         (972) 292-0720 (Principal)
   Classrooms: 1) Pre-K, 2) Kinder

LIST OF PILOT SITES (cont’d)
9. East Fort Worth Montessori School  
   2717 Putnam St.  
   Fort Worth, TX 76112  
   Director - Ms. Joyce Brown  
   Phone: (817) 496-3003  
   Classrooms: 1) Toddler, 2) Infant

10. All Saint’s Childcare Center  
    Mailing Address:  
    All Saint’s Hospital  
    Attn: All Saint’s Childcare Center  
    1400 8th Avenue  
    Fort Worth, TX 76104  
    Implementation Site:  
    1709 N. Enderly Place  
    Fort Worth, TX 76104  
    Director - Ms. Nancy Cotton  
    Program Coordinator - Ms. Wendy King  
    Phone: (817) 927-6249  
           (817) 922-1020  
    Classrooms: 1) Toddler, 2) Toddler

11. Springbok Academy  
    1306 N. Locust  
    Denton, TX 76201  
    Director - Ms. Dena Bruton-Claus  
    Phone: (940) 381-1861  
    Classrooms: 1) Infant, 2) Pre-K

12. Child Development Laboratory  
    University of North Texas  
    Denton, TX 76203  
    Director - Ms. Carol Hagen  
    Phone: (940) 565-2555  
    Classrooms: 1) Pre-K
APPENDIX C

TEACHER DESCRIPTIVE CHARACTERISTICS
### Teacher Descriptive Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
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APPENDIX D

CHILD DESCRIPTIVE CHARACTERISTICS
### Child Descriptive Characteristics

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APPENDIX E

INFANT/TODDLER TEACHER QUESTIONNAIRE

PRETRAINING
The major objective of this survey is to assess your knowledge and understanding of brain growth and its function during early childhood; how young children learn, and your appropriate practices in creating enriched and stimulating environments. Please circle the number that best represents your level of understanding and practices. Please try to respond to all the items to the best of your knowledge. It will take approximately 30 minutes to complete this questionnaire. All the information you provide will be held strictly confidential and will be reported only in an aggregate fashion for research purposes. No individual teacher can be identified. Participating in this survey is voluntary and will not affect your status as a teacher. We greatly appreciate your participation in this study. The results of the study are very valuable to us in building the "Success for Life" Curriculum as a model quality early childhood curriculum based on brain research and Developmentally Appropriate Practices. The findings of this study will be available to you as soon as it is completed. Thank you for your cooperation.
SECTION I

PROJECT ID Number: __________

This section concerns background information about you and your classroom. Please circle the appropriate number that best suits you.

1. Your gender
   1. Male
   2. Female

2. What was your age on your last birthday?
   1. under 20 years
   2. 21 to 30 years
   3. 31 to 40 years
   4. 41 to 50 years
   5. above 50 years

3. What is your present work situation in this position?
   1. Self-employed/own the business and work full-time
   2. Full-time (30 - 40 hrs)
   3. Part-time (30 hrs)
   4. Part-time (20 hrs)
   5. Substitute temporary teacher

4. How many other teachers do you have such as helpers or assistants in your room to help you __________

   and will be implementing the "Success for Life" curriculum:
   1. Infants only
   2. Toddlers only
   3. Infants and Toddlers
   4. Preschoolers
   5. Kindergartners
7. How long have you been working as a teacher in general?
   1. under 1 year
   2. 1 to 2 years
   3. 3 to 5 years
   4. 6 to 8 years
   5. over 8 years

8. How long have you been working as a teacher in this particular classroom?
   1. under 1 year
   2. 1 to 2 years
   3. 3 to 5 years
   4. 6 to 8 years
   5. over 8 years

9. What is your educational background?
   1. High school graduate or GED
   2. 1 year of college, vocational, or technical training/1st year
   3. 2 years of college/Associate degree/2nd year
   4. 3 years of college/3rd year
   5. 4-year Bachelor's degree completed
   6. Bachelor's plus
   7. Master's degree completed
   8. Master's plus
   10. Other ______ specify

10. If you have a degree, is your degree/professional background in Child Development or Early Childhood Education?
    1. Yes (go to question # 12)
    2. No (go to questions # 11a, 11b and 11c)
    3. Not Applicable

11a. If your degree is not in Child Development or Early Childhood Education, what was your major? ________

11b. Did you have any professional training related to Early Childhood Education or working with young children?
    1. Yes
    2. No

11c. Did you have any course work related to Child Development/Early Childhood Education?
    1. Yes
    2. No (answer the next question)

12. Did you have any professional training/certificate related to ECE or working with young children?
    1. Yes
    2. No

13. Did you receive any in-service training related to your job in the past year?
    1. Yes
    2. No
SECTION II
Brain Development and Function

The following statements are about brain growth and development during early childhood. Please read the statements carefully and circle the appropriate number that reflects your level of awareness about brain development and its function.

1=never heard  
2=may have heard it  
3=know a bit about it  
4=very well aware and understand  

14. Early visual stimulation right from birth through the first year is very crucial for the formation of connections in visual cortex of the brain. 1 2 3 4

15. Sense of touch and massage are important and help stimulate brain connections in infants. 1 2 3 4

16. Movement exercises with infants help form connections in the brain of a very young infant. 1 2 3 4

17. Brain growth and development is very rapid between birth through age three. 1 2 3 4

18. "Synaptogenesis", the formation of synapses, is very rapid during infancy. 1 2 3 4

19. Fat and protein are essential nutrients in young children's diet for the proper growth of neuron cells. 1 2 3 4

20. Repeated experiences are necessary to strengthen connections in the brain. 1 2 3 4

21. By age three, children's brains are twice as active as adults' brains. 1 2 3 4

22. Early life experiences have an impact on the internal structure (architecture) of the brain. 1 2 3 4

23. Stimulating and enriched environments are necessary to form connections between brain cells. 1 2 3 4
24. Interactions with other children even for very young infants are important to establish cell connections in the brain.  
25. Interactions with adults are important even for very young children to establish cell connections in the brain.  
26. Warm and secure relationships with adults lower stress levels in young children.  
27. Negative emotional states interfere with children's learning.  
28. Long-term trauma, emotional neglect, and child abuse during early years of life damage brain cells.  
30. Classical music helps stimulate brain areas that are associated with mathematics and logic.  
31. Singing songs and talking to the child from birth is necessary to strengthen the auditory map even in the young infant.  
32. Playing rhythmic music for young children helps form brain connections.  
33. Auditory map for native language is established by the end of the first year after birth.  
34. Children should be taught a second language before age 8, if they are to speak like a native language.  
35. Fine motor skills such as playing the piano or guitar stimulate brain centers responsible for learning spatial relations and perceptual skills.  
36. The best time for formal music instruction is between the ages of three and ten.
A. Knowledge and beliefs about how children grow:

37. There are prime times for acquiring different kinds of skills and knowledge.  
38. Early years (birth through eight) of human life are critical for proper growth and development.  
39. Children grow in all areas of development simultaneously.  
40. Growth and development follow a sequence from "simple levels to complex levels." 
41. Development in one area will influence development in all other domains.  
42. Children grow at varying rates in all areas of development.  
43. Each child grows in his or her own unique way.  
44. Early negative experiences may have lasting effects on children's development.

B. Your knowledge and beliefs about how children learn:

45. "Critical periods" or "windows of opportunity" are the best time for learning during early childhood. 
46. Children learn best when their physical needs are met. 
47. Children learn best when they feel safe and secure. 
48. Children need active learning environments to discover and construct knowledge.  
49. Later complex abilities, skills, and knowledge build on those already acquired.  
50. Children need to be actively engaged with adults to further their learning.  
51. Children need to be actively engaged with other children to further their learning.
SECTION IV

In this section, you are asked to indicate whether you agree or disagree with the statements concerning space, equipment in the classrooms, and your usual way of interacting with children on daily basis. Please circle the most appropriate number that matches with your response.

A. Non-threatening, safe, and healthy environment:

52. I provide for individual differences in feeding, food preferences, and sleeping schedules. 1 2 3 4
53. We serve healthy and developmentally appropriate foods to children. 1 2 3 4
54. An adult, indoor as well as outdoors always supervises children. 1 2 3 4
55. The play areas are comfortable with soft and cuddly pillows/carpet/soft floors/foam mats. 1 2 3 4
56. Floor coverings are kept clean. 1 2 3 4
57. Areas for mobile and non-mobile infants are separated for safety. 1 2 3 4
58. Safety precautions are taken in the room: covering electrical outlets, dangerous substances are kept out-of-reach, extension cords are not exposed. 1 2 3 4
59. There are no hidden safety hazards such as toxic paint on walls or toys. 1 2 3 4
60. Sanitary standards are strictly maintained near toilets or diaper changing areas. 1 2 3 4
61. Toys and equipment are thoroughly cleaned regularly. 1 2 3 4
62. The physical environment where infants/toddlers are placed such as floors/carpet are cleaned daily. 1 2 3 4
63. I wash my hands after diaper changing and before feeding. 1 2 3 4
64. I strictly observe proper food preparation and storage procedures. 1 2 3 4
65. Toys that children have put in their mouths are daily cleaned in a bleach solution. 1 2 3 4
66. I am very alert, recognize symptoms of illness, and take necessary steps. 1 2 3 4
SECTION IV continued........

1=Strongly Disagree
2= Disagree
3=Agree
4=Strongly Agree

B. Physical Environment and Space:

67. Diapering, sleeping, feeding, and playing areas are clearly separated in our room. 1 2 3 4

68. Our classroom is cozy, colorful and interesting to our infants and toddlers. 1 2 3 4

69. Each child's needs are met by providing a personal crib and other supplies. 1 2 3 4

70. Enough indoor space is provided for children so they can roll and move about as their motor skills develop. 1 2 3 4

71. Temperature and humidity are at comfortable levels for children inside the room. 1 2 3 4

72. Room is decorated with cheerful pictures of peoples, animals, plants etc. 1 2 3 4

73. Equipment and toys in the room are safe without sharp edges. 1 2 3 4

C. Your relationship with infants/toddlers:

74. I provide warm, nurturing, and responsive interactions throughout the day. 1 2 3 4

75. I am the "primary caregiver" for specific infants and toddlers. 1 2 3 4

76. I attend to infants emotional needs indicated by cries and calls of distress immediately. 1 2 3 4

77. Children in my room trust me a lot. 1 2 3 4

78. Children have one-to-one, face-to-face pleasant contact with me on a daily basis. 1 2 3 4
SECTION IV continued........

1 = Strongly Disagree  
2 = Disagree  
3 = Agree  
4 = Strongly Agree

79. I feel responsible and enjoy caring for these children.  
80. Infants and toddlers in our room have a warm relationship with one particular adult (primary caregiver) to provide continuity of care.  
81. I carry infants and talk to them every day as a means to offer stimulation.  
82. I talk to infants as I do routine activities such as feeding, diaper changing and make it enjoyable.  
83. I usually respond to infant vocal communications.  
84. I quickly respond to infant distress cries in a warm manner.  
85. I believe that if I pick up a crying infant it will become a bad habit.

D. Your relationship with parents:

86. I frequently consult with parents in making decisions about how best to help the child in handling problems.  
87. I frequently share positive and interesting things about children with their parents.  
88. I respect each child's family and their cultural background.  
89. I usually talk to parents and try to find out as much I can about their child.  
90. I regularly communicate with parents and share pertinent information.  
91. I am warm, caring, supportive, and help parents if needed.  
92. I greet and welcome parents and children each day.
SECTION IV continued.......  

1=Strongly Disagree  
2= Disagree  
3=Agree  
4=Strongly Agree  

E. Interesting, stimulating, and challenging learning environment:

93. I talk to, sing to, and read to infants and toddlers.  

94. I frequently engage in one-to-one or face-to-face interactions with infants.  

95. I frequently provide group experiences involving infants and toddlers for interactions with each other.  

96. I frequently provide activities that are related to real life and day-to-day experiences such as cooking, cleaning, taking care of plants or animals etc.  

97. In my room I arrange activity centers that encourage children to role-play with household/family related tasks.  

98. I use lots of language even with very young infants by talking and singing.  

99. I read books every day to even very young infants.  

100. I read daily to toddlers individually sitting in the lap, or in small groups of two or three.  

101. I provide group time/activities even to very young infants and help them interact with each other.  

102. I model positive and warm behavior.  

103. Visual stimuli such as pictures (of family members) are hung on walls where children can see them.  

104. I frequently observe, listen, and respond to infant's and toddler's sounds and vocalizations.
SECTION IV continued.......  

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<tr>
<td>106. I frequently move non-mobile infants to various locations to provide view and visual stimulation.</td>
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<td>107. In my room, the infants and toddlers program is flexible but at the same time I also have planned activities.</td>
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<td>108. I use a variety of manipulative toys/materials to provide sensory stimuli (visual, touch, auditory, smell).</td>
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<td>109. I frequently play classical music or music with rhythm/beat for infants and toddlers.</td>
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<td>118. I am aware of each child's developmental skill levels and frequently encourage them to use challenging materials to reach higher levels.</td>
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<td>119. I encourage self-help skills such as feeding and dressing among toddlers.</td>
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<td>120. Most of the time, I let children play by themselves and do not like to interfere.</td>
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<td>121. Most of the time, I let children choose whatever they like to play with.</td>
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SECTION IV continued.......  

1=Strongly Disagree  
2= Disagree  
3=Agree  
4=Strongly Agree

G. Use of developmentally appropriate materials and methods:

123. Board books with rounded edges and bright pictures are available for infants/toddlers in my room.  
124. A variety of learning materials such as manipulative and art materials are available in the room.  
125. Safe climbing structures and steps are available in the room for exploration.  
126. Toys are on low open shelves for children to make selections.  
127. Mobile infants are provided with an open area to play with balls, push/pull toys and for free movement and large muscle development.  
128. Toys and equipment in our room are child size to enable them to grasp and manipulate.  
129. Infants and toddlers are taken outside for play or for an outing frequently.  
130. I provide toys that are developmentally appropriate and safe for children.  
131. I completely understand what "developmentally appropriate" materials and methods mean.

Thank you for your cooperation

Any comments on this questionnaire:
APPENDIX F

INFANT/TODDLER TEACHER QUESTIONNAIRE

POSTTRAINING
The major objective of this survey is to assess your knowledge and understanding of brain growth and its function during early childhood; how young children learn, and your appropriate practices in creating enriched and stimulating environments. Please circle the number that best represents your level of understanding and practices. Please try to respond to all the items to the best of your knowledge. It will take approximately 30 minutes to complete this questionnaire. All the information you provide will be held strictly confidential and will be reported only in an aggregate fashion for research purposes. No individual teacher can be identified. We greatly appreciate your participation in this study. The results of the study are very valuable to us in building the "Success for Life" Curriculum as a model quality early childhood curriculum based on brain research and Developmentally Appropriate Practices. The findings of this study will be available to you as soon as possible. Thank you for your cooperation.
SECTION I

PROJECT ID Number: __________

This section concerns background information about you and your classroom. Please circle the appropriate response.

1. Your gender
   1. Male
   2. Female

2. What was your age on your last birthday?
   1. under 20 years
   2. 21 to 30 years
   3. 31 to 40 years
   4. 41 to 50 years
   5. above 50 years

3. What is your ethnic/cultural background?
   1. Caucasian
   2. African-American
   3. Hispanic
   4. Asian
   5. Native American
   6. Other

4. What is your educational background?
   1. High school graduate or GED
   2. 1 year of college, vocational, or technical training/1\textsuperscript{st} year
   3. 2 years of college/Associate degree/2\textsuperscript{nd} year
   4. 3 years of college/3\textsuperscript{rd} year
   5. 4-year Bachelor's degree completed
   6. Bachelor's plus
   7. Master's degree completed
   8. Master's plus
   10. Other ________specify

5. Do you have plans to further your education in the near future?
   1. Yes (go to question #6)
   2. No (go to questions #7)

6. I plan to pursue a (an)
   1. Child Development Associate (CDA)
   2. Associate's
   3. Bachelor's
   4. Master's
   5. Doctorate
7. How many children does your center/school serve?
   1. less than 25
   2. 26 - 50
   3. 51 - 75
   4. 76 - 100
   5. 100 - 125
   6. over 125

Please circle the appropriate response.

8. I enjoy reading literature about brain research and how to implement it in my classroom.

9. I encourage my colleagues and others to consider how they can implement a brain-based curriculum in their classrooms.

10. I believe that the early childhood profession is giving too much importance to brain research.

11. I believe that if all early childhood programs would implement a brain-based curriculum their overall quality would improve.

12. I believe that a brain-based research curriculum is just another fad and will be gone within 5 years.

13. My thinking about how children learn has changed since I learned more about brain research and its application in the classroom.

1 = Strongly Disagree
2 = Disagree
3 = Agree
4 = Strongly Agree
SECTION II
Brain Development and Function

The following statements are about brain growth and development during early childhood. Please read the statements carefully and circle the appropriate number that reflects your level of awareness about brain development and its function.

14. Early visual stimulation right from birth through the first year is very crucial for the formation of connections in visual cortex of the brain. 1 2 3 4

15. Sense of touch and massage are important and help stimulate brain connections in infants. 1 2 3 4

16. Movement exercises with infants help form connections in the brain of a very young infant. 1 2 3 4

17. Brain growth and development is very rapid between birth through age three. 1 2 3 4

18. "Synaptogenesis", the formation of synapses, is very rapid during infancy. 1 2 3 4

19. Fat and protein are essential nutrients in young children's diet for the proper growth of neuron cells. 1 2 3 4

20. Repeated experiences are necessary to strengthen connections in the brain. 1 2 3 4

21. By age three, children's brains are twice as active as adults' brains. 1 2 3 4

22. Early life experiences have an impact on the internal structure (architecture) of the brain. 1 2 3 4

23. Stimulating and enriched environments are necessary to form connections between brain cells. 1 2 3 4
Brain Development and Function continued.....

24. Interactions with other children even for very young infants are important to establish cell connections in the brain. 1 2 3 4
25. Interactions with adults are important even for very young children to establish cell connections in the brain. 1 2 3 4
26. Warm and secure relationships with adults lower stress levels in young children. 1 2 3 4
27. Negative emotional states interfere with children's learning. 1 2 3 4
28. Long-term trauma, emotional neglect, and child abuse during early years of life damage brain cells. 1 2 3 4
29. Chronic emotional stress during childhood destroys brain cells associated with learning. 1 2 3 4
30. Classical music helps stimulate brain areas that are associated with mathematics and logic. 1 2 3 4
31. Singing songs and talking to the child from birth is necessary to strengthen the auditory map even in the young infant. 1 2 3 4
32. Playing rhythmic music for young children helps form brain connections. 1 2 3 4
33. Auditory map for native language is established by the end of the first year after birth. 1 2 3 4
34. Children should be taught a second language before age 8, if they are to speak like a native language. 1 2 3 4
35. Fine motor skills such as playing the piano or guitar stimulate brain centers responsible for learning spatial relations and perceptual skills. 1 2 3 4
36. The best time for formal music instruction is between the ages of three and ten. 1 2 3 4
SECTION III

In this section, we would like to know your opinions and beliefs about how children grow and learn during early childhood stages. Please read the statements carefully and indicate whether you agree or disagree by circling the appropriate number.

<table>
<thead>
<tr>
<th>1=strongly disagree</th>
<th>2=disagree</th>
<th>3=agree</th>
<th>4=strongly agree</th>
</tr>
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</table>

**A. Knowledge and beliefs about how children grow:**

37. There are prime times for acquiring different kinds of skills and knowledge.  
38. Early years (birth through eight) of human life are critical for proper growth and development.  
39. Children grow in all areas of development simultaneously.  
40. Growth and development follow a sequence from "simple levels to complex levels."  
41. Development in one area will influence development in all other domains.  
42. Children grow at varying rates in all areas of development.  
43. Each child grows in his or her own unique way.  
44. Early negative experiences may have lasting effects on children's development.

**B. Your knowledge and beliefs about how children learn:**

45. "Critical periods" or "windows of opportunity" are the best time for learning during early childhood.  
46. Children learn best when their physical needs are met.  
47. Children learn best when they feel safe and secure.  
48. Children need active learning environments to discover and construct knowledge.  
49. Later complex abilities, skills, and knowledge build on those already acquired.  
50. Children need to be actively engaged with adults to further their learning.  
51. Children need to be actively engaged with other children to further their learning.
**SECTION IV**

In this section, you are asked to indicate whether you agree or disagree with the statements concerning space, equipment in the classrooms, and your usual way of interacting with children on daily basis. Please circle the most appropriate number that matches with your response.

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**A. Non-threatening, safe, and healthy environment:**

52. I provide for individual differences in feeding, food preferences, and sleeping schedules.  
   1 2 3 4

53. We serve healthy and developmentally appropriate foods to children.  
   1 2 3 4

54. An adult, indoor as well as outdoors always supervises children.  
   1 2 3 4

55. The play areas are comfortable with soft and cuddly pillows/carpet/soft floors/foam mats.  
   1 2 3 4

56. Floor coverings are kept clean.  
   1 2 3 4

57. Areas for mobile and non-mobile infants are separated for safety.  
   1 2 3 4

58. Safety precautions are taken in the room: covering electrical outlets, dangerous substances are kept out-of-reach, extension cords are not exposed.  
   1 2 3 4

59. There are no hidden safety hazards such as toxic paint on walls or toys.  
   1 2 3 4

60. Sanitary standards are strictly maintained near toilets or diaper changing areas.  
   1 2 3 4

61. Toys and equipment are thoroughly cleaned regularly.  
   1 2 3 4

62. The physical environment where infants/toddlers are placed such as floors/carpet are cleaned daily.  
   1 2 3 4

63. I wash my hands after diaper changing and before feeding.  
   1 2 3 4

64. I strictly observe proper food preparation and storage procedures.  
   1 2 3 4

65. Toys that children have put in their mouths are daily cleaned in a bleach solution.  
   1 2 3 4

66. I am very alert, recognize symptoms of illness, and take necessary steps.  
   1 2 3 4
B. Physical Environment and Space:

67. Diapering, sleeping, feeding, and playing areas are clearly separated in our room. 1 2 3 4

68. Our classroom is cozy, colorful and interesting to our infants and toddlers. 1 2 3 4

69. Each child’s needs are met by providing a personal crib and other supplies. 1 2 3 4

70. Enough indoor space is provided for children so they can roll and move about as their motor skills develop. 1 2 3 4

71. Temperature and humidity are at comfortable levels for children inside the room. 1 2 3 4

72. Room is decorated with cheerful pictures of peoples, animals, plants etc. 1 2 3 4

73. Equipment and toys in the room are safe without sharp edges. 1 2 3 4

C. Your relationship with infants/toddlers:

74. I provide warm, nurturing, and responsive interactions throughout the day. 1 2 3 4

75. I am the "primary caregiver" for specific infants and toddlers. 1 2 3 4

76. I attend to infants emotional needs indicated by cries and calls of distress immediately. 1 2 3 4

77. Children in my room trust me a lot. 1 2 3 4

78. Children have one-to-one, face-to-face pleasant contact with me on a daily basis. 1 2 3 4
SECTION IV continued......

1=Strongly Disagree
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79. I feel responsible and enjoy caring for these children. 1 2 3 4

80. Infants and toddlers in our room have a warm relationship with one particular adult (primary caregiver) to provide continuity of care. 1 2 3 4

81. I carry infants and talk to them every day as a means to offer stimulation. 1 2 3 4

82. I talk to infants as I do routine activities such as feeding, diaper changing and make it enjoyable. 1 2 3 4

83. I usually respond to infant vocal communications. 1 2 3 4

84. I quickly respond to infant distress cries in a warm manner. 1 2 3 4

85. I believe that if I pick up a crying infant it will become a bad habit. 1 2 3 4

D. Your relationship with parents:

86. I frequently consult with parents in making decisions about how best to help the child in handling problems. 1 2 3 4

87. I frequently share positive and interesting things about children with their parents. 1 2 3 4

88. I respect each child's family and their cultural background. 1 2 3 4

89. I usually talk to parents and try to find out as much I can about their child. 1 2 3 4

90. I regularly communicate with parents and share pertinent information. 1 2 3 4

91. I am warm, caring, supportive, and help parents if needed. 1 2 3 4

92. I greet and welcome parents and children each day. 1 2 3 4
SECTION IV continued.......  

1=Strongly Disagree 
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E. Interesting, stimulating, and challenging learning environment:

93. I talk to, sing to, and read to infants and toddlers.  
94. I frequently engage in one-to-one or face-to-face interactions with infants.  
95. I frequently provide group experiences involving infants and toddlers for interactions with each other.  
96. I frequently provide activities that are related to real life and day-to-day experiences such as cooking, cleaning, taking care of plants or animals etc.  
97. In my room I arrange activity centers that encourage children to role-play with household/family related tasks.  
98. I use lots of language even with very young infants by talking and singing.  
99. I read books every day to even very young infants.  
100. I read daily to toddlers individually sitting in the lap, or in small groups of two or three.  
101. I provide group time/activities even to very young infants and help them interact with each other.  
102. I model positive and warm behavior.  
103. Visual stimuli such as pictures (of family members) are hung on walls where children can see them.  
104. I frequently observe, listen, and respond to infant's and toddler's sounds and vocalizations.
SECTION IV  continued.......  

<table>
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<th>Question</th>
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G. Use of developmentally appropriate materials and methods:

123. Board books with rounded edges and bright pictures are available for infants/toddlers in my room. 1 2 3 4
124. A variety of learning materials such as manipulative and art materials are available in the room. 1 2 3 4
125. Safe climbing structures and steps are available in the room for exploration. 1 2 3 4
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127. Mobile infants are provided with an open area to play with balls, push/pull toys and for free movement and large muscle development. 1 2 3 4
128. Toys and equipment in our room are child size to enable them to grasp and manipulate. 1 2 3 4
129. Infants and toddlers are taken outside for play or for an outing frequently. 1 2 3 4
130. I provide toys that are developmentally appropriate and safe for children. 1 2 3 4
131. I completely understand what "developmentally appropriate" materials and methods mean. 1 2 3 4
SECTION V

In this section, you are asked to indicate whether you agree or disagree with the statements concerning the implementation of *Success for Life*. Please circle the most appropriate number that matches with your response.

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### General Response to *Success for Life*

132. I feel knowledgeable about brain research and its relationship to how children learn.  

133. I am comfortable speaking about brain research and its impact on children's learning.  

134. I am able to make connections between brain research facts and classroom applications.  

135. My ideas about how to teach young children have changed since I began participating in *Success for Life*.  

136. The physical environment in my classroom has changed since I began participating in *Success for Life*.  

137. As a result of my participation in *Success for Life*, I am more aware of the emotional and social needs of children.  

138. Children have benefited from the experiences and activities I have implemented in *Success for Life*.  

139. Parents have shown interest by asking questions about how *Success for Life* could improve their children's learning and development.  

140. My classroom has benefited from the collaboration with the *Success For Life* team and the University of North Texas.  

141. *Success for Life* training has contributed to my professional development.
Thank you for your cooperation

Any comments on this questionnaire:

Final comments on *Success for Life*:

--
APPENDIX G

PRESCHOOL/KINDERGARTEN TEACHER QUESTIONNAIRE

PRETRAINING
University of North Texas
College of Education

Velma E. Schmidt Consortium for Research and Public Policy

Implementation of Success for Life Curriculum

In Cooperation With
Velma E. Schmidt Programs in Early Childhood Education

Preschool and Kindergarten
(2 1/2 to 5 years)
Teacher Knowledge and Practices Survey Questionnaire
Spring 1998

The major objective of this survey is to assess your knowledge and understanding of brain growth and its function during early childhood; how young children learn, and your appropriate practices in creating enriched and stimulating environments. Please circle the number that best represents your level of understanding and practices. Please try to respond to all the items to the best of your knowledge. It will take approximately 30 minutes to complete this questionnaire. All the information you provide will be held strictly confidential and will be reported only in an aggregate fashion for research purposes. No individual teacher can be identified. Participating in this survey is voluntary and will not affect your status as a teacher. We greatly appreciate your participation in this study. The results of the study are very valuable to us in building the "Success for Life" Curriculum as a model quality early childhood curriculum based on brain research and Developmentally Appropriate Practices. The findings of this study will be available to you as soon as it is completed. Thank you for your cooperation.
SECTION I

PROJECT ID Number: __________

This section asks information about you and your classroom. Please circle the appropriate number that best suits you.

________________________________________________________________________________________________________________________________________

1. Your gender
   1. Male
   2. Female

2. What was your age on your last birthday?
   1. under 20 years
   2. 21 to 30 years
   3. 31 to 40 years
   4. 41 to 50 years
   5. above 50 years

3. What is your present work situation in this position?
   1. Self-employed/own the business and work full-time
   2. Full-time (30 - 40 hrs)
   3. Part-time (30 hrs)
   4. Part-time (20 hrs)
   5. Substitute temporary teacher

4. How many other teachers do you have such as helpers or assistants in your room to help you at a given time? (Do not add up all the helpers/assistants throughout the day)
   1. I work alone and don't have an assistant
   2. I have one assistant
   3. I have two assistants
   4. I have three assistants

5. During the day, how many children typically are present in your classroom at a given time?
   1. under 5 children
   2. 5 to 10 children
   3. 11 to 15 children
   4. 16 to 20 children
   5. 21 to 25 children
   6. 26 to 30 children

6. Age group of children in your classroom that you are primarily responsible for and will be implementing the "Success for Life" curriculum:
   1. Infants only
   2. Toddlers only
   3. Infants and Toddlers
   4. Preschoolers
   5. Kindergartners
7. How long have you been working as a teacher in general?
   1. under 1 year
   2. 1 to 2 years
   3. 3 to 5 years
   4. 6 to 8 years
   5. over 8 years

8. How long have you been working as a teacher in this particular classroom?
   1. under 1 year
   2. 1 to 2 years
   3. 3 to 5 years
   4. 6 to 8 years
   5. over 8 years

9. What is your educational background?
   1. High school graduate or GED
   2. 1 year of college, vocational, or technical training/1st year
   3. 2 years of college/Associate degree/2nd year
   4. 3 years of college/3rd year
   5. 4-year Bachelor's degree completed
   6. Bachelor's plus
   7. Master's degree completed
   8. Master's plus
   10. Other ________specify

10. If you have a degree, is your degree/professional background in Child Development or Early Childhood Education?
    1. Yes (go to question # 12)
    2. No (go to questions # 11a, 11b and 11c)
    3. Not Applicable

11a. If your degree is not in Child Development or Early Childhood Education, what was your major?
    __________

11b. Did you have any professional training related to Early Childhood Education or working with young children?
    1. Yes
    2. No

11c. Did you have any course work related to Child Development/Early Childhood Education?
    1. Yes
    2. No (answer the next question)

12. Did you have any professional training/certificate related to ECE or working with young children?
    1. Yes
    2. No

13. Did you receive any in-service training related to your job in the past year?
    1. Yes
    2. No
### SECTION II

**Brain Development and Function**

The following statements are about brain growth and development during early childhood. Please read the statements carefully and circle the appropriate number that reflects your level of awareness about brain development and its function.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td>14. Early visual stimulation right from birth through the first year is very crucial for the formation of connections in visual cortex of the brain.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. Sense of touch and massage are important and help stimulate brain connections in infants.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. Movement exercises with infants help form connections in the brain of a very young infant.</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>17. Brain growth and development is very rapid between birth through age three.</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>18. &quot;Synaptogenesis&quot;, the formation of synapses, is very rapid during infancy.</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>19. Fat and protein are essential nutrients in young children's diet for the proper growth of neuron cells.</td>
<td>1</td>
<td>2</td>
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<tr>
<td>20. Repeated experiences are necessary to strengthen connections in the brain.</td>
<td>1</td>
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</tr>
<tr>
<td>21. By age three, children's brains are twice as active as adults' brains.</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>22. Early life experiences have an impact on the internal structure (architecture) of the brain.</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>23. Stimulating and enriched environments are necessary to form connections between brain cells.</td>
<td>1</td>
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</tbody>
</table>
Brain Development and Function continued.....

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
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<tbody>
<tr>
<td>24. Interactions with other children even for very young infants are</td>
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<tr>
<td>important to establish cell connections in the brain.</td>
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<tr>
<td>25. Interactions with adults are important even for very young children</td>
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<tr>
<td>to establish cell connections in the brain.</td>
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<tr>
<td>26. Warm and secure relationships with adults lower stress levels in</td>
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<td>young children.</td>
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<tr>
<td>27. Negative emotional states interfere with children's learning.</td>
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<tr>
<td>28. Long-term trauma, emotional neglect, and child abuse during</td>
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<tr>
<td>early years of life damage brain cells.</td>
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<tr>
<td>29. Chronic emotional stress during childhood destroys brain cells</td>
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<tr>
<td>associated with learning.</td>
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<tr>
<td>30. Classical music helps stimulate brain areas that are associated</td>
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<tr>
<td>with mathematics and logic.</td>
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<td>31. Singing songs and talking to the child from birth is necessary to</td>
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<tr>
<td>strengthen the auditory map even in the young infant.</td>
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<tr>
<td>32. Playing rhythmic music for young children helps form brain</td>
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<tr>
<td>connections.</td>
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<tr>
<td>33. Auditory map for native language is established by the end of the</td>
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<td>first year after birth.</td>
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<tr>
<td>34. Children should be taught a second language before age 8,</td>
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<td>if they are to speak like a native language.</td>
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<tr>
<td>35. Fine motor skills such as playing the piano or guitar stimulate</td>
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<td>brain centers responsible for learning spatial relations and perceptual</td>
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<tr>
<td>skills.</td>
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<tr>
<td>36. The best time for formal music instruction is between the ages of</td>
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<td>three and ten.</td>
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</table>
SECTION III

In this section, we would like to know your opinions and beliefs about how children grow and learn during early childhood stages. Please read the statements carefully and indicate whether you agree or disagree by circling the appropriate number.

1=strongly disagree
2=disagree
3=agree
4=strongly agree

A. Knowledge and beliefs about how children grow:

37. There are prime times for acquiring different kinds of skills and knowledge. 1 2 3 4

38. Early years (birth through eight) of human life are critical for proper growth and development. 1 2 3 4

39. Children grow in all areas of development simultaneously. 1 2 3 4

40. Growth and development follow a sequence from "simple levels to complex levels." 1 2 3 4

41. Development in one area will influence development in all other domains. 1 2 3 4

42. Children grow at varying rates in all areas of development. 1 2 3 4

43. Each child grows in his or her own unique way. 1 2 3 4

44. Early negative experiences may have lasting effects on children's development. 1 2 3 4

B. Your knowledge and beliefs about how children learn:

45. "Critical periods" or "windows of opportunity" are the best time for learning during early childhood. 1 2 3 4

46. Children learn best when their physical needs are met. 1 2 3 4

47. Children learn best when they feel safe and secure. 1 2 3 4

48. Children need active learning environments to discover and construct knowledge. 1 2 3 4

49. Later complex abilities, skills, and knowledge build on those already acquired. 1 2 3 4

50. Children need to be actively engaged with adults to further their learning. 1 2 3 4

51. Children need to be actively engaged with other children to further their learning. 1 2 3 4
**SECTION IV**

In this section, you are asked to indicate whether you agree or disagree with the statements concerning space, equipment in the classrooms, and your usual way of interacting with children on daily basis. Please circle the most appropriate number that matches with your response.

1=Strongly Disagree  
2= Disagree  
3=Agree  
4=Strongly Agree

---

### A. Non-threatening, safe, and healthy environment:

<table>
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<tr>
<th>Statement</th>
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<tbody>
<tr>
<td>52. I provide for individual differences in feeding, food preferences, and sleeping schedules.</td>
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<tr>
<td>53. We serve healthy and developmentally appropriate foods to children.</td>
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<td>54. An adult, indoor as well as outdoors, always supervises children.</td>
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<td>55. The play areas are comfortable with soft and cuddly pillows/carpet/soft floors/foam mats.</td>
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<tr>
<td>56. Floor coverings are kept clean.</td>
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<td>57. Indoor area is arranged in a way that it can be supervised easily.</td>
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<tr>
<td>58. Safety precautions are taken in the room: covering electrical outlets, dangerous substances are kept out-of-reach, extension cords are not exposed.</td>
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<td>59. There are no hidden safety hazards such as toxic paint on walls or toys.</td>
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<td>60. Sanitary standards are strictly maintained near toilets or diaper changing areas.</td>
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<tr>
<td>61. Toys and equipment are thoroughly cleaned regularly.</td>
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<tr>
<td>62. I wash my hands after diaper changing and before feeding.</td>
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<tr>
<td>63. I strictly observe proper food preparation and storage procedures.</td>
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<tr>
<td>64. Toys that children have put in their mouths are daily cleaned in a bleach solution.</td>
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<tr>
<td>65. I am very alert, recognize symptoms of illness, and take necessary steps.</td>
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</tbody>
</table>
SECTION IV continued......

1=Strongly Disagree
2= Disagree
3=Agree
4=Strongly Agree

B. Physical Environment and Space:

66. Our classroom environment supports and meets the needs of all children. 1 2 3 4
67. Diapering, sleeping, feeding, and playing areas are clearly separated in our room. 1 2 3 4
68. Our classroom is cozy, colorful and interesting to our children. 1 2 3 4
69. Each child's needs are met by providing a personal cubby and other supplies. 1 2 3 4
70. Enough indoor space is provided for children so they can roll and move about as their motor skills develop. 1 2 3 4
71. Temperature and humidity are at comfortable levels for children inside the room. 1 2 3 4
72. Room is decorated with cheerful pictures of peoples, animals, plants etc. 1 2 3 4
73. Equipment and toys in the room are safe without sharp edges. 1 2 3 4

C. Your relationship with children:

74. I provide warm, nurturing, and responsive interactions throughout the day. 1 2 3 4
75. I help children to establish positive and trusting relationships. 1 2 3 4
76. I attend to children's emotional needs immediately. 1 2 3 4
77. Children in my room trust me a lot. 1 2 3 4
78. Children have one-to-one or personal pleasant contact with me on a daily basis. 1 2 3 4
SECTION IV continued

1=Strongly Disagree
2= Disagree
3=Agree
4=Strongly Agree

79. I feel responsible and enjoy caring for these children. 1 2 3 4

80. Children in our room have a warm relationship with one particular adult (primary caregiver) to provide continuity of care. 1 2 3 4

81. During snack/lunch time, I usually discuss about food and nutrition related topics. 1 2 3 4

82. I make conversations as I do routine activities (toilet/diaper changing) and make it enjoyable. 1 2 3 4

83. I quickly respond to children's distress cries/calls in a warm manner. 1 2 3 4

D. Your relationship with parents:

84. I frequently consult with parents in making decisions about how best to help the child in handling problems. 1 2 3 4

85. I frequently share positive and interesting things about children with their parents. 1 2 3 4

86. I respect each child's family and their cultural background. 1 2 3 4

87. I usually talk to parents and try to find out as much I can about their child. 1 2 3 4

88. I regularly communicate with parents and share pertinent information. 1 2 3 4

89. I am warm, caring, supportive, and help parents if needed. 1 2 3 4

90. I greet and welcome parents and children each day. 1 2 3 4
SECTION IV continued......

<table>
<thead>
<tr>
<th>1=Strongly Disagree</th>
<th>2= Disagree</th>
<th>3=Agree</th>
<th>4=Strongly Agree</th>
</tr>
</thead>
</table>

E. Interesting, stimulating, and challenging learning environment:

91. I frequently provide activities that are related to real life and day-to-day experiences such as cooking, cleaning, taking care of plants or animals etc.  
   1 2 3 4

92. In my room I arrange activity centers that encourage children to role-play with household/family related tasks.  
   1 2 3 4

93. I use lots of language every day with children by talking and singing.  
   1 2 3 4

94. I read daily to toddlers individually sitting in the lap, or in small groups of two or three.  
   1 2 3 4

95. I provide group time/activities and help children interact with each other.  
   1 2 3 4

96. I model positive and warm behavior.  
   1 2 3 4

97. Visual stimuli such as pictures (of family members) are hung on walls where children can see.  
   1 2 3 4

98. I frequently observe, listen, and respond to children's needs and verbal requests.  
   1 2 3 4

99. My language arts related activities include listening skills.  
   1 2 3 4

100. I frequently have activities that encourage children to talk and share their experiences.  
    1 2 3 4

101. I play interactive group games frequently.  
    1 2 3 4

102. In my room, our program is flexible but at the same time I also have planned activities.  
    1 2 3 4

103. I use a variety of manipulative toys/materials to provide sensory stimuli (visual, touch, auditory, smell).  
    1 2 3 4
SECTION IV continued.......  

1=Strongly Disagree  
2= Disagree  
3=Agree  
4=Strongly Agree  

104. Children have daily opportunities to develop fine-motor skills using fingers.  

105. Children should have daily opportunities for large muscle activities such as running, jumping, and climbing.  

106. I frequently play classical music or music with rhythm/beat.  

107. Children in the classroom have daily opportunities for dance and movement experiences.  

108. I provide opportunities for children to repeat tasks until they master the skills.  

109. I provide daily opportunities to explore and manipulate art materials.  

110. Materials, books, and pictures related to diversity are provided in the classroom.  

111. I provide musical experiences such as singing, playing tape/records on a daily basis.  

112. I encourage children to move their body to the rhythm and beat.  

113. I play tapes of classical music that is soothing to children.  

114. I provide soft music and dim lighting in the sleeping/resting area.  

115. I know how to keep a child engaged and keep him or her focused.  

116. I provide experiences that are appropriate for culturally diverse children.  

F. Your role and philosophy as a teacher:  

117. I usually encourage and allow time for active exploration of the materials or equipment.  

118. I am aware of each child's developmental skill levels and frequently encourage them to use challenging materials to reach higher levels.  

119. I encourage self-help skills such as feeding, dressing, and undressing.  

120. Most of the time, I let children play by themselves and do not like to interfere.
121. Most of the time, I let children choose what ever they like to play with.  
1 2 3 4

122. I do not like to plan structured learning activities because  
I believe in "free play."  
1 2 3 4

123. Daily activities include language and communication by music,  
singing, speaking, story telling, listening activities.  
1 2 3 4

124. I provide activities that stimulate and challenge a child's thinking.  
1 2 3 4

125. My classroom environment and experiences promote  
self- confidence and positive feelings among children.  
1 2 3 4

126. I use positive guidance techniques such as modeling, encouraging  
expected behavior, setting clear limits, and enforcing consequences.  
1 2 3 4

G. Use of developmentally appropriate materials and methods:

127. A variety of books with bright pictures and various topics  
are available in my room.  
1 2 3 4

128. A variety of learning materials such as manipulative and art materials  
are available in the room.  
1 2 3 4

129. Safe climbing structures and steps are available in the room for exploration.  
1 2 3 4

130. Toys are on low open shelves for children to make selections.  
1 2 3 4

131. An open area is available to play with balls, push/pull toys  
and for free movement, large muscle development.  
1 2 3 4

132. Toys and equipment in our room are child size to enable them to grasp  
and manipulate.  
1 2 3 4

133. Children are taken outside for play or for an outing frequently.  
1 2 3 4

134. Visual displays are at the eye level of children.  
1 2 3 4

135. I have age-appropriate learning objectives for children in my classroom.  
1 2 3 4
SECTION IV continued.......  

<table>
<thead>
<tr>
<th></th>
<th>1=Strongly Disagree</th>
<th>2= Disagree</th>
<th>3=Agree</th>
<th>4=Strongly Agree</th>
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</thead>
<tbody>
<tr>
<td>136. I am aware of individual differences in children's learning abilities.</td>
<td>1 2 3 4</td>
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<tr>
<td>137. The daily schedule includes alternate periods of active and quiet time.</td>
<td>1 2 3 4</td>
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<tr>
<td>138. I provide a variety of learning areas for children to freely choose based on their interests and abilities.</td>
<td>1 2 3 4</td>
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<tr>
<td>139. I provide toys that are developmentally appropriate and safe for children.</td>
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<tr>
<td>140. I completely understand what &quot;developmentally appropriate&quot; materials and methods mean.</td>
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Thank you for your cooperation

Any comments on this questionnaire:
APPENDIX H

PRESCHOOL/KINDERGARTEN TEACHER QUESTIONNAIRE

POSTTRAINING
The major objective of this survey is to assess your knowledge and understanding of brain growth and its function during early childhood; how young children learn, and your appropriate practices in creating enriched and stimulating environments. Please circle the number that best represents your level of understanding and practices. Please try to respond to all the items to the best of your knowledge. It will take approximately 30 minutes to complete this questionnaire. All the information you provide will be held strictly confidential and will be reported only in an aggregate fashion for research purposes. No individual teacher can be identified. We greatly appreciate your participation in this study. The results of the study are very valuable to us in building the "Success for Life" Curriculum as a model quality early childhood curriculum based on brain research and Developmentally Appropriate Practices. The findings of this study will be available to you as soon as possible. Thank you for your cooperation.
SECTION I

PROJECT ID Number: __________

This section asks information about you and your classroom. Please circle the appropriate response.

1. Your gender
   1. Male
   2. Female

2. What was your age on your last birthday?
   1. under 20 years
   2. 21 to 30 years
   3. 31 to 40 years
   4. 41 to 50 years
   5. above 50 years

3. What is your ethnic/cultural background?
   1. Caucasian
   2. African-American
   3. Hispanic
   4. Asian
   5. Native American
   6. Other

4. What is your educational background?
   1. High school graduate or GED
   2. 1 year of college, vocational, or technical training/1st year
   3. 2 years of college/Associate degree/2nd year
   4. 3 years of college/3rd year
   5. 4-year Bachelor's degree completed
   6. Bachelor's plus
   7. Master's degree completed
   8. Master's plus
   10. Other ________specify

5. Do you have plans to further your education in the near future?
   1. Yes (go to question #6)
   2. No (go to questions #7)

6. I plan to pursue a (an)
   1. Child Development Associate (CDA)
   2. Associate's
   3. Bachelor's
   4. Master's
   5. Doctorate
SECTION I continued....

7. How many children does your center/school serve?
   1. less than 25
   2. 26 - 50
   3. 51 - 75
   4. 76 - 100
   5. 100 - 125
   6. over 125

Please circle the appropriate response.

8. I enjoy reading literature about brain research and how to implement it in my classroom. 1 2 3 4

9. I encourage my colleagues and others to consider how they can implement a brain-based curriculum in their classrooms. 1 2 3 4

10. I believe that the early childhood profession is giving too much importance to brain research. 1 2 3 4

11. I believe that if all early childhood programs would implement a brain-based curriculum their overall quality would improve. 1 2 3 4

12. I believe that a brain-based research curriculum is just another fad and will be gone within 5 years. 1 2 3 4

13. My thinking about how children learn has changed since I learned more about brain research and its application in the classroom. 1 2 3 4
The following statements are about brain growth and development during early childhood. Please read the statements carefully and circle the appropriate number that reflects your level of awareness about brain development and its function.

14. Early visual stimulation right from birth through the first year is very crucial for the formation of connections in visual cortex of the brain. 1 2 3 4

15. Sense of touch and massage are important and help stimulate brain connections in infants. 1 2 3 4

16. Movement exercises with infants help form connections in the brain of a very young infant. 1 2 3 4

17. Brain growth and development is very rapid between birth through age three. 1 2 3 4

18. "Synaptogenesis", the formation of synapses, is very rapid during infancy. 1 2 3 4

19. Fat and protein are essential nutrients in young children's diet for the proper growth of neuron cells. 1 2 3 4

20. Repeated experiences are necessary to strengthen connections in the brain. 1 2 3 4

21. By age three, children's brains are twice as active as adults' brains. 1 2 3 4

22. Early life experiences have an impact on the internal structure (architecture) of the brain. 1 2 3 4

23. Stimulating and enriched environments are necessary to form connections between brain cells. 1 2 3 4
Brain Development and Function continued.....

24. Interactions with other children even for very young infants are important to establish cell connections in the brain.  
   1 2 3 4

25. Interactions with adults are important even for very young children to establish cell connections in the brain.  
   1 2 3 4

26. Warm and secure relationships with adults lower stress levels in young children.  
   1 2 3 4

27. Negative emotional states interfere with children's learning.  
   1 2 3 4

28. Long-term trauma, emotional neglect, and child abuse during early years of life damage brain cells.  
   1 2 3 4

   1 2 3 4

30. Classical music helps stimulate brain areas that are associated with mathematics and logic.  
   1 2 3 4

31. Singing songs and talking to the child from birth is necessary to strengthen the auditory map even in the young infant.  
   1 2 3 4

32. Playing rhythmic music for young children helps form brain connections.  
   1 2 3 4

33. Auditory map for native language is established by the end of the first year after birth.  
   1 2 3 4

34. Children should be taught a second language before age 8, if they are to speak like a native language.  
   1 2 3 4

35. Fine motor skills such as playing the piano or guitar stimulate brain centers responsible for learning spatial relations and perceptual skills.  
   1 2 3 4

36. The best time for formal music instruction is between the ages of three and ten.  
   1 2 3 4
SECTION III

In this section, we would like to know your opinions and beliefs about how children grow and learn during early childhood stages. Please read the statements carefully and indicate whether you agree or disagree by circling the appropriate number.

A. Knowledge and beliefs about how children grow:

37. There are prime times for acquiring different kinds of skills and knowledge.  
   1  2  3  4

38. Early years (birth through eight) of human life are critical for proper growth and development.  
   1  2  3  4

39. Children grow in all areas of development simultaneously.  
   1  2  3  4

40. Growth and development follow a sequence from "simple levels to complex levels."  
   1  2  3  4

41. Development in one area will influence development in all other domains.  
   1  2  3  4

42. Children grow at varying rates in all areas of development.  
   1  2  3  4

43. Each child grows in his or her own unique way.  
   1  2  3  4

44. Early negative experiences may have lasting effects on children's development.  
   1  2  3  4

B. Your knowledge and beliefs about how children learn:

45. "Critical periods" or "windows of opportunity" are the best time for learning during early childhood.  
   1  2  3  4

46. Children learn best when their physical needs are met.  
   1  2  3  4

47. Children learn best when they feel safe and secure.  
   1  2  3  4

48. Children need active learning environments to discover and construct knowledge.  
   1  2  3  4

49. Later complex abilities, skills, and knowledge build on those already acquired.  
   1  2  3  4

50. Children need to be actively engaged with adults to further their learning.  
   1  2  3  4

51. Children need to be actively engaged with other children to further their learning.  
   1  2  3  4
SECTION IV

In this section, you are asked to indicate whether you agree or disagree with the statements concerning space, equipment in the classrooms, and your usual way of interacting with children on daily basis. Please circle the most appropriate number that matches with your response.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>52. I provide for individual differences in feeding, food preferences, and sleeping schedules.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>53. We serve healthy and developmentally appropriate foods to children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>54. An adult, indoor as well as outdoors, always supervises children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>55. The play areas are comfortable with soft and cuddly pillows/carpet/soft floors/foam mats.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>56. Floor coverings are kept clean.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>57. Indoor area is arranged in a way that it can be supervised easily.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>58. Safety precautions are taken in the room: covering electrical outlets, dangerous substances are kept out-of-reach, extension cords are not exposed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>59. There are no hidden safety hazards such as toxic paint on walls or toys.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>60. Sanitary standards are strictly maintained near toilets or diaper changing areas.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>61. Toys and equipment are thoroughly cleaned regularly.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>62. I wash my hands after diaper changing and before feeding.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>63. I strictly observe proper food preparation and storage procedures.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>64. Toys that children have put in their mouths are daily cleaned in a bleach solution.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>65. I am very alert, recognize symptoms of illness, and take necessary steps.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
### B. Physical Environment and Space:

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>Our classroom environment supports and meets the needs of all children.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>67</td>
<td>Diapering, sleeping, feeding, and playing areas are clearly separated in our room.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>68</td>
<td>Our classroom is cozy, colorful and interesting to our children.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>69</td>
<td>Each child's needs are met by providing a personal cubby and other supplies.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>70</td>
<td>Enough indoor space is provided for children so they can roll and move about as their motor skills develop.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>71</td>
<td>Temperature and humidity are at comfortable levels for children inside the room.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>72</td>
<td>Room is decorated with cheerful pictures of peoples, animals, plants etc.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>73</td>
<td>Equipment and toys in the room are safe without sharp edges.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>

### C. Your relationship with children:

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>I provide warm, nurturing, and responsive interactions throughout the day.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>75</td>
<td>I help children to establish positive and trusting relationships.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>76</td>
<td>I attend to children's emotional needs immediately.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>77</td>
<td>Children in my room trust me a lot.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>78</td>
<td>Children have one-to-one or personal pleasant contact with me on a daily basis.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
### SECTION IV continued......

<table>
<thead>
<tr>
<th>1=Strongly Disagree</th>
<th>2= Disagree</th>
<th>3=Agree</th>
<th>4=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>79. I feel responsible and enjoy caring for these children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>80. Children in our room have a warm relationship with one particular adult (primary caregiver) to provide continuity of care.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>81. During snack/lunch time, I usually discuss about food and nutrition related topics.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>82. I make conversations as I do routine activities (toilet/diaper changing) and make it enjoyable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>83. I quickly respond to children's distress cries/calls in a warm manner.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

#### D. Your relationship with parents:

<table>
<thead>
<tr>
<th>1=Strongly Disagree</th>
<th>2= Disagree</th>
<th>3=Agree</th>
<th>4=Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>84. I frequently consult with parents in making decisions about how best to help the child in handling problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>85. I frequently share positive and interesting things about children with their parents.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>86. I respect each child's family and their cultural background.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>87. I usually talk to parents and try to find out as much I can about their child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>88. I regularly communicate with parents and share pertinent information.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>89. I am warm, caring, supportive, and help parents if needed.</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>90. I greet and welcome parents and children each day.</td>
<td>1</td>
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<td>3</td>
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</tbody>
</table>
### E. Interesting, stimulating, and challenging learning environment:

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>91. I frequently provide activities that are related to real life and day-to-day experiences such as cooking, cleaning, taking care of plants or animals etc.</td>
<td></td>
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<tr>
<td>92. In my room I arrange activity centers that encourage children to role-play with household/family related tasks.</td>
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<tr>
<td>93. I use lots of language every day with children by talking and singing.</td>
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<tr>
<td>94. I read daily to toddlers individually sitting in the lap, or in small groups of two or three.</td>
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<tr>
<td>95. I provide group time/activities and help children interact with each other.</td>
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<tr>
<td>96. I model positive and warm behavior.</td>
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<tr>
<td>97. Visual stimuli such as pictures (of family members) are hung on walls where children can see.</td>
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<tr>
<td>98. I frequently observe, listen, and respond to children's needs and verbal requests.</td>
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<tr>
<td>99. My language arts related activities include listening skills.</td>
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<tr>
<td>100. I frequently have activities that encourage children to talk and share their experiences.</td>
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<tr>
<td>101. I play interactive group games frequently.</td>
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<tr>
<td>102. In my room, our program is flexible but at the same time I also have planned activities.</td>
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<tr>
<td>103. I use a variety of manipulative toys/materials to provide sensory stimuli (visual, touch, auditory, smell).</td>
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</tbody>
</table>
SECTION IV  continued.......  

1=Strongly Disagree  
2= Disagree  
3=Agree  
4=Strongly Agree

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
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<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>104. Children have daily opportunities to develop fine-motor skills using fingers.</td>
<td></td>
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<tr>
<td>105. Children should have daily opportunities for large muscle activities such as running, jumping, and climbing.</td>
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<tr>
<td>106. I frequently play classical music or music with rhythm/beat.</td>
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<tr>
<td>107. Children in the classroom have daily opportunities for dance and movement experiences.</td>
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<tr>
<td>108. I provide opportunities for children to repeat tasks until they master the skills.</td>
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<tr>
<td>109. I provide daily opportunities to explore and manipulate art materials.</td>
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<tr>
<td>110. Materials, books, and pictures related to diversity are provided in the classroom.</td>
<td></td>
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<tr>
<td>111. I provide musical experiences such as singing, playing tape.records on a daily basis.</td>
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</tr>
<tr>
<td>112. I encourage children to move their body to the rhythm and beat.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>113. I play tapes of classical music that is soothing to children.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>114. I provide soft music and dim lighting in the sleeping/resting area.</td>
<td></td>
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</tr>
<tr>
<td>115. I know how to keep a child engaged and keep him or her focused.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>116. I provide experiences that are appropriate for culturally diverse children.</td>
<td></td>
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</tbody>
</table>

F. Your role and philosophy as a teacher:

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>117. I usually encourage and allow time for active exploration of the materials or equipment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>118. I am aware of each child's developmental skill levels and frequently encourage them to use challenging materials to reach higher levels.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>119. I encourage self-help skills such as feeding, dressing, and undressing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>120. Most of the time, I let children play by themselves and do not like to interfere.</td>
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</tr>
</tbody>
</table>
### SECTION IV continued.......  

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>121. Most of the time, I let children choose what ever they like to play</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>122. I do not like to plan structured learning activities because</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I believe in &quot;free play.&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123. Daily activities include language and communication by music,</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>singing, speaking, story telling, listening activities.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>124. I provide activities that stimulate and challenge a child's</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>thinking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>125. My classroom environment and experiences promote self-confidence</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>and positive feelings among children.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>126. I use positive guidance techniques such as modeling, encouraging</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>expected behavior, setting clear limits, and enforcing consequences.</td>
<td></td>
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</tbody>
</table>

**G. Use of developmentally appropriate materials and methods:**

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>127. A variety of books with bright pictures and various topics</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>are available in my room.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>128. A variety of learning materials such as manipulative and art</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>materials are available in the room.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>129. Safe climbing structures and steps are available in the room for</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>exploration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>130. Toys are on low open shelves for children to make selections.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>131. An open area is available to play with balls, push/pull toys and</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>for free movement, large muscle development.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>132. Toys and equipment in our room are child size to enable them to</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>grasp and manipulate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>133. Children are taken outside for play or for an outing frequently.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>134. Visual displays are at the eye level of children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>135. I have age-appropriate learning objectives for children in my</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>classroom.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
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</tr>
<tr>
<td>136. I am aware of individual differences in children's learning abilities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>137. The daily schedule includes alternate periods of active and quiet time.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>138. I provide a variety of learning areas for children to freely choose based on their interests and abilities.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>139. I provide toys that are developmentally appropriate and safe for children.</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>140. I completely understand what &quot;developmentally appropriate&quot; materials and methods mean.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
SECTION V

In this section, you are asked to indicate whether you agree or disagree with the statements concerning the implementation of *Success for Life*. Please circle the most appropriate number that matches with your response.

1 = Strongly Disagree  
2 = Disagree  
3 = Agree  
4 = Strongly Agree

---

**General Response to *Success for Life***

141. I feel knowledgeable about brain research and its relationship to how children learn.  
1234

142. I am comfortable speaking about brain research and its impact on children's learning.  
1234

143. I am able to make connections between brain research facts and classroom applications.  
1234

144. My ideas about how to teach young children have changed since I began participating in *Success for Life*.  
1234

145. The physical environment in my classroom has changed since I began participating in *Success for Life*.  
1234

146. As a result of my participation in *Success for Life*, I am more aware of the emotional and social needs of children.  
1234

147. Children have benefited from the experiences and activities I have implemented in *Success for Life*.  
1234

148. Parents have shown interest by asking questions about how *Success for Life* could improve their children's learning and development.  
1234

149. My classroom has benefited from the collaboration with the *Success For Life* team and the University of North Texas.  
1234

150. *Success for Life* training has contributed to my professional development.  
1234
Thank you for your cooperation

_____________________________________________________________________________

Any comments on this questionnaire:

_____________________________________________________________________________

Final comments on Success for Life:

_____________________________________________________________________________
APPENDIX I

SAMPLE JOURNAL ENTRY
Journal Entry #1 January 15 through 31

Journal entries must be made twice a month and should be faxed (940)565-4952 or mailed to Dr. Susie Mikler or Ms. Tisha Bennett Velma E. Schmidt Programs in Early Childhood Education, P.O. Box 311337, Denton, TX 76203-1337.

1. What changes did you make in the classroom environment during this period of time? Why? How did it benefit the children?

CHANGE 1:

WHAT?:

WHY?:

HOW DID THE CHANGE BENEFIT THE CHILDREN?:

CHANGE 2:

WHAT?:

WHY?:

HOW DID THE CHANGE BENEFIT THE CHILDREN?:

USE ADDITIONAL PAPER IF NECESSARY

2. What experiences did you provide the children related to brain research during this period of time?
3. What are all the "AHA's", "WOW's" and other exciting experiences you and the children experienced during this period of two weeks?

4. Old Thinking vs. New Thinking: How has your thinking changed during this period of time?
<table>
<thead>
<tr>
<th>I used to think that</th>
<th>Now I believe that</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>5.</td>
</tr>
</tbody>
</table>

5. Journal entry: Please write your thoughts and feelings about the process of implementing the Success for Life curriculum.
APPENDIX J

LIST OF ALL VARIABLES
List of Variables

Teacher Questionnaire

- Knowledge About Brain Development/Function
- Knowledge About Children’s Growth
- Knowledge About Children’s Learning
- Teacher Relationship with Infants/Toddlers/PreK/K
- Teacher Relationship with Parents
- Environment – Physical
- Environment – Interesting and Stimulating
- Environment – Use of Appropriate Materials/Methods
- Teacher’s Role and Philosophy
- Teacher Beliefs (Posttest Only)
- Teacher Response to SFL Program (Posttest Only)
- Demographic Characteristics

Program Implementation Profile (PIP)

- Physical Learning Environment
- Daily Routine
- Adult-Child Interaction
- Staff Development
- Parent Involvement
List of Variables (cont’d)

Child Measures

Infants

- Physical Mastery
- Emotional Well-Being
- Social Interaction
- Cognitive Development
- Language/Communication
- Demographic Characteristics

Toddlers

- Physical Mastery
- Emotional Well-Being
- Social Interaction
- Cognitive Development
- Language/Communication
- Arts/Creative Expression
- Demographic Characteristics

PreK and K

- Initiative
- Social Relations
- Creative Representation
- Music and Movement
- Language and Literacy
- Logic and Mathematics
- Demographic Characteristics
APPENDIX K

TEACHER BELIEFS

(POSTTEST ONLY)
Teacher Beliefs

I enjoy reading literature about brain research and how to implement it in my classroom.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>8</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>16</td>
</tr>
</tbody>
</table>

I encourage my colleagues and others to consider how they can implement a brain-based curriculum in their classrooms.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>1</td>
</tr>
<tr>
<td>Agree</td>
<td>11</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>12</td>
</tr>
</tbody>
</table>

I believe that the early childhood profession is giving too much importance to brain research.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>9</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
</tr>
</tbody>
</table>
Teacher Beliefs (cont’d)

I believe that if all early childhood programs would implement a brain-based curriculum their overall quality would improve.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.3</td>
</tr>
<tr>
<td>Agree</td>
<td>8</td>
<td>33.3</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>14</td>
<td>58.3</td>
</tr>
</tbody>
</table>

I believe that a brain-based curriculum is just another fad and will be gone within five years.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>10</td>
<td>41.7</td>
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<tr>
<td>Disagree</td>
<td>12</td>
<td>50.0</td>
</tr>
<tr>
<td>Agree</td>
<td>2</td>
<td>8.3</td>
</tr>
</tbody>
</table>

My thinking about how children learn has changed since I learned more about brain research and its application in the classroom.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>2</td>
<td>8.3</td>
</tr>
<tr>
<td>Agree</td>
<td>13</td>
<td>54.2</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>37.5</td>
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</tbody>
</table>
APPENDIX L

TEACHER RESPONSE TO SFL PROGRAM

(POSTTEST ONLY)
Teacher Response to *Success For Life*

I feel knowledgeable about brain research and its relationship to how children learn.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>14</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
</tr>
</tbody>
</table>

I am comfortable speaking about brain research and its impact on children’s learning.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>4</td>
</tr>
<tr>
<td>Agree</td>
<td>10</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
</tr>
</tbody>
</table>

I am able to make connections between brain research facts and classroom applications.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>1</td>
</tr>
<tr>
<td>Agree</td>
<td>11</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>12</td>
</tr>
</tbody>
</table>

My ideas about how to teach young children have changed since I began participating in *Success For Life*.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>4</td>
</tr>
<tr>
<td>Agree</td>
<td>11</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
</tr>
</tbody>
</table>
Teacher Response to *Success For Life* (cont’d)

The physical environment in my classroom has changed since I began participating in *Success For Life*.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disagree</td>
<td>1</td>
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<tr>
<td>Agree</td>
<td>11</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>12</td>
</tr>
</tbody>
</table>

As a result of my participation in *Success For Life* I am more aware of the emotional and social needs of children.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
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<tbody>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
</tr>
<tr>
<td>Agree</td>
<td>9</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>14</td>
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</tbody>
</table>

Children have benefited from the experiences and activities I have implemented in *Success For Life*.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>8</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>16</td>
</tr>
</tbody>
</table>

Parents have shown interest by asking questions about how *Success For Life* could improve their children’s learning and development.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
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<tbody>
<tr>
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<td>6</td>
</tr>
<tr>
<td>Agree</td>
<td>11</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
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</table>
Teacher Response to *Success For Life* (cont’d)

My classroom has benefited from the collaboration with the *Success For Life* team and the University of North Texas.

<table>
<thead>
<tr>
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<th>Frequency</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Agree</td>
<td>8</td>
<td>33.3</td>
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<tr>
<td>Strongly Agree</td>
<td>16</td>
<td>66.7</td>
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</table>

*Success For Life* training has contributed to my professional development.

<table>
<thead>
<tr>
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<th>Frequency</th>
<th>Percent</th>
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<td>Agree</td>
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<td>25.0</td>
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<tr>
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<td>75.0</td>
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REFERENCES


