The necessity for an increased understanding of quality in early childhood practices by school psychologists

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Abstract
Due to the increased recognition of the importance of quality early childhood education for young children from economically disadvantaged homes and young children with disabilities, public schools are beginning to provide early childhood programs. Implementing such programs into the public schools will require school psychologists to be knowledgeable in the premise of developmentally appropriate practices and its crucial role in quality early childhood education. This paper presents a framework of developmentally appropriate practice and what constitutes quality early childhood education programs. The benefits of quality early childhood education programs are assessed through the examination of longitudinal research of early education programs and the effectiveness of state-funded early childhood programs. Specific studies focus on selected aspects of developmentally appropriate practice concerning child development and growth. This review looks at ways of assessing developmentally appropriate practices from the ecological view point. The paper concludes with implications for school psychologists.
THE NECESSITY FOR AN INCREASED UNDERSTANDING OF QUALITY IN EARLY CHILDHOOD PRACTICES BY SCHOOL PSYCHOLOGISTS

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The Necessity for an Increased Understanding of Quality in Early Childhood Practices by School Psychologists

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Abstract

Due to the increased recognition of the importance of quality early childhood education for young children from economically disadvantaged homes and young children with disabilities, public schools are beginning to provide early childhood programs. Implementing such programs into the public schools will require school psychologists to be knowledgeable in the premise of developmentally appropriate practices and its crucial role in quality early childhood education.

This paper presents a framework of developmentally appropriate practice and what constitutes quality early childhood education programs. The benefits of quality early childhood education programs are assessed through the examination of longitudinal research of early education programs and the effectiveness of state-funded early childhood programs. Specific studies focus on selected aspects of developmentally appropriate practice concerning child development and growth. This review looks at ways of assessing developmentally appropriate practices from the ecological viewpoint. The paper concludes with implications for school psychologists.
The Necessity for an Increased Understanding of Quality in Early Childhood Practices by School Psychologists

Introduction

Educators have recently increased their attention on the preschool years as a period of particular importance in children's development of essential foundations for later school learning and success. National recognition of the value of building such skills has induced the movement of early childhood education into the public school system. With this movement of early childhood education into public schools, many psychologists are looking for ways to increase the effectiveness of school psychology services in early childhood education.

The field of early childhood education has undergone much change and growth. Three main societal forces have influenced our views of children and the educational process. First, society's views of children have changed dramatically over the last century. No longer are children viewed simply as a source of labor. There has been a tremendous growth in
the attention given to young children and their needs (Wolery, 1994).

Society's changing views toward civil rights is another societal factor influencing early childhood education. Many groups of individuals such as racial minorities, women, and individuals with disabilities were not allowed full participation in society nor equal access to public and private services. Inequalities against such groups have been amended by civil rights legislation. Young children with disabilities constitute one group that has benefited from this shift in society's view from exclusion and separation to inclusion and integration (Wolery, 1994).

The third societal factor is society's changing views toward education. Education is currently viewed as a way to improve the national status and improve the future of certain groups of people such as the impoverished and disabled. This faith in education to produce change has influenced the entitlement to public education for young children with disabilities and the development of early childhood education programs for disadvantaged children. (Wolery, 1994). Early education is seen as a vehicle to attack the effects of poverty.
The influence of these societal forces has contributed to the movement of early childhood programs into the public schools. Programs have centered on providing services to two populations - young children who are from economically disadvantaged homes and young children with disabilities. Although school psychologists' experience with early childhood education is limited, these societal forces may require school psychologists to develop a more extensive knowledge base concerning these populations and programs.

Disadvantaged Population

For low-income and educationally disadvantaged students, research suggests that quality early childhood programs may be critical for future success. Recognition of the negative effects of poverty on the educational success of children led to the belief that quality educational experiences should be available to all children, in particular the poor and disadvantaged. Economically and educationally disadvantaged children who attend early childhood education programs benefit cognitively, emotionally, and socially (Texas Education Agency, 1995).
While economically advantaged families could afford expensive nursery schools, the welfare of poor children who needed child care became a concern. In response to this need, Head Start was introduced with the passage of the Economic Opportunity Act of 1964 and became one of the major programs of the War on Poverty in the 1960s (Shanker, 1987).

Research indicates that students who participated in Head Start demonstrated gains in cognitive development and school achievement for at least three years after attending the program. The program was also found to have a positive effect on children's health and socio-emotional development. Regardless of the benefits that disadvantaged children can receive from attending Head Start programs and in spite of annual increases in funding, less than 24% of the three- and four-year olds living in poverty are currently being served (Shanker, 1987). In response, states have begun to provide early childhood education programs to meet the needs of the unserved children (Texas Education Agency, 1995).

Disabled Population

Another group of children who benefit from quality early education experiences are young children with
disabilities. The passage of P.L. 94-142 extended the school’s responsibility to that of providing a free appropriate education for school-age children with disabilities and included financial incentives for states to serve these children (Boehm & Sandberg, 1982).

In 1986, P.L. 99-457 required states to extend all provisions of P.L. 94-142 to children with disabilities, three to five years old and Part H provided early intervention services for children, birth through age two, with disabilities or with developmental delays and their families. As part of P.L. 94-142, the public school psychologist is responsible for assessment, placement, and interventions for preschool children with disabilities. This law is based partially on the premise that early intervention will enhance national long-term savings, minimize the effects, of the disability, reduce the development of secondary effects and help support these families with special needs. It is most likely that school personnel such as school psychologists will be expected to assess and assist in coordinating the services to be provided (Santos de Barona, 1992).
Advantages of Publicly-Sponsored Early Childhood Education Programs

Although the research supports the belief that quality early childhood education is advantageous for all children, it has so far not been accessible to those who need it the most. The movement of placing early childhood education programs in the public schools addresses this problem. There are several advantages for publicly sponsored early childhood programs. First, the public school system is established and available throughout the United States to all children (Kagan, 1987). Secondly this move would overcome the built-in economic segregation of the Head Start programs. Universal early childhood education would better integrate children across socioeconomic lines and would introduce equity into the program (Zigler, 1987). Thirdly, schools have had education as their mission for years and will be able to adapt to serve younger children appropriately. The public school system is best equipped to offer the variety of services needed to support a child’s development. Finally, public schools have well established administrative and financial procedures that are capable of managing large amounts of early
childhood education funds. Schools have professional standing, and salary schedules that would provide better pay and benefits and would promote less turnover (Kagan, 1987).

School psychologists have an established role in the school system and their services can enhance the educational opportunities for children with disabilities and from impoverished homes. However, school psychologists' limited experience working with early childhood is a concern that needs to be rectified. By understanding that quality early childhood education is different from elementary education and what quality early childhood programs entail, school psychologists can better serve this young population.

The Changing Role Of The School Psychologist

Traditionally school psychologists have worked under a model of testing children in order to place them with special services. The role of the school psychologist is changing to a problem-solving model that emphasizes the identification of problem situations not problem children. Since the focus of intervention is on problem situations, teacher's behaviors as well as the child's behavior and the
classroom environment are factors in the educational experience (Barnett & Ehrhardt, 1995).

A universal belief exists that many variables working within a classroom such as teacher behavior and the classroom environment, influences student behavior and learning (McKee & Witt, 1990). Figure 1 provides a structural model of school and teacher variables that influence student learning outcomes. However, despite this belief, school psychologists do not reflect this ecological view in their daily practice, instead services focus mostly on child variables such as the child’s intelligence, the child’s learning style, and the child’s behavior. The classroom environment and instructional practices are considered constant and the intervention focus is on the child (McKee & Witt, 1990).

McKee and Witt conclude that “this discrepancy between beliefs and behaviors results from the enormously complex social and technical issues surrounding the assessment of instructional and other environmental variables” (1990, p.821). Social issues involve invading the teachers’ turf and presuming to have the right and knowledge to offer assessment and interventions. Technical issues involve the school
psychologists' lack of knowledge on what to assess, how to assess it, and most importantly, how to communicate that information to the teacher.

School psychologists have not been sufficiently trained on the specific components of effective teaching, in the processes and behaviors that create quality classroom environments or more specifically in developmentally appropriate practices (McKee & Witt, 1990). This lack of knowledge may be due, in part, to the changing role of the school psychologist. In recent years, classroom consultation has become an important service that school psychologists have begun to provide (McKee & Witt, 1990).

Burden (1993) suggests that the inevitable move from individual-centered to systems-oriented and consultancy-based approaches will affect school psychologists' perceptions of and need for appropriate assessment techniques. The results of a national survey conducted by Bagnato and Neisworth (1994), suggested that preschool intelligence testing should be discontinued and replaced with alternative assessment procedures that are developmentally appropriate, multidimensional and ecological. A part of the systems-oriented approach would include assessment of
the quality of early childhood education environments. As school psychologists progress to a systems-oriented approach of services, there will be less emphasis on with-in child explanations for learning failures or success. Classroom management techniques and the establishment of appropriate learning environments, rather than such hypothetical constructs as intelligence, will be the focus of initial interventions. The movement toward use of systems-oriented interventions will allow school psychologists to better serve the early childhood population.

The purpose of this paper is to substantiate the need for school psychologists to be knowledgeable in the premise of developmentally appropriate practices, its crucial role in quality early childhood education, and to provide an overview of developmentally appropriate practices and related research. With such a premise in mind and quality education as the goal, school psychologists can provide services that will enhance the early childhood programs emergence into the public schools.

This paper will present a framework of developmentally appropriate practice and what constitutes quality early childhood education programs.
The benefits of quality early childhood education programs will be assessed through the examination of longitudinal research of early education programs and the effectiveness of state-funded early childhood programs. Specific studies will focus on selected aspects of developmentally appropriate practice concerning child development and growth. This review will also look at ways of assessing developmentally appropriate practices from the ecological viewpoint. The paper will conclude with implications for school psychologists.

Developmentally Appropriate Practice: Framework for Quality Early Childhood Education Program

Definition

During the development of the National Association for the Education of Young Children (NAEYC) accreditation system, the National Academy of Early Childhood Programs, the demand for a clear definition of the key concepts of developmentally appropriate practice became apparent. In response to widespread use of inappropriate formal teaching techniques for young children and an overemphasis on achievement, NAEYC presented a position paper with definitions and guidelines of developmentally appropriate practice.
Developmentally appropriateness is defined through two dimensions: age appropriateness and individual appropriateness.

1. Age appropriateness. Human development research indicates that there are universal, predictable sequences of growth and change that occur in children during the first eight years of life. These predictable changes occur in all domains of development—physical, emotional, social, and cognitive. Knowledge of typical development of children within the age span served by the program provides a framework from which teachers prepare the learning environment and plan appropriate experiences.

2. Individual appropriateness. Each child is a unique person with an individual pattern and timing of growth, as well as individual personality, learning style, and family background. Both the curriculum and adults' interactions with children should be responsive to individual differences. Learning in young children is the result of interaction between the child's thoughts and experiences with materials, ideas, and people. These experiences should match
the child's developing abilities, while also challenging the child's interest and understanding (Bredekamp, 1987, p.2).

**Definition of Quality**

NAEYC recognized the need for early education standards and have established minimal guidelines for quality, developmentally appropriate practices. Bredekamp states (1987):

A high quality early childhood program provides a safe and nurturing environment that promotes the physical, social, emotional and cognitive development of young children while responding to the needs of families. A major determinant of program quality is the extent to which knowledge of child development is applied in program practices—the degree to which it is developmentally appropriate (pp. 1-2).

**Concerns**

Even with guidelines for developmentally appropriate practices in early childhood education from NAEYC, quality may be affected by many variables and it is being questioned if schools can provide quality programs that are developmentally appropriate. One concern is that traditionally schools are academically
oriented. For quality early childhood education, the curriculum philosophy should be based on child development which requires staff to be knowledgeable in such theories. Another concern is of teacher certification. Staff quality is the most important part of quality in the early childhood program. Staff qualifications and training guidelines have not been defined (Texas Education Agency, 1995). It is important that school psychologists are knowledgeable in the areas of quality, developmentally appropriate practices for early childhood, and be able to provide efficient assessment, consultation and interventions in these areas.

**Underlying Theory of Developmentally Appropriate Practices**

Constructivist theories of Vygotsky and Piaget can be found at the base of the NAEYC standards for quality. Vygotsky contends that learning is dependent on the child’s direct self-discovery. He emphasizes that children learn in social contexts that are child-initiated through child play (Texas Education Agency, 1995).

Piaget described learning as a continuous development process with identifiable stages and that
children learn through realistic experience and interactions. In Piaget's view, "children are intellectual explorers, making their own discoveries and formulating their own positions" (Crain, 1992, p. 210). Cognitive development, as viewed by Piaget to be a growing and building process, is the basis for current child development theory (Clark, 1990).

Characteristics of Developmentally Appropriate Practices

Several characteristics follow the guidelines of developmentally appropriate practice and are essential to achieving quality early education.

Play oriented. Young children should be provided with an environment that is play oriented with active engagement. Bredekamp (1987) states "Children acquire knowledge about the physical and social worlds in which they live through playful interaction with objects and people" (p.52). In order for a child to understand concepts and be motivated to learn more, they must learn the information in meaningful context appropriate for that child's experience and development (Bredekamp, 1987).

Child-centered. The atmosphere should be child-centered and directed. Teachers should act as
facilitators to a young child’s learning by preparing stimulating environments with challenging materials, observing, and posing additional challenges to guide the child’s further cognitive growth. Much of children’s learning can take place when they direct their own play activities. Children benefit from taking an active role in setting class rule and choosing activities (Bredekamp, 1987).

Social Interaction. Young children learn through interaction with those around them, both peers and adults. Appropriate interactions with adults should reflect knowledge of age-appropriate behavior and individual differences among children. Adults should provide many varied opportunities for children to communicate and should facilitate self-esteem in the child (Bredekamp, 1987).

Parent Involvement. Parent involvement is important in providing quality education. Parents have the rights and responsibility to share in decisions made about their children’s education. Teachers should work together with the parents through regular communication to provide quality education (Bredekamp, 1987).

Benefits of Quality Early Childhood Education Programs
The formation of definitions for quality and developmentally appropriate practice and the identification of characteristics involved with such practices has aided research investigating the benefits of quality early childhood education programs. Numerous studies have been conducted to assess the benefits of quality early childhood education. This paper will review longitudinal research, state-funded early childhood program research, and specific studies focusing on selected aspects of developmentally appropriate practices.

**Longitudinal Research**

Quality early childhood education programs produce positive results in children’s cognitive and social development and growth. In order to assess the full range of benefits that children receive from attending quality early childhood education programs, longitudinal research must be conducted and evaluated.

**Head Start.** The study of Head Start has provided an extensive body of research related to the effects of early education. Steve Barnett (1995), reviewed 36 studies to examine the effects of these programs on children from low-income families. From this collection of data, Barnett asserts that higher quality
early education programs are associated with better cognitive development. Programs such as Head Start, that are designed for disadvantaged children, can produce gains in IQ equivalent by approximately eight IQ points. This improvement is evident through the first few years of the child’s educational career. This has important implications for children in terms of academic performance and placements in special education classes (Barnett, 1995).

One of the main goals of Head Start programs is to help children develop social competence. Upon entry into the program, positive gains in socio-emotional outcomes such as self-esteem, academic motivation, and social behavior are evident. Children presented less aggressive behaviors in the program and teacher ratings of classroom behaviors were better for those in the Head Start programs (Barnett, 1995).

The Barnett review also indicates that quality programs have many long-term effects in achievement, grade retention, special education, socialization and high school graduation rates. By seventh grade 14% of children from Head Start versus 35% of children who did not attend early education had been retained in grade or been placed in special education (Entwisle, 1995).
Accompanying the many benefits for children who attend Head Start, are substantial benefits for the whole society. A complete cost and benefit analysis was compiled by Barnett (1995) as can be seen in Table 1. This evidence suggests that the financial burden of providing quality preschool for all low-income children would be offset over time by reductions in social problems that cost society far more each year.

Bryant et al. (1994), examined the relationships between classroom quality, home quality and child outcomes among 145 Head Start children. Classroom environments were evaluated using the Early Childhood Environment Rating Scale (ECERS). The results indicate that children from higher quality programs tend to perform better on information processing and preacademic skills. Verbal skills and general knowledge are also found to improve through quality Head Start programs. This remains the case regardless of the quality in their home environment.

High/Scope Perry Preschool. The Perry Preschool project is nationally recognized for its research contributions in early education for disadvantaged children. The project, conducted from 1962 through 1967 with more than 120 African-American children,
provides follow-up research until the participants reach the age of 27 years. In the area of educational performance, participants significantly outscored the no-program group on various tests over the years including intelligence, achievement and literacy measures. The program group had higher rates of graduation and had better attitudes toward school than those from the no-program group. The rates of placement in special education classes and grade retention were significantly lower for the High/Scope participants (Schweinhart et al., 1993).

The Perry Preschool study provides the longest and most intensive follow-up study of effects on socialization. Those who participated in the program averaged a significantly lower number of lifetime criminal arrest than those in the no-program group (2.3 vs. 4.6 arrests). The study participants also reported fewer delinquency and school misconduct acts. Fewer out-of-wedlock births (1.0 vs. 1.7), single parents (32% vs. 54%) and abortions (4% vs. 23% ever had an abortion) were reported from the participant group in comparison with the no-program group. Annual income earned by the participants was higher than the no-program group (29% vs. 15%) (Schweinhart et al., 1993).
Cost-benefit analysis of the High/Scope Perry Preschool Project conducted by Barnett (1993), indicates substantial benefits for the society as can be seen in Figure 2. Barnett points out that in addition to financial benefits, there are some intrinsic values received from the program that cannot be quantified in economic terms such as increased success and satisfaction with school and work, increased socioeconomic status and economic self-sufficiency (Barnett, 1993).

State-Funded Early Childhood Program Research

There is limited research available on state-funded early education programs. Two states, Texas and South Carolina have provided evaluation studies of their state-funded early childhood programs.

Texas Prekindergarten Study. Upon recognizing the importance of early childhood education, Texas mandated state-funded prekindergarten programs in 1986 for all four-year-old children who are from low-income families or have limited English proficiency. All school districts having 15 or more children who qualified for the program were required to provide prekindergarten programs. In 1989, the Texas Education Agency began a five-year evaluation study to assess the
developmental quality of Texas prekindergarten programs (Texas Education Agency, 1995).

The Texas study (1995) consisted of four components:

1. a statewide survey of districts and campuses focusing upon prekindergarten program characteristics, implementation, and parents' perceptions of the programs;
2. a case study of ten schools that are providing prekindergarten programs to examine in-depth program implementation in relationship to developmentally appropriate practices;
3. a self study in which prekindergarten staffs participating in the case study component self-examined the developmental quality of their classroom practices;
4. a longitudinal study of approximately 2,000 students enrolled in the prekindergarten program during the 1989-90 school year, in relationship to a comparison group of 600 students who were eligible for prekindergarten but did not participate in the program (p. 6).

Positive trends in academic performance were indicated from the study. Students that attended
prekindergarten were reported to have mastered more essential elements in the areas of math, science, social studies, fine arts, and health during 1993 and were less likely to be retained from the next grade than students who were eligible for the program but did not attend. The Texas Assessment of Academic Skills (TAAS) revealed that those students who attended prekindergarten programs had Normal Curve Equivalent (NCE) scores two points higher than those who did not attend prekindergarten in the areas of math and reading. Program students were less likely to be referred for special education programs. In addition, increased parental involvement was noted among children who attended the prekindergarten programs (Texas Education Agency, 1995).

Over the five years that the study took place, the quality of the early childhood programs showed improvements in their movement toward developmentally appropriate practices. The evidence of such positive gains for the children who attend quality early childhood programs promotes the Texas Education Agency’s (1995) main recommendation, "Increase participation in prekindergarten to all children who are eligible for the program" (p. 68).
South Carolina Study. According to Frede and Barnett (1992), studies of early childhood programs do not reveal much information about the specific classroom experiences nor do they investigate the benefits of large-scale, statewide studies. As part of the Educational Improvement Act (EIA) in 1984, $2.4 million was provided by the South Carolina General Assembly to support preschool programs for 4-year-old children from low-income families. This initiative was to help improve the basic skills of children who scored low on screening tests prior to enrollment. The State Department of Education Basic Skills Section administered the programs from a developmental perspective and chose to mandate the implementation of the High/Scope Preschool Curriculum. The EIA required the programs to be evaluated for effectiveness (Frede & Barnett, 1992).

The study investigated whether attending public school preschool programs had significant benefits for children in school related skills and the relationship of elements of quality to the effectiveness of the program. The ECERS aided in the assessment of program quality (Frede & Barnett, 1992).
Results indicate that state-funded preschool programs can lead to greater readiness for the first grade if program quality is maintained. Programs that implemented the High/Scope curriculum moderately to very well had higher school success than programs with low levels of implementation of the curriculum. Frede and Barnett (1992) state that "a certain level of quality is necessary to improve the academic status of young disadvantaged children" (p. 496).

The researchers suggest, that when studies omit measures of treatment implementation and quality of early childhood programs results can be misleading. Without evaluating the quality of the state programs, the conclusion that the preschool program was not effective would have reached (Frede & Barnett, 1992).

**Specific Studies Focusing on Selected Aspects of Developmentally Appropriate Practice**

Quality early childhood education programs provide children with benefits in a variety of areas. Researchers have investigated many selected aspects of developmentally appropriate practice and how they affect children.

**Teacher-child interaction.** NAEYC guidelines define teacher-child interactions as extending the
child’s learning by asking questions or making suggestions that stimulate children’s thinking through positive guidance, praise, and redirection (Bredekamp, 1987). Theory promoting cognitive development through adult intervention in children’s activities are supportive of this element of developmental appropriateness (Kontos & Dunn, 1993).

Research by Kontos and Dunn (1993), focused on teacher behavior and levels of quality. Results indicated that higher quality programs have teachers that provide more divergent questions and elaborate interactions and set fewer limits. Evaluation of classroom processes found these characteristics to be more prevalent during free play activities.

Stipek et al. (1992), used a teachers warmth subscale in evaluating quality interaction. Teachers from developmentally appropriate classrooms were found to provide more nurturing, accepting, respectful interactions with children than didactic classrooms. Research conducted by Phillips et al. (1987) found that the amount of verbal interaction between teacher and children is one of the most consistent predictors of children’s social development. Phillips et al. (1987) states “Children appear to profit from a verbally
stimulating environment in which teachers and children are frequently engaged in social interaction and cognitive stimulation" (p.542).

Referring to the attachment theory, Howes and Smith (1995), propose a model predicting that children who experience more positive social interactions with teachers will engage in more competent cognitive activities as they play. Children will be more securely attached to teachers through positive interaction. Howes and Smith contend that such secure attachments promote children’s exploration of the environment and social competence with peers.

Language development. Since children acquire the language of their culture, the verbal environment provided by adults plays a crucial role in children’s language development (McCartney, 1984). Research has taken this concept into early childhood education to assess whether the quality of the classroom environment affects children’s language development.

Studies in the area of language development commonly utilize the same instruments for assessment. The ECERS has assessed classroom environment while verbal intelligence has been measured with the Revised Peabody Picture Vocabulary Test (PPVT-R) (Goelman &
Pence, 1987; McCartney, 1984; McCartney et al., 1982, 1985; Phillips et al., 1987). Language development was assessed using three different strategies; standardized test results from the Preschool Language Assessment Instrument (PLAI), teacher ratings from the Adaptive Language Inventory (ALI) and research team ratings of language observation.

Results indicate that children in high-quality programs are provided more stimulating verbal environments and score significantly higher on the PPVT-R and the PLAI and obtain higher ratings on the ALI and research observation scales (Goelman & Pence, 1987; McCartney, 1984; McCartney et al., 1982, 1985; Phillips et al., 1987). The number of functional utterances directed to children by teachers and the number of times children initiated conversation with the teacher were predictive of performance on measures of language development (McCartney, 1984). Language development was also influenced by staff-child ratios, also an element of quality in early childhood programs (Phillips et al., 1987).

**Social development.** The entrance into early childhood education begins a time of increased social development with peers and adults. The level of
developmental appropriateness in the classroom has been investigated as an important element in children's social development.

Parents and teacher's rated children in higher quality classrooms to be more sociable and considerate (McCartney et al., 1982; Phillips et al., 1987). Howes et al. (1992) suggests that when teacher's provide appropriate activities, children are more likely become involved in interaction with peers and work cooperatively together. Two main elements of quality seem to be good predictors of children's social development in early education programs. The amount of verbal interaction between teachers and children was the most consistent predictor of social competence (McCartney et al., 1982; Phillips et al., 1987, 1987). Children who establish more secure attachments with teachers maintain more social interactions and are more socially mature (Howes et al., 1992; Howes & Smith, 1995; Phillips et al., 1987).

Behavioral/Emotional development. Quality of early childhood programs is considered to be an important element in children's emotional and behavioral development. Children who attend centers that have low verbal interaction were reported to be
more anxious, hyperactive, and aggressive. Verbal interaction with adults had positive effects on emotional adjustment as well as language stimulation (McCartney et al., 1982; Phillips et al., 1987).

Children's emotional expression in early childhood programs was also found to be affected by quality. Children in higher developmentally appropriate settings were found to display more smiling and laughing, to show greater intensity of this positive affect and to display less intense negative affect than children in lower quality settings. The best predictors of children's affect focused on the appropriateness of the teacher's behavior (e.g., appropriate involvement and interaction, encouragement of receptive and expressive language, appropriate scheduling and supervision of activities) (Hestenes et al., 1993).

Today's children are already exposed to stress outside of the school environment, inappropriate classrooms that produce additional stress may have serious consequences for the young. Research has indicated that more overall stress is found in children who attend developmentally inappropriate classrooms than by those children in appropriate environments (Burts et al., 1990, 1992; Howes & Smith, 1995; Hyson
et al., 1990; Mantzicopoulos et al., 1993). Stress was observed during transition time, group time, and during workbook/worksheet activities (Burts et al., 1990, 1992).

Burts et al. (1990), research established gender differences in stress behaviors. Males exhibit more stress behaviors than females in response to achievement-demanding situations. Burts states "Repeated exposure, duration and pacing of stressors are important factors in determining the potential impact of stress" (p. 419).

Cognitive development. High quality early childhood programs have been indicated to enhance children's cognitive development as was reported by the longitudinal and large scale/state wide studies. Specific elements of developmentally appropriate classrooms that are predictive of cognitive growth were assessed by Howes & Smith (1995). Teacher social interaction and attachment security were found to be good indicators of children's cognitive activity. Children's play activity and overall classroom quality were also indicative of cognitive development.

Classroom Environment Assessment Measures
The demand to define quality and developmentally appropriate practices in early childhood education created the need for instrumentation designed to measure classroom practices and environments. Indicators of quality that were frequently used in the past included child/staff ratio, staff training, group size, etc. Results from reliance on such index variables leave out important aspects of the young child's learning environment. Observations and ratings on observations would more likely capture the important aspects and differences in the children's experiences (McCartney et al., 1982).

Scarr et al. (1994), discuss three main uses for classroom environment quality measures. The first two uses, regulation and program improvement, require exhaustive inventories of the many different aspects of quality. Such extensive inventories are also required for consultation services. The third use of quality measures, research, requires valid and reliable measures of developmentally appropriate aspects that can be assessed efficiently and inexpensively.

School psychologists are in a position to help establish the quality needed in early childhood education programs that will produce desired benefits.
for disadvantaged and disabled children. Through the utilization of instruments that assess classroom practices and environments, school psychologists could assist in evaluating programs and consult with educators in their quest for quality. In order to provide these services, school psychologists will need to be aware of the available instruments and what they assess. The four most widely-used instruments are described below. These instruments are fairly new and therefore evidence of high validity has not been established.

**Early Childhood Environment Rating Scale (ECERS)**

The Early Childhood Environment Rating Scale (ECERS), developed by Harms and Clifford (1980) is the best known instrument for measuring early childhood classrooms. The ECERS is based on the scientific knowledge and practical experience of the enhancement of the basic educational needs of the young child (Karby & Giota, 1994). This measure is used by an observer to determine ratings of quality based on a seven-point Likert scale that is made up of 37 items, chosen to be good indicators of quality. Items are grouped into seven subscales including: personal care routines, furnishing and display for children,