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THE LSU STUDIES:

BUILDING A RESEARCH BASE FOR DEVELOPMENTALLY APPROPRIATE PRACTICE

Rosalind Charlesworth, Craig H. Hart, Diane C. Burts and Michele DeWolf

ABSTRACT: *For five years a group of researchers at Louisiana State University has been studying the effects of developmentally appropriate and developmentally inappropriate instructional practices on the behavior and achievement of young children. This paper begins with an overview of the extent of this work. The major arguments of the critics who have examined child development as the conceptual base for early childhood education and a construct of developmentally appropriate practice from the reconceptualist view are then examined. Finally, the results of the LSU studies are summarized and a case is made in support of a construct of* developmentally appropriate practice. *The paper closes with connections and implications.*

INTRODUCTION

Writing this paper provided us with the opportunity to reflect on our work and share our findings from both published (Burts, Hart, Charlesworth, Fleege, Mosley, & Thommason, 1992; Burts, Hart, Charlesworth, & Kirk, 1990; Charlesworth, Hart, Burts, & Hernandez, 1991; Charlesworth, Hart, Burts, Thommason, Mosley, & Fleege, 1993; Fleege, Charlesworth, Burts, & Hart, 1992) and unpublished work (Abshire, 1990; Burts, Campbell, Hart, Charlesworth, DeWolf, & Fleege, 1992; Burts, Hart, Charlesworth, DeWolf, Ray, & Fleege, in press; Burts, Charlesworth, & Fleege, 1990; Charlesworth, Hart, Burts, Thommason, Mosley, & Fleege, 1993; Clement, 1992; Crom, 1992; Durland, DeWolf, Charlesworth, Hart, & Burts, 1992; Fleege, Charlesworth, Burts, & Hart, 1992; Hart, 1993; Hawkins, 1991; Mosley, Charlesworth, Hart, Burts, & Norris, 1992; Ray, 1992; Verma, 1992; Weems-Moon, 1991). It also provided an opportunity to contribute to the reconceptualist dialogue regarding development as the conceptual base for early childhood education.

Developmental theory has traditionally been applied to early childhood education in many different ways (Spodek, 1991). Different models of early childhood education have adopted different theories of development. Currently Piaget is probably the most popular child development theorist (e.g., DeVries and Kohlberg, 1990; Kamii, 1985) with Vygotsky gaining increased recognition (Walsh, 1991). Other theorists such as Freud, Erikson, Bandura, and Skinner have also had an influence on the conceptualization of education for young children (Charlesworth, 1992).

It is important and valuable to look critically at this developmental conceptualization of early childhood education. Sally Lubeck (1991) reminds reconceptualists that their ideas are not new, but they are important. She suggests that it is worthwhile to reconceptualize by taking a careful look at our ideas in order to ferret out missing pieces and identify areas where modification might bring improvement. Lubeck perceives that the reconceptualists operate "on a fundamentally different conception of education, one in which teaching—and teacher education—is not concerned with adopting a canon or becoming an expert but with developing the sensitivity and insight to see where children are coming from, with worrying about what children need to live within their communities and in the broader society, and, at the same time structuring classroom experiences that encourage participation in the creation of, in Beane's stunning phrase, 'a more caring, just and humane world'" (p. 173). As we will point out, our major problem with the reconceptualists is that they appear to believe that the point of view stated by Lubeck is new and different in early childhood education, whereas we believe it has traditionally been much more prevalent in early childhood than at the upper educational levels. We believe our view will be substantiated by the arguments presented in the balance of this chapter.

The first part of the paper provides an overview of the extent and focus of our developmentally appropriate practice studies. Next, we examine some of the reconceptualist criticisms of child development as the conceptual basis for early childhood education and developmentally appropriate practice as a construct guiding instruction for young children. Then, we summarize our findings up to this point relative to principals' and teachers' beliefs, teachers' reported practices, our kindergarten and preschool studies, and the follow-up of our kindergarten students. The paper concludes with a formulation of the connections and implications we see between reconceptualization and the accompanying criticisms and the support for child development as the conceptual framework for early childhood education and the concept of developmentally appropriate practice.

OVERVIEW

The following is an overview of the genesis and directions of our research. A summary of the results is presented later in the chapter. Over the past few years there has been a growing concern over the push for more inappropriate academics in many early childhood programs (e.g., Elkind, 1986). As we have found in our research (Burts, Campbell, Hart, Charlesworth, DeWolf, & Fleege, in press) some teachers and administrators believe that workbook/worksheet, drill and practice skills based instruction is appropriate for young children. In response to this concern regarding an increase in the use of developmentally inappropriate practices in early childhood classrooms and the need to define the term *developmentally appropriate*, the National Association for the Education of Young Children (NAEYC) published a position statement on developmentally appropriate practice in programs serving children from birth through age eight (Bredekamp, 1987). This document served as the inspiration and provided the take-off point for an ongoing longitudinal study and several related offshoot studies completed and in progress. Our concern with the guidelines was that, although heavily documented there was very little empirical support for the contention that developmentally appropriate practice (DAP) was advantageous for young children or that developmentally inappropriate practice (DIP) might actually be harmful.

As defined by NAEYC (Bredekamp, 1987) developmentally appropriate is comprised of two major components: age appropriateness and individual appropriateness. Age appropriateness refers to the need to consider the stages of typical child development in planning educational programs for young children. For example, typical toddlers are oriented toward trying out their emerging gross motor and language skills. Thus an environment is needed that provides for gross motor activity and social interaction that centers on opportunities for language such as conversation and booksharing rather than

one that requires that they sit still for long periods of time doing color sheets and worksheets. Individual appropriateness refers to the need to consider each child as a unique individual not only in terms of development, but also relative to other variables such as experience, culture, gender, disabilities, and so forth. Some of the major criteria set forth in the guidelines for developmentally appropriate practice (Bredekamp, 1987) include an emphasis on the whole child (physical, social, emotional, and cognitive), planning with consideration of each individual child, learning as an interactive process, and concrete activities relevant to young children's lives. In contrast inappropriate practice emphasizes the cognitive, treats all group members as if they are the same, attempts to pour in knowledge through lecture and other whole group activities, rote learning procedures, and emphasizes learning through workbook/worksheet, drill and practice activities that focus on discrete skills.

Our own informal observations and the opinions of others (e.g., Honig, 1986; Swick, 1987) supported the position that DIP might cause undue amounts of stress in young children. This question provided the initial focus for our research. It has already been documented that DAP provided for prekindergarten children can make a difference in long-term positive effects (Schweinhart & Wiekart, 1985; Schweinhart, Wiekart, & Larner, 1986). We wondered if DAP in kindergarten might not be too late to make a long-term difference when compared with the effects of DIP. This question provided the second major focus for our research. A third focus was teachers' and principals' beliefs and teachers' practices relative to DAP and DIP.

Our first problem was to find a way to identify DAP and DIP kindergarten teachers and to get an overview of their beliefs and classroom practices. We began our research with the development of the *Teacher Questionnaire*, an instrument designed to assess kindergarten teachers' beliefs and practices relative to the major appropriate/inappropriate examples in the NAEYC guidelines (Charlesworth et al., 1991). The questionnaire consists of four parts: a page of demographic information; a section for indicating the degree of control/influence on their classroom practices of themselves, other teachers, the principal, parents, the local school system and the state; *The Teachers' Beliefs Scale;* and *The Instructional Activities Scale (IAS)*. Each *TBS* item is a statement (e.g., It is _____ for children to work silently and alone on seatwork.) that the respondent rates on a five point Likert scale from not important at all to extremely important. Each *IAS* item describes an activity (e.g., participating in dramatic play). The respondent rates the frequency of availability of each activity in his/her classroom along a five point scale from almost never (less than monthly) to very often (daily). The questionnaire was administered to 113 kindergarten teachers from four Southeastern states. Factor analysis of the responses indicated that the psychometric properties of the questionnaire were strong. One of the sites where questionnaire responses were obtained (Charlesworth et al., 1991) was a kindergarten center in a nearby

school system. The principal of the center was very interested in DAP and invited us, with the teachers' cooperation, to do follow-up observations in four classrooms where the teachers were willing to cooperate. In preparation for these observations we designed the first version of *The Checklist for Observing Developmental Appropriateness in Early Childhood Classrooms* (Charlesworth et al., 1991). The purpose of the checklist was to confirm the validity of the questionnaire responses. The checklist items were constructed corresponding to the NAEYC guidelines for children ages 5 through 8 (Bredekamp, 1987). Each item on the checklist is rated on a 5-point Likert scale. The most appropriate descriptors are listed under 5 and the most inappropriate under 1. Point 5 is checked if the appropriate practice is near 100%, 4 if it is more appropriate than inappropriate, 3 if the split is fairly even, 2 if it is more inappropriate than appropriate, and 1 if it is close to 100% in line with the inappropriate descriptor. For example:

3.   View of Growth and Development

5...........................4............................3............................2............................1

- Work is individualized.
- Children move at their own pace.

- Evaluated against a group norm.
- Everyone is expected to achieve the same narrowly defined skills.
- Everyone does the same thing at the same time.

During this same time period we had also been working on the development of a third instrument, *The Classroom Child Stress Behavior Instrument*. This instrument contains over 50 child stress indices. These indices included behaviors such as nail biting, finger sucking, playing with clothing, gazing off into space, off task play with objects, and physical hostility/fighting. The children in one identified DIP and one identified DAP classroom in the kindergarten center were observed using the stress instrument. A scan sampling procedure was used. The results of the study indicated that significantly more stress behaviors were observed in the DIP classroom as compared with the DAP classroom (Burts, Hart, Charlesworth, & Kirk, 1990).

After refining our three instruments, we did a second larger study in one school system. The associate superintendent was interested in the findings of our initial study and helped us gain access to the elementary schools in the system. The *Teacher Questionnaire* was distributed and response was obtained from 204 kindergarten teachers. From the beliefs responses and follow-up classroom observations we identified 6 DAP and 6 DIP kindergartens. Parents of 204 students (coincidentally the same number as the number of teachers responding to the questionnaire) gave permission for their children to participate in the research project. Our sample from these 12 classrooms was

fairly well balanced in gender, in ethnic composition (Afro-American and Euro-American), and socioeconomic status. The results of this study also indicated significantly more observed stress behaviors in the DIP classrooms than in the DAP classrooms (Burts, Hart, Charlesworth, Fleege, Mosley, & Thomasson, 1992; Charlesworth et al., 1992). Additional findings are described later in the chapter.

To answer the question regarding long-term effects, we have since followed our students as they proceeded through the primary grades. Lack of research staff and the bussing of a large proportion of our students from their original kindergarten school to other schools precluded the continuance of stress observations, but we did have the primary teachers respond to a slightly modified version of the *Teacher Questionnaire*. We were also able to obtain checklist ratings of the degree of DIP and DAP in each of the first and second grade classrooms. The questionnaire and checklist items were essentially the same as those used with the kindergarten teachers. The major change was to substitute the word 'elementary' for 'kindergarten'. In addition, each student's teacher completed a behavioral checklist. Checklist items included rating of behaviors such as hostility and aggressiveness, anxiety and fearfulness, and hyperactivity and distractibility. We also obtained standardized test scores (*California Achievement Test*) and report card grades at the end of each academic year.

Several studies developed from the original studies. These included a look at stress during kindergarten standardized achievement testing (Fleege, Charlesworth et al., in press), a comparison of principals' beliefs with kindergarten teachers' beliefs and practices (Burts, Campbell, Hart, Charlesworth, DeWolf, & Fleege, 1992), a comparison of graphic (writing and drawing) behaviors of students from classrooms with differing degrees of developmental appropriateness (Mosley et al., 1992), an ethnographic study of the effects of teacher modeling of developmentally appropriate storybook sharing strategies (Weems-Moon, 1991), and a replication of the kindergarten studies in preschool classrooms (Durland et al., 1992).

Relative to our cumulative years of experience practicing and espousing our interpretation of "developmentally appropriate" as a philosophy and child development and early education as two sides of the same coin plus five years of research based on this conceptual framework, we believe there is a logical and strong tie between early childhood education and child development. We also believe that it can be constructive to look at an idea from different points of view and consider whether the idea still has value. Therefore, before presenting a review of the results of our studies as support for a concept of developmentally appropriate practice, we will begin with a consideration of the voices of the reconceptualist critics of development as the basis of early childhood education and of developmentally appropriate practice as a construct.

THE RECONCEPTUALISTS' VIEWS

As described by Swadener and Kessler (1991), a group of early childhood educators has formed within the perspective of the reconceptualist view of curriculum studies. Reconceptualization is a break from the traditional linear, technical approaches to curriculum planning. Under the leadership of William Pinar (cited in Swadener & Kessler) curriculum studies has moved away from the linear tradition of behavioral objectives, planning, and evaluation. Curriculum studies has moved from a practice orientation to a more theoretical, historical, research-oriented field that emphasizes political, cultural, gender, and historical dimensions. The reconceptualist objective is to review the curriculum from multiple perspectives such as race, class, and gender. Looking critically at early childhood education they have formulated the opinion that the psychological and child development perspectives that have traditionally driven early childhood education are too narrow, ignoring that the selection of knowledge for instruction and the mode of instruction is value laden. That is, the reconceptualists believe that political, gender, cultural, and historical considerations have not been recognized as important factors in the selection of the knowledge to be included in the early childhood curriculum. Developmentally appropriate practice is viewed as a white liberal progressive educational trend that may not be appropriate for other than white middle-class children (Lisa Delpit, as cited in Swadener & Kessler, 1991). The reconceptualists emphasize social contexts and social construction. They view terms such as children at risk, readiness, enhancing self esteem, and developmentally appropriate practice as biased and problematic. In this section some of the specific criticisms will be described followed by responses to those criticisms.

Child Development as a Conceptual Framework

A number of criticisms of child development as a conceptual framework for early childhood education have been forthcoming (e.g., Bloch, 1991; Kessler, 1991a, 1991b). Bloch (1991) asserts that early childhood education relies too much on the assumptions, traditions, and contributions of child development and developmental psychology. She suggests that elementary and secondary education have adopted a critical perspective while early childhood education has ignored it. That is, early childhood education has ignored issues of gender, politics, culture, and history when reflecting on the efficacy of its practices.

Kessler (1991a, 1991b) presents a number of criticisms of early childhood education's dependence on child development for support. In her critique of the metaphor of early childhood education as development (1991a), she begins by stating that those of us who base our view of curriculum and instruction

on child development do not consider context. She also indicates that a key characteristic of DAP is a lack of adult guidance and direct instruction (Kessler, 1991a). Citing Delpit, Kessler (1991a) specifically cites the whole language approach to literacy instruction as a DAP instructional method that ignores skills and doesn't provide what children from nonmainstream cultures need to be successful in the mainstream. Finally, Kessler (1991a, 1991b) suggests that Early Childhood Education needs to put more emphasis on schooling for democracy (Kessler 1991a, 1991b).

Responses to the Criticisms of Development as a Conceptual Framework

In response to Bloch (1991), it is true that early childhood education grew out of the child study movement and a psychoanalytic view of children. This should be viewed as a fact of history rather than as a criticism. Older children were available for study in the elementary and secondary schools. In order to look at younger children and their families child development researchers had to start their own laboratory schools where children could be viewed in so-called naturalistic contexts that fit their developing needs, interests, and capacities. We were rather smug regarding what kind of practice context this should be. It was not until the fifties and sixties as prekindergarten education became more available to low SES children and children from a broad spectrum of cultural groups that we began to look closely at various models of instructional practice (e.g., Lazar, Darlington, Murray, Royce, & Snipper, 1982). Along with this increase in programs more prekindergarten children enrolled in public schools; more states provided standards for certification of prekindergarten teachers; and colleges, schools, and departments of education in higher education took note of prekindergarten education. Additionally, there was a concern that prekindergarten education would be gobbled up by the science of measurement view of curriculum and instruction that permeates traditional elementary and secondary education (Levin, 1991). The publication of the NAEYC guidelines (Bredekamp, 1987) finally documented concerns and beliefs regarding early education practices in an organized fashion.

In response to Kessler's (1991a) contention that by focusing on development, early childhood educators ignore context, we beg to differ on this point. We do have a concern for the child in the family and the social systems outside the family. For example, Bronfenbrenner's ecological theory is an important theoretical perspective in early childhood development (Bronfenbrenner, 1979, 1989). Bowman (1992) provides an expanded definition of DAP that elaborates the relationship between DAP and culture. Bowman (1992) suggests that teachers match instruction to culturally relevant developmental milestones. Kessler believes that the metaphor of education as development places too much of a focus on development and not enough on education. It is true that we believe development needs to be considered first when planning curriculum

and instruction. However, there are other realms of knowledge that need to be considered. Bredekamp (1991) in her response to Kessler (1991b) states:

> We recognize that curriculum decisions are informed by theory and philosophy that go beyond child development knowledge. However, neglect of child development knowledge has resulted in the greatest abuses of children. (p. 203)

Regarding Kessler's implication that teachers do not teach in the DAP classroom and that there are no specific goals and objectives, these are common misconceptions (Bredekamp & Rosegrant, 1992; Kostelnik, 1992). Bredekamp and Rosegrant (1992) remind us that there have been two types of errors that have affected early childhood instruction. The elementary error has pushed worksheet/workbook, basal-based instruction down into early childhood classrooms. The early childhood error has been to stand back and expect children to construct knowledge without the necessary guidance from adults and older peers. Instruction in DAP classrooms is organized and based on specific goals and objectives. Such classrooms are carefully prepared learning environments in which teachers play an active role in facilitating rather than just disseminating knowledge children acquire. However, because children take a great deal of responsibility for their own learning and practices are individually appropriate the goals and objectives and instructional practices may not be as immediately apparent as they are in a DIP classroom where everyone is following a standardized basal-based program. Returning to the example of the whole language approach to literacy, it should be noted that whole language practices, when properly implemented, do not ignore skills. Whole language instruction imbeds skills in meaningful contexts as children read meaningful literature and reflect on their own creative writing products. This approach is in sharp contrast to the decontextualized instruction in drill and practice/worksheet/workbook basal-based instruction.

Further, our research, as described in the next section of this paper, indicates that, at least for Afro-American students, DAP instruction is advantageous. We agree with Kessler that it is essential that when one teaches children from a culture other than one's own, one needs to study that culture and incorporate that culture into the curriculum. Different cultures may view time, praise, and reward, and even noise, in different ways, and these views should be respected (Charlesworth, 1992). Without cultural understanding we may make faulty judgments regarding children's behavior and their intellectual competence. However, sometimes we may have to make some value judgments regarding the customs of the community. For example, if corporal punishment is the norm in the community and we know from child development research that it is not only a physically and psychologically dangerous practice but also one that has no long-term value (Charlesworth, 1992), then we really can not ethically condone it nor can we use it as a means of classroom control. Further, Ogbu

(1992) reminds us that there are subgroups within minorities that experience varying degrees of educational success. For example Ogbu (1992) has found that voluntary minorities (those who have come to this country under their own volition) have more success in crossing the cultural boundaries that potentially may limit an individual's degree of academic accomplishment than do members of involuntary minorities (those who were brought to this country against their will). Obviously developing educational programs that will promote academic success for our diverse student population is a complex problem.

We have no problem with the goal of educating for democracy. We agree that this is a long-term goal and one that should begin in early childhood. As Bredekamp (1991) suggests, the traditional and the reconceptualist early childhood educators can achieve the most for children by combining forces. Dewey's view of education for democracy (as cited in Bredekamp, 1991; Kessler, 1991b) is not new to early childhood education. In fact, both Dewey and his wife were deeply involved in the early kindergarten movement because it so closely fit Dewey's philosophy (Greenberg, 1992). As Levin (1991) points out Dewey's view was overwhelmed in elementary and secondary education by the Thorndike influenced measurement approach to education. However, today's movement is toward site-based management with more teacher empowerment and student empowerment and more developmentally appropriate curriculum and instruction at all levels and in all content areas (e.g., see the National Council of Teachers of Mathematics, 1989). Thus, in this view, teachers are not only viewed as practitioners but program developers as well.

Hendrick (1992) and Greenberg (1992) describe the relationship of Dewey and his concept of educating for democracy as it applies to early childhood education. Hendrick (1992) suggests three developmentally appropriate ways to begin teaching children that will enable them to make thoughtful decisions that are the basis for functioning in a democracy: provide them with the power to choose, the power to try, and the power to do. As Beane (1991) points out, children's self-esteem grows in a democratic setting where they have some control over their own activity and where social interaction is a part of the instructional system. The same applies to teachers as well. We believe that a positive approach to guidance incorporated into DAP promotes behaviors (such as making informed decisions and working in collaboration with others) that support good citizenship in a democracy.

As Bredekamp and Rosegrant (1992, p. 5) state, "curriculum is not child development." However, "child development knowledge and curriculum must be integrally linked" (p. 5)

Developmentally Appropriate Practice as a Construct

As described earlier developmentally appropriate practice refers to practices that are both age and individually appropriate as defined by the NAEYC

guidelines (Bredekamp, 1987). The criticism of child development as the foundation for early education practice leads naturally into concerns regarding developmentally appropriate practice as a construct. For example, both Walsh (1991) and Jipson (1991) present such concerns. Walsh (1991) opens with the point that DAP focuses more on the how than on the what of teaching. Walsh (1991) questions the validity of the NAEYC guidelines (Bredekamp, 1987) as having any real application to instruction and any real meaning for teachers. Jipson (1991) describes teachers' interpretations and concerns regarding DAP. Jipson's teachers find DAP to be unrealistic and not applicable to their situations. They view DAP as equivalent to chaos and find difficulties in adopting the types of instruction suggested in the guidelines. Walsh (1991) centers further criticism on the lack of attention to Vygotsky (as cited in Walsh, 1991) in the NAEYC guidelines. A final reconceptualist criticism of the construct of developmentally appropriate practice that we think deserves comment, is the belief that basing guidelines for instruction on development leads to a dangerous belief in fixed stages and an overemphasis on the isolated individual as opposed to the individual in a cultural and political context (Kessler, 1991a; Walsh, 1991).

Responses to the Criticisms of Developmentally Appropriate Practice as a Construct

Walsh's (1991) point that the DAP guidelines focus more on the how than the what of teaching is important as this was the major intent of the guidelines. "DAP is not a curriculum, nor is it a rigid set of expectations" (Bredekamp & Rosegrant, 1992, p. 4). DAP is a philosophy and was intended to provide a framework for instruction (Bredekamp & Rosegrant, 1992). Content is used in the examples of appropriate and inappropriate practices but the major focus is on how to provide appropriate instruction, not what to provide. Examples of appropriate and inappropriate strategies for Curriculum Goals, Teaching Strategies, Integrated Curriculum, Guidance of Social-Emotional Development, Motivation, Parent-Teacher Relations, Evaluation, and Transitions are provided in the guidelines. Guidelines for curriculum have been published in the form of a position statement (National Association for the Education of Young Children and the National Association of Early Childhood Specialists in State Departments of Education, 1991) and are being followed up by a set of guidelines for a number of the major content areas, the first volume (Bredekamp & Rosegrant, 1992) having recently come off the press.

The examples presented by both Walsh (1991) and Jipson (1991) exemplify teachers expressing some common misconceptions regarding DAP. As both Bredekamp and Rosegrant (1992) and Kostelnik (1992) point out there are some common misinterpretations or myths that are associated with DAP. These include: (a) that the teacher sets up the environment and then stands

back and does not do anything; (b) that no type of direct instruction is developmentally appropriate; (c) that there is no attention to cultural diversity; (d) that academics are not included; and (e) that it is a totally constructivist approach.

An important attribute of DAP is that it is not prescriptive; it is very flexible. Flexibility does not mean lack of structure and lack of academics; it means developmentally appropriate structure and academics based on our current knowledge of child development. For example a preschool class was observed where the teacher explained in great detail how butter comes out of cows. She then had the students draw pictures of what they had learned. One child drew cubes of butter coming out of the cow's mouth. It is important that adults recognize that this child's interpretation of the teacher's explanation reflects information assimilated in the normal literal preoperational way. In contrast to this abstract explanation, a developmentally appropriate lesson on the same content would be more concrete. The students might actually have an opportunity to see the cow milked and then make butter from the cream obtained from the milk. This would provide an opportunity to obtain a more concrete and accurate understanding of how butter "comes" from cows through discovering for themselves how milk is processed into butter.

The flexibility of DAP provides for a variety of different structures. Whereas long periods of teacher directed activity, especially lecturing, can be quite stressful there are developmentally appropriate ways to structure activities for large and for small groups. For example, Fowell and Lawton (1992) suggest that there are appropriate and inappropriate approaches to teacher instigated and directed activities. Fowell and Lawton (1992) describe a system of small group teacher directed activities designed to provide basic conceptual information that children can then apply in their more self initiated experiences. Another example of appropriate teacher initiated structure is the learning cycle approach that is popular in science education (Charlesworth & Lind, 1990). In its simplest three step approach the cycle includes (a) exploration, (b) concept introduction, and (c) concept application. Most recently Bredekamp and Rosegrant (1992) have introduced a cycle of learning and teaching that progresses from awareness, to exploration, to inquiry, and to utilization.

Unfortunately, one of the dangers of flexibility and its nonprescriptive nature is that it may be hard to grasp by teachers who are accustomed to looking for a prescriptive curriculum. This is reflected in the comments of Jipson's (1991) teachers. DAP is intended to be adapted to each individual group of students. For example, the six DAP kindergarten classrooms that we studied were all different and varied in their degree of developmentally appropriateness and the method of implementation of DAP (Burts, Hart, Charlesworth, Fleege, Mosley, & Thomasson 1992; Charlesworth et al., 1992). Of course, it is our interpretation that the NAEYC guidelines define the extremes of DIP and DAP and that there is a continuum from one extreme to the other. A recently

reported study by Stipek, Daniels, Galluzzo, and Milburn (1992) has further demonstrated this continuum.

Walsh's (1991) point regarding Vygotsky is well taken. However, Vygotsky was largely ignored by every level and content area of education until scholars in the English Language Arts area recognized the power of his ideas as a conceptual base for many of the tenets of the whole language approach to language and literacy. Vygotsky brought attention to the importance of social interaction to the learning of language (Van Der Veer, 1986). Vygotsky's (1978) emphasis on the importance of private speech as a special type of language that is a critical part of language development is very important. Vygotsky's conceptualization of learning in a social context fills in that missing piece regarding the adult role in the child's active learning. His construct of the zone of proximal development and concept of adult support for reaching the limits of the zone through appropriate scaffolding have added an important dimension to defining developmentally appropriate adult structure (Charlesworth, 1992). Inagaki (1992) describes how the elaboration of the adult role as delineated by Vygotsky has been incorporated into constructivism by the post-Piagetians. Vygotsky should certainly be included in the next edition of the NAEYC guidelines to support the importance of the social and cultural context of learning.

Finally, we offer a response to the concern with the concept of developmental stages (Kessler, 1991a; Walsh, 1991). It is true, as pointed out by Walsh (1991) that some early educato·   ·iecially the maturationists) have carried the importance of individual development to a dangerous extreme. On the other hand, we believe that Piaget's stages are helpful if used as reminders that younger children think differently than older children and both think differently from adults. The consideration of the individual is also important in providing an attitude of respect for each child and his/her capabilities and interests at any particular age (Bredekamp, 1987). Consider the following examples of young 4-year-olds' dictations at the end of a thematic unit on the police. The children made police badge name tags prior to a visit by two police officers in their squad car. The students also viewed a film that included police assisting an injured child get to the hospital.

> BILLY: A policeman came to visit. He blew his whistle, we saw his car, he said never play with real guns.

> LISA: We folded paper for making a police badge. Then we had to put tape on, to put it on your shoulder. A pin holds it on to my dress. On the front of the badge are letters, saying "L" and my name.

> MARI: Once upon a time there was a policeman. Someone, a robber, got hold of his thing. His tools. His bandages. They stole his car, and then he had to buy more tools—they were bandages, a big bandage and a cast to put on a leg. Then

a boy got run over by a car and then they brought him to a hospital, and then
he stayed there for lots of nights and days and then he was able to go home.
He could do everything. The end.

BELINDA: We went out to see the squad car and ate snack and thanked him
for coming. Thank you for seeing that thing with the doors and doors on
[demonstrates square shape with her hands] and the motorcycle made into a cart.
The policeman was a traffic caller—that means I call somebody on the phone,
the microphone. Thank you for letting us be a robber for a little while. And thank
you for letting the policeman look at my badge. We made our fingerprints and
we watched the movie of the policeman. The two ones in the white coats were
carrying the child, one on this side and one on that side. Thank you for blowing
the whistle [siren] and thank you for coming for snack. Thank you for telling
us not to take real guns. Thank you for letting us come out with you [to the
squad car].

Each of the children has a distinct focus in describing his/her experiences. Billy
provides a few basic facts. Lisa focuses on making her name badge. Mari
attempts to put her experience into story form. Belinda dictates a thank you
letter and in doing so demonstrates an extraordinary memory for detail.
Acceptance and respect for these individual differences and their *normality* is
critical to developmentally appropriate practice.

Final Remarks Regarding the Reconceptualist Criticisms

We have by no means developed a detailed critique of the critics. We have
just responded to some of the reconceptualist ideas which we find most
troubling. Many of their criticisms represent common misinterpretations that
have been the plague of developmentally appropriate early childhood
education even prior to the publication of the NAEYC guidelines. Before
leaving this topic we would also like to mention that child development oriented
early childhood educators also find the terms *at risk, readiness,* and *enhancing
self-esteem* as problematic as do the reconceptualists (e.g., Charlesworth, 1992;
Hrncir & Eisnenhart, 1991; Willer & Bredekamp, 1990).

Bredekamp (1991) recommends that we can accomplish more by joining forces
and combining our points of view than by arguing. We all seem to agree that a
traditional mechanistic factory approach to education that has dominated elementary
and secondary education is not working, is not developmentally appropriate,
culturally appropriate, gender appropriate, nor theoretically appropriate.

FINDINGS FROM THE LSU STUDIES

We wish to describe the major findings obtained using developmentally
appropriate/ inappropriate practice as our basic construct (Abshire, 1990;

Burts, Campbell, Hart, Charlesworth, DeWolf, & Fleege, 1992; Burts, Hart,
Charlesworth, DeWolf, Ray, & Fleege, in press; Burts, Hart, Charlesworth,
Fleege, Mosley, & Thommason, 1992; Burts et al. 1991; Burts et al., 1990;
Charlesworth et al. 1991; Charlesworth, Hart, L   . Thommason, Mosley,
& Fleege, 1993; Clement, 1992; Crom, 1992; Durland et al., 1992; Fleege et
al., 1992; Hart, 1991; Hawkins, 1991; Mosley et al., 1992; Ray, 1992; Verma,
1992; Weems-Moon, 1991). We believe that these data support the value of
one view of DAP as a construct and the importance of child development as
the major conceptual basis for early childhood education. This section is
organized as follows: principals' beliefs and kindergarten teachers' beliefs and
practices, kindergarten and preschool studies, and kindergarten follow-up
studies.

Principals' and Kindergarten Teachers' Beliefs and Teachers' Reported Practices

The *Teacher Questionnaire*, as describe previously, demonstrated strong
psychometric qualities. A factor analysis provided conceptually logical factors.
Scores on the strongest factor, Developmentally Inappropriate Beliefs, were
used to identify the most DAP and the most DIP classrooms. Positively loaded
items on this factor included the degree of importance of basals, workbooks/
worksheets, flashcards, being able to print letters, evaluation through
workbooks and worksheets, learning to read, doing seatwork, recognizing the
alphabet, whole group instruction, and coloring within the lines. There was
one negatively loaded item, selects own activities. Classroom selections were
validated by using the *Checklist for Rating Developmentally Appropriate
Practice in Early Childhood Classrooms* and compiling scores from the Likert
scale points checked. Nineteen out of 20 teachers observed obtained scores
congruent with their reported beliefs. One DIP teacher copied the responses
of her neighboring DAP teacher. While kindergarten teachers tend to hold
more positive beliefs about DAP than they practiced, there was a significant
positive correlation between the degree to which kindergarten teachers valued
DAP beliefs and frequency of providing DAP activities. That is, the more
important teachers believed DAP activities were, the more likely they were
to use them. Beliefs about the value of DIP and the frequency of providing
DIP activities were even more strongly related (Charlesworth et al., 1991;
Charlesworth et al., 1993).

Kindergarten teachers who reported that they used more developmentally
appropriate instructional practices believed they had more overall control in
planning and implementing instruction than teachers using less appropriate
instructional practices (Charlesworth et al., 1991; Charlesworth et al., 1993).
Teachers reported the strongest influences on classroom practice to be school
system policies, teachers themselves, and state regulations (Burts, Campbell,
Hart, Charlesworth, DeWolf, & Fleege, 1992; Charlesworth et al., 1993), while

principals reported that they had an equal influence with the other four on instructional practice (Burts, Campbell, Hart, Charlesworth, DeWolf, & Fleege, 1992).

Within our sample about as many principals reported appropriate beliefs concerning kindergarten instruction as reported inappropriate beliefs. No significant relationship was found between principals' beliefs concerning kindergarten instruction and kindergarten teachers' beliefs. However, principals with DIP beliefs concerning kindergarten instruction had teachers who reported using more inappropriate instructional practices (e.g., flashcards, worksheets, writing on lines). Principals who were certified in kindergarten and/or who had inservice training in early childhood education had stronger beliefs regarding the importance of DAP than those principals without certification and/or training (Burts, Campbell, Hart, Charlesworth, DeWolf, & Fleege, 1992).

Kindergarten and Preschool Studies

Kindergarten Studies

As measured by our stress observation instrument, children in DIP classrooms exhibited significantly more observed stress behaviors than children in DAP kindergarten classrooms (Burts et al., 1990; Burts, Hart, Charlesworth, Fleege, Mosley, & Thommason, 1992). Males in DIP classrooms exhibited more stress behaviors (e.g., gazing off into space, playing with clothing or off task objects, sucking fingers) than males in DAP classrooms (Burts, Hart, Charlesworth, Fleege, Mosley, & Thommason, 1992). There were no differences in observed stress behaviors with regard to age of entry (young, middle, older, oldest) into kindergarten (Crom, 1992).

The most frequently observed activities in developmentally appropriate kindergarten classrooms were center, group story, whole group, and music. More teacher-directed small group, workbook/worksheet, waiting, punishment, and transitions were observed in DIP classrooms. The activities that were most stressful for kindergarten children were workbook/worksheet, waiting, and transition activities (Burts, Hart, Charlesworth, Fleege, Mosley, & Thommason, 1992). There were qualitative differences in the experiences children had during activity types (e.g., whole group, center, music) in DAP and DIP kindergarten classrooms. For example in DAP classrooms, whole group had more variety, was less tightly structured, and included more child participation than whole group activities in DIP classrooms (Abshire, 1990).

Afro-American and low socioeconomic status (SES) kindergarten children participated in less appropriate activities more frequently than Euro-American and high SES children (Burts, Hart, Charlesworth, Fleege, Mosley, & Thommason, 1992). Regardless of classroom type, low SES Afro-American

children exhibited more total stress behaviors than low SES Euro-American children. Further, low SES Afro-American children in DIP classrooms exhibited more stress behaviors than low SES Euro-American children in DIP classrooms. Low SES Afro-American children progressed rapidly in acquiring literacy when taught using developmentally appropriate whole language methods; simultaneously, their stress behaviors decreased in frequency (Weems-Moon, 1991).

Another question considered was the amount of stress evidenced during testing of kindergartners. Stress was cumulative for kindergarten children during standardized testing (*California Achievement Test-CAT*) with increased stress noted as the amount of daily testing increased and with each successive day of testing. *CAT* scores were not reflective of the children's ability levels as evidenced using DAP assessment methods (Fleege et al., 1992). Children in DAP kindergarten classrooms scored no differently on the *California Achievement Test* (*CAT* average) than children in DIP kindergarten classrooms (Burts et al., 1991). SES differences in standardized test scores favoring high SES children are well documented (e.g., Alexander & Entwisle, 1988; Patterson, Kupersmidt, & Vaden, 1990; Shakiba-Nejad & Yellin, 1981). For our sample of children this pattern held for the students in DIP kindergartens. The high SES children in DIP kindergarten classrooms scored higher than low SES children from DIP kindergarten classrooms on the *CAT* average. However, no differences in *CAT* average scores were found between high and low SES children who were in DAP classrooms (Hawkins, 1991).

In another study, variations in degree and type of developmental appropriateness observed in kindergarten classrooms affected children's behavior while creating graphic products (writing and drawing) and influenced the content of those graphic products (Mosley et al., 1992). Children from a class where the emphasis was on individual silent work using worksheets considered copying to be an unacceptable activity, while students from classrooms where peer interaction was permissible perceived copying as an acceptable mode of idea exchange. Most imitations were modifications of the copied idea that reflected the individual's own creativity (e.g., a large half circle became a hill in one child's picture, a cave in another, an elephant in a third picture, and a house in a fourth). Of four classrooms included in the Mosley et al. study (1992), students from the one rated most DAP were less advanced in their writing than the students from a classroom where the teacher incorporated both DAP and DIP. Although writing materials were available in the DAP classroom and the classroom practices were for the most part developmentally appropriate, there was a lack of teacher guidance (scaffolding) in the writing center while in the DAP/DIP classroom everyone participated in teacher directed written language activities.

Preschool Study

Preschool children enrolled in DAP and DIP preschool classes were observed using the classroom stress measure (Durland et al., 1992). Children in DIP preschool programs exhibited significantly more stress behaviors than preschool children in DAP preschool programs. More waiting, workbook/ worksheet, ditto art, and television watching occurred in DIP preschool classrooms. More music, center time, group story, whole group, and transition activities were observed in DAP preschool classrooms. No other significant activity type differences were noted.

Kindergarten Follow-up Studies

Subjects of the second kindergarten study were located as they dispersed into the primary grades. Due to attrition the first grade group included approximately 78% of the original 204 children and the second grade group included approximately 70% of the original sample. Preliminary analyses have been conducted on data from those students.

A frequent concern with the use of DAP is that the children will not be prepared for the yearly administration of standardized tests with the result that the standardized test scores may decrease (e.g., Chaillé & Barber, 1990). Although we believe standardized paper and pencil tests should not be administered to young children, because of the commonly held opinion that DIP activities are better preparation for standardized achievement tests, we considered that it was important to look at the comparison of our DIP and DAP groups' scores on the *California Achievement Test (CAT)* (Verma, 1992). As already mentioned, at the end of kindergarten there were no significant differences between the average *CAT* scores of students enrolled in DAP as compared to DIP classrooms. Similarly, at the end of the first and second grades, children from DAP kindergarten classrooms scored no differently on the *CAT* average than children from DIP kindergarten classrooms. On average, however, high SES children from DIP classrooms scored higher than low SES children from DIP classrooms on the *CAT* at the end of first and second grades. Interestingly, no differences were found in first and second grades between low SES and high SES students from DAP classrooms. In first grade, low SES children from DAP kindergarten classrooms scored higher on reading comprehension than low SES children from DIP classrooms. No SES differences in *CAT* reading scores were found in second grade for DIP or DAP students.

The other evaluation of achievement that was available to us were the students' report card grades (Burts, Hart, Charlesworth, DeWolf, Ray, & Fleege, in press; Ray, 1992). Similar to the *CAT* findings, high SES first grade children who had attended DIP kindergarten programs had higher overall

report card grades than low SES children who had been in inappropriate kindergarten programs. As with the *CAT*, no overall grade differences were found between high and low SES first grade children who had been in DAP kindergarten classrooms. Moreover, low SES first grade children who had been in DAP kindergarten classrooms had higher overall grades than low SES children from DIP kindergarten classrooms. First graders who had attended DIP kindergarten classrooms received lower reading report card grades when compared to children from DAP classrooms. In first and second grades, females had higher overall and subject area grades than males.

Second grade students who scored higher on a mathematics alternative assessment also scored higher on the mathematics subtest of the *CAT* and had higher mathematics report card grades. Second graders who had attended DAP kindergarten classrooms scored higher on the alternative assessment than children who had attended DIP kindergarten classrooms (Clement, 1992).

An examination of the teacher behavior ratings (Hart, 1993) indicated that first grade students who had been in DIP classrooms were perceived by first grade teachers as being more hostile and aggressive, anxious and fearful, and hyperactive and distractible than children who had attended more DAP kindergarten classrooms. Further, in both first and second grades, children who had been in DIP kindergartens had lower conduct and work-study habits grades than children who had attended DAP kindergartens.

Conclusions From the LSU Research

Our research indicates that developmentally appropriate practice is a measurable construct. The *Teacher Questionnaire* provides valid information that can be used to identify DIP and DAP kindergarten teachers. *The Checklist for Rating Developmentally Appropriate Practice in Early Childhood Classrooms* is a reliable instrument for providing information on the degree to which kindergarten classrooms are DIP or DAP. *The Classroom Child Stress Behavior Instrument* can provide reliable observations of the defined classroom stress behaviors (as estimated by Cohen's kappa, interrater reliability was .89).

There is a positive relationship between kindergarten teachers' expressed beliefs regarding the importance of DIP and DAP and their reported classroom instructional practices. DAP teachers appear to feel more empowered regarding making their own instructional decisions than are DIP teachers. The degree of principal knowledge regarding DAP and early childhood education is an important factor in the implementation of DAP. That is, principal's who are not knowledgeable regarding young children and DAP are more likely to value DIP and to have teachers who report using more inappropriate practices.

Students in both preschool and kindergarten DIP classrooms experience significantly more stress than those in DAP classrooms. Age of entry into

kindergarten does not appear to be related to the degree of stress experienced. DIP appears to result in more stress for low SES students, Afro-American students, and males thus placing the low SES, Afro-American male in a position most likely to be hurt by DIP instruction. Administration of standardized achievement tests compounds the stress already experienced by students in both DIP and DAP settings. Additionally, for low SES students the DIP teach-to-the-test instruction appears to depress achievement as reflected in both *CAT* scores and report card grades as compared with low SES DAP students' achievement on these measures. The results of a second grade study indicate that alternative mathematics assessments and report card grades can substitute for standardized achievement test scores as indicators of achievement.

Attendance in a DAP kindergarten appears to have positive effects on achievement in the primary grades. It may be that a DAP kindergarten experience provides students with skills that enable them to attend better to tasks than students who have had no opportunities to take responsibility for their own learning. It may be that the DAP kindergarten students, possibly due to having the opportunity to make independent choices and take on some responsibility for their own learning and internalize control of their own behavior, are rated in the primary grades as exhibiting less negative behavior and better work-study habits than DIP students.

As pointed out by Bredekamp and Rosegrant (1992) in the past early childhood educators tended to err on the side of being too nondirective in their practices. A classroom may fall at the DAP end of the continuum but still have instruction in one or more areas that is not as effective as it could be because of a lack of appropriate guidance or scaffolding. Additionally, at the other end of the continuum, students in a strictly DIP kindergarten classroom appear to be afraid to take risks; they may be paralyzed by their desire to be sure they are doing the task correctly.

While higher SES and Euro-American students appear to do equally well in achievement whether they attend DIP or DAP kindergartens, lower SES students appear to gain an advantage in having lower stress levels and better academic achievement during a DAP kindergarten experience. Lower SES students continue to hold this gain in the primary grades. In the analyses completed thus far, Afro-American low SES kindergartners also appear to gain an academic advantage and evidence lower stress levels if they are in a DAP kindergarten.

CONNECTIONS AND IMPLICATIONS

We have examined and responded to some of the major criticisms of the construct *developmentally appropriate practice* and of child development as

the basis of early childhood education. We believe that the dialogue generated by some reconceptualists (Bloch, 1991; Jipson, 1991; Kessler, 1991a, 1991b; Lubeck, 1991; Walsh, 1991) has forced us to take a hard look at some important questions. Further we have attempted to show how the construct of developmentally appropriate /inappropriate practice provides a useful definition for describing what is happening in classrooms and for looking at the effects of classroom practices on young children's achievement and classroom behavior.

From our view DAP, based on child development theory, is a real and a useful construct. We believe some of the reconceptualist criticisms are not valid but that ideas that spring from them are important. We cannot agree with the suggestion that child development is not a strong basis for instructional guidelines, but the suggestion that other bases such as educating for democracy might strengthen our conceptual base is well taken. We also cannot agree that DAP ignores cultural diversity or that it is inappropriate for anyone other than middle-class Euro-American students. Our research indicates that while middle class Euro-American students can manage to achieve well with DIP, that low SES students are much more successful with instruction as defined by DAP and, at least in kindergarten, low SES Afro-American students have higher achievement with DAP.

Overall much of the criticism of DAP results from misconceptions regarding the intent of the NAEYC guidelines. The guidelines were never meant as a recipe for curriculum development. They are meant as a starting point for planning and for reflecting on our programs. How they are applied in the classroom is a function of individual teachers' styles and cultures and their students' styles and cultures (see, e.g., Derman-Sparks, 1989; Hale-Benson, 1990; Hilliard, 1989; Hyland, 1989; Little Soldier, 1992; Pang, 1990; Slaughter-DeFoe, Nakagawa, Takanishi, & Johnson, 1990). The greatest strength and weakness of DAP is its flexibility. Educators are so accustomed to looking for prescriptions that they may have difficulty moving away from them and may feel guilty when they do.

This year we are following up 30 kindergarten and primary math specialists who have been involved in intensive inservice in DAP math (Perlis & Charlesworth, 1992). Some of the teachers have wholeheartedly embraced DAP while others have only progressed to using manipulatives as a supplement to their basals and workbooks. These latter teachers appear to be having difficulty leaving the standardized structure provided by their basals. The work of ethnographers such as Ayers (1992) is beginning to document some of the difficulties teachers face in attempting to change. Opening up teachers' and administrators' eyes to looking at their students as individuals rather than as homogeneous groups is one of today's most monumental challenges.

As a final note we would like to return to part of our title "building a research base." We and other researchers (e.g., Bentley & Wilson, 1989; Dickinson &

Snow, 1987; Rescorla, Hyson, & Hirsh-Pasek, 1991; Schweinhart, Weikart, & Larner, 1986; Stipek, Daniels, Galluzzo, & Milburn, 1992) have been working on building empirical support for developmentally appropriate practice. We wish to express our desire that the battles over research paradigms should not obscure our mission which is to document the type of instruction that works best for young children. Bloch (1991) draws our attention to a paradigmatic shift in educational research. From our view the investigator's first step, once a question has been identified, is to select a methodology that shows promise of providing the most valid answer. We have found that our quantitative studies have provided basic knowledge that has provided direction for more in depth qualitative studies (e.g., Fleege et al., 1992; Weems-Moon, 1991).

We find that the current dialogue on considerations for reconceptualizing early childhood education is important and stimulating. Hopefully it will eventually help to clear the air and strengthen the conceptual base for developmentally appropriate early childhood education.

REFERENCES

Abshire, S. (1990). *A study of developmentally appropriate and developmentally inappropriate kindergarten classrooms: Activity types and experiences.* Unpublished master's thesis, Louisiana State University, Baton Rouge.

Alexander, K.L., & Entwisle, D.R. (1988). Achievement in the first 2 years of school: Patterns and processing. *Monographs of the Society for Research in Child Development, 53* (2, Serial No. 218).

Ayers, W. (1992). Disturbances from the field: Recovering the voice of the early childhood teacher. In S. Kessler & B.B. Swadener (Eds.), *Reconceptualizing the early childhood curriculum: Beginning the dialogue* (pp. 256-266). New York: Teachers College Press.

Beane, J.A. (1991). Enhancing children's self esteem: Illusion and possibility. *Early Education and Development, 2,* 153-160.

Bentley, S., & Wilson, E. (1989, November). *NAEYC's developmentally appropriate practice guidelines: Current research.* Paper presented at the preconference sessions of the National Association for the Education of Young Children, Atlanta, GA.

Bloch, M.N. (1991). Critical science and the history of child development's influence on early education research. *Early Education and Development, 2,* 95-108.

Bowman, B.T. (1992). Reaching potentials of minority children through developmentally and culturally appropriate programs. In S. Bredekamp & T. Rosegrant (Eds.), *Reaching potentials: Appropriate curriculum and assessment for young children* (Vol. 1, pp. 128-136). Washington, DC: National Association for the Education of Young Children.

Bredekamp, S. (Ed.). (1987). *Developmentally appropriate practices in early childhood programs serving children from birth to age 8.* Washington, DC: National Association for the Education of Young Children.

Bredekamp, S. (1991). Redeveloping early childhood education: A response to Kessler. *Early Childhood Research Quarterly, 6,* 199-209.

Bredekamp, S., & Rosegrant, T. (Eds.). (1992). *Reaching potentials: Appropriate curriculum and assessment for young children* (Vol. 1). Washington, DC: National Association for the Education of Young Children.

Bronfenbrenner, U. (1989, April). *The developing ecology of human development: Paradigm lost or paradigm regained.* Presentation at the biennial meeting of the Society for Research in Child Development, Kansas City, MO.

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

Burts, D.C., Campbell, J., Hart, C.H., Charlesworth, R., DeWolf, D.M., & Fleege, P.O. (1992). *A comparison of principals' beliefs with kindergarten teachers' beliefs and practices.* Manuscript submitted for publication.

Burts, D.C., Charlesworth, R., & Fleege, P.O. (1991, April). *Achievement of kindergarten children in developmentally appropriate and developmentally inappropriate classrooms.* Paper presented at the biennial meeting of the Society for Research in Child Development, Seattle, WA.

Burts, D.C., Hart, C.H., Charlesworth, R., DeWolf, M., Ray, J., & Fleege, P.O. (in press). Academic outcomes of first grade children who had attended developmentally appropriate kindergarten programs. *Journal of Research in Childhood Education.*

Burts, D.C., Hart, C.H., Charlesworth, R., Fleege, P., Mosley, J., & Thomasson, R.H. (1992). Observed activities and stress behaviors of children in developmentally appropriate and inappropriate kindergarten classrooms. *Early Childhood Research Quarterly, 7,* 297-318.

Burts, D.C., Hart, C.H., Charlesworth, R., & Kirk, L. (1990). A comparison of frequencies of stress behaviors observed in kindergarten children in classrooms with developmentally appropriate vs. developmentally inappropriate practices. *Early Childhood Research Quarterly, 5,* 407-423.

Chaillé, C., & Barber, L. (1990). The dilemma for teachers. In C. Kamii (Ed.), *Achievement testing in the early grades* (pp. 71-80). Washington, DC: National Association for the Education of Young Children.

Charlesworth, R. (1992). *Understanding child development* (3rd ed.). Albany, NY: Delmar.

Charlesworth, R., & Lind, K.K. (1990). *Math and science for young children.* Albany, NY: Delmar.

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

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

Clement, P.F. (1992). *A comparison of students' mathematics achievement scores using standardized tests, an alternative assessment, and report card grades.* Unpublished master's thesis, Louisiana State University, Baton Rouge.

Crom, N. (1992). *Kindergarten entry age and observed activities and stress behavior in developmentally appropriate and developmentally inappropriate kindergarten classrooms.* Unpublished master's thesis, Louisiana State University, Baton Rouge.

Derman-Sparks, L. (1989). *Anti-bias curriculum: Tools for empowering young children.* Washington, DC: National Association for the Education of Young Children.

Devries, R., & Kohlberg, L. (1990). *Constructivist early education: Overview and comparison with other programs.* Washington, DC: National Association for the Education of Young Children. (Original work published 1987)

Dickinson, D.K., & Snow, C.E. (1987). Interrelationships between prereading and oral language skills in kindergartners from two social classes. *Early Childhood Research Quarterly, 2*, 1-25.

Durland, M., DeWolf, M., Charlesworth, R., Hart, C.H., & Burts, D.C. (1992). [A comparison of the frequencies of observed stress behaviors in children in developmentally appropriate and inappropriate preschool classrooms.] Unpublished raw data.

Elkind, D. (1986). Formal education and early childhood education: An essential difference. *Phi Delta Kappan, 67*, 631-636.

Fleege, P.O., Charlesworth, R., Burts, D.C., & Hart, C.H. (1992). Stress begins in kindergarten: A look at behavior during standardized testing. *Journal of Research in Childhood Education, 7* (1), 20-26.

Fowell, N., & Lawton, J. (1992). An alternative view of appropriate practice in early childhood education. *Early Childhood Research Quarterly, 7*, 53-73.

Greenberg, P. (1992). Academic preschool? (Part 2): Autocracy or democracy in the classroom? *Young Children, 47*(3), 54-64.

Hale-Benson, J. (1990). Visions for children: African-American early childhood education program. *Early Childhood Research Quarterly, 5*, 199-213.

Hart, C.H. (1993, March). *The relationship of attendence in developmentally appropriate or inappropriate kindergarten classrooms to first grade behavior.* Paper presented at the biennial meeting of the Society for Research in Child Development, New Orleans, LA.

Hawkins, A.M. (1991). *Achievement of kindergarten students who attended developmentally appropriate or developmentally inappropriate classrooms.* Unpublished master's thesis, Louisiana State University, Baton Rouge.

Hendrick, J. (1992). Where does it all begin? Teaching the principles of democracy in the early years. *Young Children, 47*(3), 51-53.

Hilliard, A.G., III. (1989). Teachers and cultural styles in a pluralistic society. *NEA Today, 7*(6), 65-69.

Honig, A.S. (1986). Stress and coping in children. In J.B. McCracken (Ed.), *Reducing stress in young children's lives* (pp. 142-167). Washington, DC: National Association for the Education of Young Children.

Hrncir, W.J., & Eisenhart, C.E. (1991). Use with caution: The "At risk" label. *Young Children, 46*(2), 23-27.

Hyland, C.R. (1989). What we know about the fastest growing minority population: Hispanic Americans. *Educational Horizons, 67*, 131-135.

Inagaki, K. (1992). Piagetian and Post-Piagetian conceptions of development and their implications for science education in early childhood. *Early Childhood Research Quarterly, 7*, 115-134.

Jipson, J. (1991). Developmentally appropriate practice: Culture, curriculum, connections. *Early Education and Development, 2*, 120-136.

Kamii, C. (1985). *Young children reinvent arithmetic.* New York: Teachers College Press.

Kessler, S.A. (1991a). Early childhood education as development: Critique of the metaphor. *Early Education and Development, 2*, 137-152.

Kessler, S.A. (1991b). Alternative perspectives on early childhood education. *Early Childhood Research Quarterly, 6*, 183-197.

Kostelnik, M.J. (1992). Myths associated with developmentally appropriate programs. *Young Children, 47*(4), 17-23.

Lazar, I., Darlington, R.B., Murray, H., Royce, J., & Snipper, A. (1982). Lasting effects of early education: A report from the consortium for longitudinal studies. *Monographs of the Society for Research in Child Development, 47*(2-3, Serial No.195).

Levin, R.A. (1991). The debate over schooling: Influences of Dewey and Thorndike. *Childhood Education, 68*, 71-75.

Little Soldier, L. (1992). Working with Native American children. *Young Children, 47*(6), 15-21.

Lubeck, S. (1991). Reconceptualizing early childhood education: A response. *Early Education and Development, 2*, 168-174.

Mosley, J., Charlesworth, R., Hart, C.H., Burts, D.C., & Norris, J. (1992). *A comparison of writing, drawing, and story telling in kindergarten children from classrooms differing in degrees of developmentally appropriateness.* Manuscript submitted for publication.

National Association for the Education of Young Children & National Association of Early Childhood Specialists in State Departments of Education. (1991). Guidelines for appropriate curriculum content and assessment in programs serving children ages 3 through 8: A position statement. *Young Children, 46*(3), 21-38.

National Council of Teachers of Mathematics. (1989). *Curriculum and evaluation standards for school mathematics.* Reston, VA: Author.

Ogbu, J.U. (1992). Understanding cultural diversity and learning. *Educational Researcher, 21*(8), 5-14.

Pang, V.O. (1990). Asian-American children: A diverse population. *The Educational Forum, 55*(1), 49-66.

Patterson, C.J., Kupersmidt, J.B., & Vaden, N.A. (1990). Income level, gender, ethnicity, and household composition as predictors of children's school-based competence. *Child Development, 61*, 485-494.

Perlis, R., & Charlesworth, R. (1992). *Developing a K-3 mathematics inservice model.* Project funded by the Louisiana Systemic Initiative in Mathematics and Science (LASIP).

Ray, J. (1992). *Achievement of first and second grade students from developmentally appropriate and developmentally inappropriate kindergarten classrooms.* Unpublished master's thesis, Louisiana State University, Baton Rouge.

Rescorla, L., Hyson, M.C., & Hirsh-Pasek, K. (Eds.). (1991). *New directions for child development. Academic instruction in early childhood: Challenge or pressure?* San Francisco, CA: Jossey-Bass.

Schweinhart, L., & Weikart, D.P. (1985). Evidence that good early childhood programs work. *Phi Delta Kappan, 66*, 545-551.

Schweinhart, L., Weikart, D.P., & Larner, M. (1986). Consequences of three preschool models through age 15. *Early Childhood Research Quarterly, 1*, 15-45.

Shakiba-Nejad, H., & Yellin, D. (1981). *Socioeconomic status, academic achievement, and teacher response* (Report No. 022 355). Stillwater, OK: Oklahoma State University. (ERIC Document Reproduction Service No. ED 231 754)

Slaughter-Defoe, C.T., Nakagawa, K., Takanishi, R., & Johnson, D.J. (1990). Toward cultural ecological perspectives on schooling and achievement in African-and Asian-American children. *Child Development, 61*, 363-383.

Spodek, B. (1991). Reconceptualizing early childhood education: A commentary. *Early Education and Development, 2*, 161-167.

Stipek, D., Daniels, D., Galluzzo, D., & Milburn, S. (1992). Characterizing early childhood education programs for poor and middle-class children. *Early Childhood Research Quarterly, 7*, 1-20.

Swadener, B.B., & Kessler, S.A. (1991). Introduction to the special issue: Reconceptualizing early childhood education. *Early Education and Development, 2*, 85-94.

Swick, K. (1987). Managing classroom stress. *Dimensions, 15*(4), 9-11.

Van Der Veer, R. (1986). Vygotsky's developmental psychology. *Psychological Reports, 59*, 527-536.

Verma, A.K. (1992). *Achievement of kindergarten, first, and second grade children from developmentally appropriate and inappropriate kindergarten classrooms.* Unpublished master's thesis, Louisiana State University, Baton Rouge.

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds. and Trans.). Cambridge, MA: Harvard University Press.

Walsh, D.J. (1991). Extending the discourse on developmental appropriateness: A developmental perspective. *Early Education and Development, 2,* 109-119.

Weems-Moon, N. (1991). *An ethnographic study of kindergarten students' literacy skills and stress-related behaviors before and after teacher demonstrations in bookreading strategies.* Unpublished doctoral dissertation, Louisiana State University, Baton Rouge.

Willer, B., & Bredekamp, S. (1990). Public policy report. Redefining readiness: An essential requisite for educational reform. *Young Children, 45*(5), 22-24.