

Child Development Knowledge and Teachers of Young Children

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Preface

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The two parts of this monograph explore issues surrounding the place of child development knowledge in early childhood education. In particular, Part I raises questions concerning the role of such knowledge in the teaching of young children and its place in teacher education. This part takes up the following questions: What does the term "development" mean? What child development knowledge should be learned? Can we agree on a body of child development knowledge and principles that must be mastered by students? Why has the role of child development knowledge in pedagogy become a contentious issue? The implications of possible answers to these questions are also discussed.

Part II presents a brief outline of how understandings of the nature of child development can be used to generate basic principles of practice for early childhood education that satisfy developmental criteria. Nineteen principles of early childhood practice are proposed that, taken together, have many implications for planning curricula and programs for young children.

Selected ERIC bibliographies on early childhood teacher education and developmentally appropriate practices in early childhood education are included in this publication for the convenience of the reader.

An earlier version of Part I of this paper was published in *Early Childhood Research Quarterly* (volume 11, number 2, 1996).

Part I: Child Development Knowledge and Teachers of Young Children

Child Development Knowledge and Teachers of Young Children The purpose of this publication is to explore some of the widely held assumptions concerning the role of child development knowledge in teaching young children. These assumptions first came into question in the process of preparing a commentary on four essays written by early childhood practitioners in response to the question "What is needed to move beyond an initial level of competence as an early childhood teacher?" (Katz, 1994).

The four essayists nominated a variety of competencies that most likely apply to teachers of children of all ages and not solely to teachers of preschoolers. Examples of some of the competencies nominated included that "teachers should have clear goals," and "should be life-long learners," and others that are pertinent to teachers of all age groups. However, one competence recommended without apparent hesitation by all four essayists-and not likely to be suggested for teachers at other levels-is "the possession of a thorough knowledge of child development."

Similarly, the assumption that child development knowledge is essential for early childhood teachers emerged in a survey conducted in England (Early Childhood Education Research Project, 1994). The majority of head teachers (principals) representing every type of early childhood setting ranked "Knowledge of Child Development" as the single most influential contributor to the professional development of practitioners who work with children under 8 years of age. The teachers surveyed ranked "Knowledge of School Subjects" relatively low as a factor contributing to the competence of early childhood practitioners. Even the heads of schools for statutory [compulsory] age children rated "Knowledge of School Subjects" lower in importance to teaching competence than knowledge of child development.

In combination, the four essays by early childhood practitioners in the United States, and the results of the Early Childhood Education Research Project in England, provoked a discussion with a close colleague concerning precisely how knowledge of child development might influence teaching practices. We began by speculating about how knowledge of the nature of physical development-to say nothing of knowledge of social development-might or should influence the pedagogical and curriculum decisions of teachers of young children.

Our first assumption was that on the basis of knowledge of physical development a teacher would assume that 4-year-olds are "by nature" physically active and therefore cannot remain still for very long; we agreed that this principle of physical development should be taken into account in planning curriculum and designing pedagogy.

On further reflection, however, we realized that this developmental principle may have limited generalizability. In many countries, young children-even toddlers-sit still for what seem to U.S. observers to be very long periods of time. I recall my own initial amazement when first observing large groups of preschoolers in the People's Republic of China sitting for long periods watching quietly as their classmates performed songs and dances. We then acknowledged that

young children in our own country are capable of being still for extended time periods as, for example, during the lamentably long periods they sit in front of television sets. These examples, of course, should not be taken to imply that young children necessarily like to sit still for very long periods or that such experiences enhance their physical, social, or intellectual development. Nonetheless, this discussion and reflection led me to question the tacit assumptions implied by the four essayists and our English colleagues, namely, that mastery of child development knowledge and principles can contribute significantly and positively to competence in teaching and curriculum planning for young children.

These discussions in turn lead me to question what is meant by the term development in general, and child development in particular, and whether it is reasonable to assume that there is an agreed-upon body of child development knowledge and principles for teachers to use as a basis for decisions about appropriate curriculum and pedagogical practices. As a result of the reflections that resulted from the discussions, I no longer possess the certainty I once had concerning the reliability of child development knowledge and hence its value to teachers of young children. The discussion that follows outlines my struggle with the "conceptual itch" that arose from the questions referred to above.

What Is Meant by the Term Child Development?

As a noun, development refers to the end of a process of bringing something from latency to fulfillment (American Heritage Dictionary, 1993). As a verb, it means to "cause to become more complex or intricate; to cause gradually to acquire specific roles, functions, or forms, to grow by degrees into a more advanced or mature state." In biology, the term means "to progress from earlier to later stages of a life cycle; to progress from earlier to later or from simpler to more complex states of evolution" (American Heritage Dictionary, 1993). Miller (1983) asserted that

What is critical about developmental theory is that it focuses on change over time. Although developmental theories have nondevelopmental theoretical concepts such as id, mental representation, attention, and drive, they diverge from nondevelopmental theories by emphasizing changes over time in these concepts. (p. 5)

These definitions suggest that when we use the term child development we are invoking a set of concepts, principles, and facts that explain, describe, and account for whatever is involved in the processes of change from immature to mature status and functioning. (For example, in a discussion of language development, we would explain, describe, and account for the processes involved in the change from babble and baby talk to mature linguistic competence in use of the mother tongue.) In other words, we are referring to a particular kind of change: change for the better rather than for the worse! Furthermore, the changes implied by the term development are dynamic rather than linear and incremental. Change in height, for example, is linear and incremental. Similarly, change in weight is linear-incremental or decremental. Changes in behavior, however, are dynamic in that they cause reactions within the organism and between it and its environment that create changes in behavior that, in turn, cause reactions^{3/4}often in ways that are difficult to anticipate, predict, or control. The changes addressed in the study of development, however, whether healthy or unhealthy, are generally assumed to be irreversible or removable in a linear fashion. Once a child has learned to walk and does so with ease, a return to

only crawling would be taken as a signal of serious problems in development. Similarly, reverting to constant baby talk at age 5 or 6 would be cause for concern.

Note also that we offer courses titled "child development," not "child change." The main distinction between development and change, however, is that when we study and discuss child development we are by definition-even if only implicitly-concerned about an "end state" or an ultimate mature or final state of some kind. Furthermore, we are concerned about how early experience contributes to later functioning and that ultimate end state. We might say, for example, that under certain kinds of adverse conditions a child will grow up to be an immature adult; such a prediction would imply a conception of a healthy and desirable mature end state. There is no way to characterize an adult as immature without a conception-even if an unconscious one-of mature adulthood (just as there is no way to characterize children as having special needs without a conception of children without special needs). That is to say that a potential major value of child development knowledge is that it implies, indicates, and predicts the effects of early experiences on the ultimate mature status and functioning of the organism.

In a certain sense then, all child rearing and all socialization of the young-of which education is a subcategory-are future oriented. Even a culture that teaches its children to worship their ancestors does so in anticipation of its children's future behavior and beliefs. Such cultures make implicit and explicit assumptions about the relationships between experiences provided for its young and the long-term effects of those experiences. Surely adults in all cultures, no doubt in diverse ways, strive to behave so as to ensure that their young children will believe basically what they themselves believe and will, when fully grown, have the general feelings of well-being and patterns of behavior they have themselves (LeVine, 1988). In this sense, assumptions are always being made by parents as well as educators about which experiences, beliefs, and feelings are essential during childhood so as to guarantee the ultimate well-being of grown-up children. These assumptions are implicitly or explicitly related to assumptions about which ultimate competencies are necessary in the communities in which the future adults are expected to be able to participate and contribute.

A generation ago when I first entered this field-then called nursery education-my colleagues and I generally identified our pedagogical philosophy and developmental theory as psychodynamic. At the time, we were very much influenced by the neo-Freudians and their emphasis on the needs of young children to resolve the inevitable conflicts of childhood. I believe, in retrospect, that we were also particularly keen to contrast our view of the nature of development with Skinner and his colleagues. Their behaviorist theory is, after all, a theory of learning and not a theory of development. Furthermore, the behaviorists did not address internal states such as children's feelings or inner conflicts.

The psychodynamic view, at least at that time, was one that assumed that some child rearing and educational practices were more or less likely to produce certain kinds of mature personality and intellectual dispositions and competencies. On the fringe of this view was the now forgotten A. S. Neill who introduced his ideas by which he ran his school "Summerhill" as follows:

What is the province of psychology? I suggest the word curing. . . . The only curing that should be practiced is the curing of unhappiness. . . . The difficult child is the child who is unhappy. He is at war with himself; and in consequence, he is at war with the world. (Neill, 1960, p. xxiii)

Research and study of the child development knowledge base were then intended to provide us with a basis for assessing and predicting the potential merits and risks of typical nursery teaching practices. In the 1950s, 1960s, and well into the 1970s, we discussed our mission in terms of children's needs. Indeed, whole books were written about children's needs (see for example Pringle, 1975). Read (1950) referred to children's needs throughout her classic book *The Nursery School*. She introduces assumptions about satisfying early needs and its consequences for mature functioning this way:

The way our needs were met during [the early] period of dependency is still affecting what we do. If we lived with people on whom it was good to be dependent because of the warmth and abundance of their giving, if we were fed when we felt hungry, played with and loved when we wanted attention, we were satisfied during this period of dependency . . . we are now neither fighting against being dependent nor seeking reassurance by demanding more protection than we need. (p. 10)

However, conceptions of needs always imply risks or undesirable conditions that will befall the needy if the needs are not met. As Dearden (1972) explained, a criterion of need is an assumption about a state of affairs conceived of as absent, such as people without food, children without love, and so forth. However,

the absence of a state of affairs does not create a need unless this absence ought not to exist, for example, because then a rule would not be complied with, or a standard would not be attained, or a goal would not be achieved. In short, 'need' is a normative concept. . . . (p. 52)

Assertions about needs are based on explicit and implicit assumptions about the nature of development and/or about human nature itself (e.g., young children need to be read to, without which they will be unready for school). In the 1950s, for example, we assumed young children needed opportunities to "let off steam," without which they would suffer painful frustration. Child development research based on social learning theory cast grave doubts on that assumption however (Bandura & Walters, 1963). Although it is clear that humans need air, food, and water, without which they will perish, the "needs" paradigm raises questions about which needs are learned, how they are learned, and how culturally embedded the learned needs may be.

Conceptions of the ultimate end states of development, and assumptions about the processes involved in reaching them, have undergone substantial revision and re-examination in the last several years. Damon (1989) pointed out that

child development has been exposed to many jarring alternatives over the past twenty years. Anthropologists have challenged developmental universals and made us increasingly aware of cultural diversity . . . our old view was incomplete and perhaps therefore distorted. . . . A new perspective can have a jarring effect on existing sensibilities, particularly when the new

perspective carries with it alternative assumptions about the nature of things. This can be as unsettling as it is intellectually delightful. (p. 2)

I suspect now that much of the contentiousness in recent discussions of developmentally appropriate practice is related to unacknowledged differences among us in (a) our conceptions of the ultimate goals of development, and (b) our assumptions about how they are best achieved for children growing up in significantly different present environments, and who are expected to be competent in unknowable future environments.

If, however, the main problem among early childhood educators was simply our different conceptions of the ultimate goals of development, the links between child development knowledge and teacher preparation could be argued simply on the basis of diverse cultural expectations and preferences, rather than on whether this particular branch of knowledge is an appropriate basis for making decisions about curriculum and teaching methods.

Unfortunately, the irksome "conceptual itch" that arises from acknowledgment of cultural diversity cannot be so easily resolved. The itch's resistance to treatment stems—at least in large part—from the fact that the body of knowledge and principles governing the presumed relationships between early experience and mature development that many of us have long taken for granted is based on evidence gathered largely from a relatively limited sample of human experience. Consequently, this body of knowledge of child development no longer seems sufficiently generalizable to serve as a basis for curricular and pedagogical decisions.

Holloway (1991) addressed this issue in a study of caregivers' cognitions and children's behavior in child care environments. Holloway cited the rich body of research on the contrasting effects of authoritarian and authoritative parenting styles based on Baumrind's (1973) now classical constructs. Holloway pointed out that whereas the authoritarian parenting (and teaching) style—in contrast to an authoritative one—may be associated with coldness and anger in upper-middle-class white families, "the more authoritarian social norms of the black parents may have reflected the actual conditions necessary for optimal development, and hence may have been experienced by the child as supportive and reassuring" (p. 9). Furthermore, differentiated long-term effects for diverse ethnic groups of these two parenting (and teaching) styles on school performance and other developmental milestones through which adolescents pass have been suggested by subsequent research on the development of children of diverse ethnic groups in California (see Chao, 1994; Lamborn, Mounts, Steinberg, Darling, & Dornbusch, 1994).

The finding that parenting and teaching styles have differential effects on different populations is not unsettling in and of itself. What is unsettling is the challenge this finding presents to the traditional developmental assumptions, namely that whereas the behavior patterns resulting from the differential styles may be effective during early childhood, the well-being and behavior of the fully developed adult may not be predictable therefrom. Traditional notions of development might suggest, for example, that authoritarian parenting is effective as long as authority figures are present to enforce compliance, because authoritarian parenting may result in an absence of internalized impulse control that is manifested when the authoritarian adults are not present. How can we tell if this is really so? Is such an assumption based on a kind of zero-sum conception of development—namely, that if the organism is shaped to fit one type of girdle, its bulges will

protrude one way, and if shaped differently, the organism's bulges will stick out somewhere else? The assumption here is that we all have the same bulk, and only the girdle varies; that is, we all have to deal with the same developmental tasks, and cultures vary only in how they are dealt with. Is not this assumption based on the notion that all human organisms have the same or very similar impulses and needs that must be shaped or contained one way or another, and that how child rearers shape them has predictable long-term consequences? For example, all human infants have to achieve impulse control during the first five or so years of life; what may vary from one culture to another is how that control is achieved, and those variations have no significant long-term effects on the mature state, the ultimate goal of development.

Edwards (1994) offered several examples that shake our customary assumptions about the relationships between early experience and later development. She described the experience of toddlers in the Zinacanteco community in which an all-giving mother of a toddler abruptly turns all her attention to a new baby, leaving the toddler hovering in the mother's vicinity appearing "listless and dejected" (p. 3). Yet, after a period of adjustment, the toddler seems to rebound quite well.

Traditional developmental theory would suggest that such an apparently traumatic change in the toddler's relationship with the mother would have long-term psychological consequences that would be manifested in adult personality traits. However, given Edwards' observations, can we remain certain that such a cause-effect relationship exists? And, how would we know? A more important question, perhaps, is whether an answer to that question really matters to the practice of early childhood teachers. How can we decide whether or not it matters?

Edwards (1994) also described a culture in which the practice of restricting a child's food intake, as U.S. mothers frequently do, would seem "terrible, unthinkable, the next thing to child abuse" (p. 7) to a mother in a very different culture and environment. In both of Edwards' examples, it seems that the meaning the child attributes to the mother's behavior is the critical factor in determining the effect particular experiences will have on the child's development. Given such differences in the meanings children attribute to their parents' behaviors, and given that meanings are always a function of the total context in which experience occurs, what is left to know about child development?

It seems reasonable to assume that all children attribute meaning to their experiences. Are some "meanings" more likely than others to result in healthy psychosocial development? Is it reasonable to assume that there is such a thing as healthy psychosocial development? Can we agree on its characteristics? Even if we could agree on the ultimate goal or outcome of development and the processes by which they are most likely achieved, questions remain concerning how they might be related to teaching practices in early childhood education.

Application of Child Development Knowledge

We often cite the importance of preparing children to participate in a democratic society as an important criterion for designing curriculum and pedagogical practices. Indeed, preparation for democracy may be one of the very few goals educators can still agree on. Broudy (1977) defined commitment to the democratic process as a "fundamental unifying principle of Americans" (p.

76), stating that "consensus for this principle is based not only on rational grounds, it is part of the common moral intuition. It may be called our fundamental moral reflex" (p. 76). However, if we do not know enough about the relationships between early experience and the ultimate competencies necessary for effective participation in democratic processes, how can we design appropriate educational practices?

Let us ponder, for example, the traditional claim of early childhood thinkers, such as Maria Montessori, that it is developmentally appropriate to teach young children a strong sense of universal brotherhood. Some claim that children are born free of prejudice or bias with respect to those who are different from them. These claims seem to make common sense, even if they are difficult to ascertain. A case could be made, however, at least in theory, that it is developmentally appropriate for young children to view the practices and habits of their own family, group, or village as the best ones, the only way, or at least, better than those of others. I suggest that cultural relativity may be developmentally inappropriate or even impossible in the early years. Furthermore, a case can be made for young children's development being well served by cultural certainty (versus relativity) if that implies a clear sense of what is normal and therefore not normal, of what is "our way," and therefore "not our way," of what is good and bad, right and wrong, during the early years when their characters are still in formation. Could a developmental perspective be taken to suggest that the real long-term developmental task is to *outgrow* these immature judgments of what is normal, abnormal, good, right, or best? Genuine acceptance of, belief in, and commitment to universal brotherhood and equality surely require a long maturing process and are unlikely to simply be inborn.

These questions raise further questions. Who is responsible for defining the desired outcomes of development? Can we come to a reasonable consensus on desirable outcomes with enough detail to be meaningful? What assumptions can we make about the processes and procedures by which to reach the ultimate goals of development given the diversity of cultural contexts and backgrounds we must be knowledgeable of and sensitive to? Clearly, conceptions of the desirable ultimate goals of development are bound by culture. But what do we mean by culture in this context? Everyone participates in a culture; in our country, it is likely that most of us participate in several cultures and subcultures simultaneously. Conceptions of what is normal at any stage of development as well as at end states probably vary widely within as well as between cultures. Similarly, conceptions of what is normal versus merely within acceptable limits of behavior, and of what is superior rather than inferior human development, also vary within and between cultures.

Furthermore, conceptions of the ultimate goals of development very likely undergo constant change, and they have always done so. It is unlikely that the cultural contexts in which our present students of early childhood teacher education are likely to work will remain static throughout their entire careers. Furthermore, children are unlikely to have the very same beliefs and feelings or to attribute the same meanings as their parents to important aspects of their lives.

Perhaps the processes by which development is achieved are so complex that they are very largely unknowable. Perhaps a developmental process may be effective in Context A but not in another, and, similarly, a process may be ineffective or even negative in Context B but not in Context C. While it may be fairly easy for us to accept the proposition that conceptions of the

desired ends of development are culture bound, it is more difficult to acknowledge and accept the proposition that the concept of development itself is a product of culture and that all concepts are cultural products, including the concept of culture itself! However, if we pursue this line of reasoning, we quickly reach a state of infinite regress and of reasoning backward to a point where we can easily become conceptually paralyzed and incapacitated.

It seems reasonable as well as practical to assume that the processes involved in development are not random; in which case, they must be in some sense systematic, even if the system is so complex that it is not—at least as yet—sufficiently knowable. Holding on to this belief is certainly reassuring. I have long assumed I understood enough about the system to be able to present some knowledge and principles of development to my early childhood education students. The current debate about developmentally appropriate practice (DAP) has alerted me to possible weaknesses in that understanding. However, the debate over DAP has not only failed to provide a better explanation of the changes described by development and how early experience determines later functioning, it has caused me also to wonder whether such a theory and set of principles of development and DAP are even possible!

What Child Development Knowledge Should Be Learned?

The "analysis paralysis" that may result from this line of reasoning is not likely to be helpful for teachers, even if it makes good material for scholarly exchange! Suppose, therefore, that we decide to postpone these doubts—just for the moment—and assume that a body of knowledge of child development is available. Can we agree on what of that body of knowledge teachers of young children should learn? If we were required to plan a common course on child development, would we agree on what should be included? How much of Piaget, neo-Piaget, or post-neo-Piaget, constructivism, and so forth, should be covered? Which concepts from psychoanalytic developmental theory, Erikson's theory, social learning, and social constructivist theory should be mastered?

During the last decade, the term "constructivism" has been increasingly invoked as a basis for thinking about appropriate early childhood practices. However, just whose version of constructivist theory is to be applied remains to be seen (see Fosnot, 1996). Smagorinsky (1995) pointed out that the concept of the zone of proximal development "has been interpreted in three completely different ways; additionally, it has been invoked to account for the success of theoretically incompatible pedagogical approaches, such as a whole-language approach that minimizes teacher direction and reciprocal teaching" (p. 193) in which the teacher maintains constant direction of the participants' interactions.

How should we deal with the fact that much of our available child development knowledge stresses individual trajectories from immaturity to maturity and seems to overlook—or at least underappreciate—group dynamics and group processes? How should we take into account the fact that no individual can realize even part of his or her potential without a baseline of group interactive competencies that include adherence to some minimum group and cultural norms? Furthermore, for increasing proportions of our children, even some optimal level of realization of their potential will require interactive competencies to enable them to function simultaneously in

several cultures, each of which has its own group norms, and some of which may be incompatible with others.

To what extent would we agree on answers to these questions, and what would be the basis of any agreement reached? Could we agree on what knowledge is essential rather than just desirable? If it is difficult to draw reliable implications from knowledge of children's physical development, how much more complex would it be to develop a consensus on the essentials of social, emotional, and intellectual development? Could we even concur on how the agreed-on knowledge and principles of child development can and should influence practice? Is some child development knowledge more useful and more relevant to practice than some other knowledge?

There is some research, for example, to suggest that U.S. children understand calendar concepts very poorly until about the age of 6 (Zhang, 1993) even though they have been subjected to discussions of the calendar daily, in many cases for as long as two years! Does this bit of child development knowledge imply that the standard calendar ritual in preschool and kindergarten classes be abandoned completely? In our child development and teaching methods courses, should we insist that our students eschew the calendar ritual? Or that they teach it only to those children who are tested as "ready" for it?

If we are behaviorists, we might assert that what is required are better instructional methods and suitable reinforcement strategies. However, suppose we were committed to a social constructivist view of teaching and learning-should we teach our education students to co-construct calendar concepts with the children or let children "discover" these concepts for themselves? Inasmuch as all children eventually grasp calendar concepts correctly-perhaps in spite of premature rehearsal of them in preschool and kindergarten-does this decision-making process even matter? I, for one, am still prepared to assert that there are many activities more worthy of young children's time and energy than the calendar ritual. But this position raises the question of who is to decide what knowledge is worthwhile for preschoolers and kindergartners? And on what bases can or should the worthiness of knowledge be determined?

Where Do We Go from Here?

This query, of course, is the ultimate question for early childhood educators. For many years, I have suggested to my students, most of whom are practicing teachers, that it is a good idea for practitioners to strive for an optimal balance between sufficient skepticism to be able to continue to learn and sufficient conviction to be able to act with confidence (Katz, 1995). In a certain sense, to teach is to act-even if the "act" is sometimes to withhold action in a given context. It seems reasonable to assume that effective teaching requires us to act with optimal (rather than maximal or minimal) certainty in the rightness of our actions; that is, to act with optimal intentionality, clarity, and decisiveness. Such actions require us to make assumptions-even in the absence of robust evidence-about how early experiences influence children's long-term development. It seems a reasonable hypothesis that teachers with less than optimal confidence in the appropriateness of their own actions give many children mixed signals about what is expected of them and what behavior will be accepted or rejected by them. If this hypothesis is valid, the issue of teachers' confidence in their own curriculum and pedagogical decisions is a serious one, and has significant practical implications.

Thus, in sum, I am confronted by a dilemma. By definition, a dilemma is a predicament in which each of two alternative courses of action—one of which must be taken—are equally desirable or undesirable, and in which taking one of the courses of action undermines the potential benefits and values that might be derived if the other "horn" of the dilemma had been chosen. The quandary is that I am not yet clear about the nature of the two horns of my dilemma. On the one hand, I continue to believe that in order to be effective, practitioners must have optimal confidence in their own actions and the underlying assumptions on which they are based. On the other hand, if that base is not provided by the knowledge and principles of child development, then what other bases could be used?

The main question seems to me to be the extent to which our current child development knowledge is reliable and generalizable enough to serve as a basis for predicting the course of development of all the children we serve. Without reliability and generalizability, the issue of the role of child development knowledge in teacher preparation and competence is a moot one. Our deliberations on this question can have profound implications for a field that has very largely built its professional identity on the curricular and pedagogical applications of child development knowledge.

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Part II: A Developmental Approach to Early Childhood Education

The aim of this section is to present a brief outline of how understandings of the nature of child development can be used to generate basic principles of practice for early childhood education that satisfy developmental criteria.

There are many possible criteria by which to judge the appropriateness of a curriculum and pedagogical practices for a group of young children. Several criteria might be derived from the consideration of psychological principles derived from social learning theory, behaviorist theory, constructivism, and so forth. Another criterion might be what we generally call culture, particularly the norms and values of the culture into which children are born, and the culture—or we might say cultures—in which they are expected to participate when they are grown.

Other possible criteria might be related to the political, religious, and spiritual tenets of those the program is to serve, as well as of those who provide it. A more specific criterion, probably a subcategory of the psychological criterion and one often cited by teachers, is the extent to which the children are "happy" engaging in the activities provided in the program.

It should be noted that what may be judged appropriate by one of the criteria mentioned above may not be so judged by another. For example, it may be judged culturally appropriate to expose young children to their heritage so that they appreciate and feel pride when significant adults make allusions to ancestors, historical events, and heroes. But by developmental criteria, these phenomena may be too remote and abstract to contribute to meaningful understanding of people and past events by young children. Indeed, it may be helpful to distinguish between helping children acquire knowledge of their heritage versus deepening their knowledge and appreciation of their culture. The latter helps them with their own first-hand experience; the former helps them identify with and acquire knowledge and appreciation of the events, ideas, and persons of their culture's past, that is, of their heritage.

One example of the criteria of appropriateness in conflict was reported by a kindergarten teacher working with children on a project about the post office, in the course of which she suggested the class could write a letter to someone. When she asked the children to nominate someone to write to, one child suggested George Washington, whose birthday had recently been observed. When she explained that this was not possible because he was no longer alive, the child responded indignantly saying, "You mean we had a birthday party for him and he's dead?" Thus, while it may be culturally appropriate to introduce young American children to legends about George Washington, the topic may be inappropriate according to developmental criteria. Most teachers can report similar experiences of young children's literal constructions of the legends of their cultural heritage, and of the confusions to which these literal constructions contribute.

A developmental approach to curriculum and teaching methods is one that takes into account knowledge of human development and principles derived therefrom (no doubt embedded also in the culture that produced them) as they apply to decisions about curriculum content, teaching methods, and the developmental progression of learners. For providers of programs for young

children, whether for a short or long day, major criteria for assessing the appropriateness of curriculum and pedagogical practices are based on what is assumed and what is known about the nature of development and the relationship between early experience and mature functioning.

Defining the Developmental Approach to Early Childhood Education

Several terms require elaboration to fully understand the basic principles of practice for which they are a foundation.

Curriculum

A curriculum can be broadly defined as a plan for learning. For any age group, the curriculum is based explicitly and implicitly on assumptions about (a) *what* is worth learning, (b) *how* it is best learned, and (c) *when* it is best learned.

The question of what is worth learning addresses the broad aims, general goals, and specific objectives that the curriculum is designed to support. How something is best learned depends both on its nature and on the many characteristics of learners, including the point in the course of the learners' development and accumulated experience that the learning is to take place.

A developmental approach to curriculum and teaching practices is one that addresses those aspects of learning that change with the age and experience of the learner. *A developmentally appropriate curriculum* is one that is designed on the assumption that what children should learn, and the means by which they are most likely to learn it, change with their age and with the experience that accrues with age. In other words, in a developmental approach to curriculum design and teaching methods, answers to questions about what should be learned and how it would best be learned depend on what we know of the learner's developmental status. A developmental approach also depends on our understanding of the relationships between early experience and subsequent development and functioning.

As already suggested, developmental criteria must be considered in the context of a variety of other criteria by which the appropriateness of a curriculum can be assessed. The nature of development is only one possible criterion by which to judge the appropriateness of a curriculum or of teaching methods.

For example, when we apply psychological rather than developmental criteria, we can see that some curricula and teaching practices are always appropriate, regardless of the age and experience of the learner (e.g., to be respectful of the child and of his or her family or background). Similarly, some practices are never appropriate, no matter what the age of the learner (e.g., the use of time-out procedures for punishment). Since these criteria do not change with age, they are psychological and ethical, or perhaps moral and philosophical, rather than primarily developmental considerations.

Normative and Dynamic Development

A developmental approach takes into account two equally important dimensions of development: the normative and the dynamic dimensions.

Normative development. The normative dimension of development addresses the characteristics and capabilities of children that are typical or normal for their age group (e.g., the typical size of vocabulary of 4-year-olds, the average age of first walking, the understanding of numerical concepts).

Age norms provide useful starting points for curriculum planning. Knowledge of age-typical interests and abilities can provide a basis for preliminary planning of a program of activities and the selection of equipment and materials. For example, the norms of development provide a basis for assuming that most (but not all) 2-year-olds need daytime naps, most 4-year-olds understand calendar concepts very poorly, or that, typically, most 5-year-olds can begin to write their own names.

Age norms are also useful for alerting teachers to individual children whose patterns of development depart noticeably from those of their age group and who warrant the kind of close observation necessary to ascertain whether special curriculum and teaching strategies are required.

Dynamic development. The dynamic dimension of development deals with an individual child's progress from immaturity to maturity. Individual children change over time along this dimension. Their development reflects the long-term effects of early experience rather than the normality or typicality of behavior and abilities of a particular age group. This dimension has three aspects: sequence, delayed effects, and cumulative effects.

Sequence refers to the order or stages of development through which an individual passes (e.g., from babbling to talking in achieving mastery of first language). Curriculum and teaching practices related to sequence consider what learning and developmental tasks have to be completed before the next learning is most likely to occur. For example, it is reasonable to assume that starting to learn a second language is most likely to be beneficial following mastery of one's first language.

Delayed effects refer to the potential positive and negative effects of early experience that are not manifested at the time of occurrence but that influence later functioning (e.g., early infant-caregiver attachment may influence later parenting competence, a hypothesis that has been contentiously discussed among developmental psychologists for many years). This aspect of the dynamic dimension of development takes up issues concerning practices that are effective in the short term but may have delayed or "sleeper" effects that are deleterious in the long term (e.g., rewards and punishments or insecure early attachment of infants to caregivers). Similarly, some practices that may not seem important to development during the early years may have positive delayed effects later. Whether positive or negative, delayed effects are those effects that are not manifested until later in the course of development.

Cumulative effects refer to experiences that may have no observable effects (either positive or negative) if they occur occasionally or rarely but that may have powerful effects if they occur

frequently (e.g., the cumulative positive effects of frequent block play or cumulative negative effects of frequent-even if mild-criticism).

Learning Goals

All curriculum planners must take into account four categories of learning goals: (a) knowledge, (b) skills, (c) dispositions, and (d) feelings. These are briefly defined as follows:

- *Knowledge* includes facts, information, understandings, constructions, concepts, stories, songs, legends, and the like.
- *Skills* are defined here as relatively small units of action that can be easily observed and inferred from behavior, including physical, social, and verbal skills of various levels of specificity.
- *Dispositions* are habits of mind-not mindless habits-with motivational and affective qualities that stimulate the manifestation of relevant behavior, such as curiosity, cooperativeness, or quarrelsomeness (see Katz, 1995, for a fuller discussion of the problems of defining dispositions).
- *Feelings* are internal emotional states associated with most contexts and interactions (Katz, 1995).

I have listed knowledge and skills as the first and second of the four learning goals because educational programs (short or long day) and educational institutions are uniquely charged by their communities with planning ways to help children acquire worthwhile knowledge and skills. Of course, both knowledge and skills are also learned in many other contexts outside of educational or early childhood settings. Nevertheless, preschools and schools have the responsibility for helping the young to acquire knowledge and skills they judge essential for effective participation in the community.

The nature of knowledge has occupied professional epistemologists for hundreds of years and remains difficult to define. I note with some apprehension that current literature on constructivism claims that *children construct their own knowledge* (e.g., Kamii & Ewing, 1996) when the real challenge to adults is helping children with their misconstructions! In some sense, it seems reasonable to assume that all of us assimilate and accommodate "knowledge" in our own minds-that is, we make up our own minds. Nevertheless, when children master such arbitrary "knowledge" as the alphabet or the calendar, it is somewhat misleading, if not confusing, to claim that they have "constructed" it by themselves. It would seem to me to be more useful to claim that children construct their own *understandings and misunderstandings* of, let's say, their experience (among which is also instruction), and for teachers to develop curricula and teaching strategies based on that assumption.

No matter what curriculum, activities, and teaching strategies are employed to teach knowledge and skills, learners' dispositions and feelings are likely to be influenced by them, whether intentionally or by default. Nevertheless, it seems appropriate during the early years to be especially intentional and deliberate about strengthening worthwhile dispositions (e.g., the dispositions to learn, hypothesize, conjecture; and the social dispositions to form friendships, to

be open to others who are different) and about engendering positive feelings (e.g., feelings of belonging, of competence, and of self-confidence).

Emphasis on strengthening worthwhile dispositions in the early years is recommended partly because undesirable ones may become more resistant to change with increasing age. At the same time, desirable dispositions typically present at birth (e.g., the dispositions to learn, to be curious, and to become attached to caretakers) may be seriously damaged, weakened, and even lost if not purposefully strengthened. Furthermore, once damaged or lost, these dispositions may be very difficult to reinstate or implant.

However, neither dispositions nor feelings are learned from instruction or exhortation. Some of the most important dispositions can be assumed to be inborn, such as the disposition to learn and to make sense of experience. Other dispositions are likely to be learned from being around people in whom both the desirable and undesirable ones can be seen. Furthermore, for dispositions to be strengthened, they must be manifested or expressed with a certain amount of frequency and experienced as satisfying and effective. Thus, curriculum and teaching methods that provide contexts and opportunities for children to manifest desirable dispositions such as cooperation, conflict resolution, investigation, hypothesis-building, and the testing of hypotheses and predictions are developmentally appropriate.

Similarly, feelings are not learned from instruction or from exhortation. The capacities for some feelings, such as fear, anger, anxiety, and most likely joy as well, are probably inborn. But many feelings are learned from experience: feelings of belonging and of not belonging, feelings of competence and incompetence, feelings of confidence-high or low-and many other feelings of concern to families and educators are learned in the course of experiences provided in the educational setting.

In sum, a developmental approach to curriculum and teaching is one that takes into account all four categories of learning goals. A developmental approach assumes that the emphases on strengthening desirable dispositions and on engendering positive feelings have a high priority when selecting activities or courses of pedagogical action.

Some Principles of a Developmental Approach to Curriculum

On the basis of the concept of development discussed earlier, and the assumptions derived therefrom concerning a developmental approach to planning for young children, the following principles of practice are offered.

Principle #1. A developmental approach to curriculum and teaching practices takes into account both the normative and dynamic dimensions of development, in that what young children should do and should learn is determined on the basis of what is best for their development in the long term (that is, the dynamic consequences of early experience) rather than on simply what "works" in the short term.

Taken together, the two dimensions of development suggest that just because children can do something (the normative dimension) does not mean that they *should* do it (the dynamic

dimension). Young children can be coerced into learning and engaging in many activities that may not necessarily be in their best interests in the long term (the dynamic dimension), but that may seem acceptable, insignificant, or harmless in the short term. One example is the common use of tangible rewards such as prizes, certificates, and candies for correct performance on assigned tasks. There is good reason to believe that while such practices seem effective and even harmless in the short term, they may have negative consequences in the long term (Kohn, 1993).

Principle #2. When young children are introduced to formal instruction too early, too intensely, and too abstractly, they may learn the knowledge and skills offered, but they may do so at the expense of the disposition to use them.

For example, premature formal instruction in reading or arithmetic (especially through rote learning and memorization) may succeed in equipping children with the intended skills and knowledge at a rudimentary level; however, the processes of learning through such instruction may damage their dispositions to become readers and users of the numeracy skills and concepts so painfully acquired.

The potential risk of premature formal instruction can be thought of as the *damaged disposition hypothesis*. This hypothesis may account for the common observation that children's natural dispositions to learn, explore, and investigate subside (and often disappear) after a few years of schooling (see Donaldson, 1982). This phenomenon is sometimes referred to as the second-grade "wash-out" phenomenon. The potential damage may not be apparent early in the children's school lives. Most children during the early years are eager to please teachers and engage willingly in the activities provided for them. The damage is likely to be manifested as a cumulative effect of several years of excessive drill and practice of decontextualized skills that rely heavily on practice of small bits of information and skills and rote memory. Thus, in curriculum planning, consideration is merited of the potential long-term cumulative effects of early experiences on the dispositions to apply what is learned.

Principle #3. Learning, especially in the early years, generally proceeds from behavioral knowledge to representational (or symbolic) knowledge.

By way of example, the distinction between behavioral and representational knowledge can be seen in language development. Namely, preschoolers have the behavioral knowledge that enables them to use their mother tongue long before they can represent it in the form of abstract grammatical categories such as nouns and verbs. Similarly, young children can navigate their homes and immediate neighborhoods correctly long before they can represent them in the form of maps or directional concepts such as *right* and *left* or *east* and *west*.

A developmentally appropriate curriculum is one that broadens and deepens children's behavioral knowledge by providing a variety of first-hand experiences and that helps young children represent their experiences through a wide variety of media, including verbal expression, literary and graphic languages, models, and dramatic play. In the processes of representing their understandings, children can be guided by adults so that their understandings of what they already know become deeper, fuller, more accurate, and more finely differentiated.

Another way of expressing this principle is that children's understandings are constructed and re-constructed in the processes of representing these understandings. These understandings are not "instructed into them," as it were, didactically.

Principle #4. Unless children have some experience of what it feels like to understand some topics in depth, their disposition to seek in-depth understandings cannot be developed and strengthened.

Many curriculum and pedagogical practices in early childhood and elementary education emphasize superficial acquaintance with information and "smatterings" of knowledge of many things, rather than the acquisition and construction of in-depth understandings of phenomena worthy of an investment of the children's time and energy. Indeed, one of the issues that deserves more discussion than it currently receives is the overcrowding of the early childhood and primary school curriculum. This overcrowding can lead to fragmentation and excessive emphasis on coverage versus mastery of disparate knowledge and skills. Yet the disposition to seek in-depth understanding of complex phenomena worthy of children's and adults' attention is essential for competent participation in democratic processes and thus one of the important ultimate goals of education in this country.

Principle #5. When young children are frequently coerced into behaving as though they understand something well, when they really do not (e.g., premature instruction in the calendar or in formal arithmetic), confidence in their own intellects, observations, hypotheses, and questions may be undermined, and in some cases may be abandoned.

The cumulative effect on young children of repeated experience in situations in which they must act without real or confident understanding may be a weakening or distrust of their natural dispositions to construct their own understandings of their experiences. This cumulative effect may undermine their motivation to learn.

Principle #6. For young children, investigation and observation are ways of learning as natural as play.

Early childhood specialists and practitioners have a long tradition of asserting that play is the natural way that young children learn. Indeed, all young mammals play spontaneously and, in their play, rehearse behavior they will use in their maturity. Experience of living and working with young children easily strengthens our appreciation of the basis of this traditional emphasis on the educational value of play—one that may have developed at a time when children's play was not valued and when few play materials were available for young children.

Nevertheless, this tradition should not diminish acknowledgment that it is just as natural for children to learn through direct observation and investigation as through play. Adults can readily see the very young observe phenomena around them with great interest. Similarly, from infancy onward, children put enormous amounts of time and energy into investigating their physical and social environments—often exposing themselves to danger in the process. Young children are natural anthropologists, linguists, and scientists.

Most children naturally and spontaneously generate explanations and hypotheses to account for what they observe, whether the phenomenon in question is rain, worms, or cashiers in the supermarket. Their conjectures can be followed up with close observations, interviews, and other fact-finding activities through which their predictions and hypotheses can be tested. In other words, a child-sensitive and developmentally appropriate curriculum is one that capitalizes on children's natural impulse to find out what the objects around them are made of, how they work, where they come from, what they are used for, what they are called, what the people around them do, when and why they do what they do, and so forth.

A curriculum for young children that takes into account the nature of their development is one that addresses their natural dispositions to observe and investigate their surroundings.

Principle #7. The goal of all education is to engage the mind of the learner in its fullest sense, including its aesthetic, moral, social, and spiritual sensibilities.

Enjoyment is not a main goal of education; it is a main goal of entertainment. The ultimate goal of all education at every level is to engage the mind so as to strengthen the learner's disposition to go on learning. Curriculum and teaching strategies that succeed in fully engaging children's minds provide experiences that are enjoyable; but enjoyment is not the goal of such experiences. Enjoyment and deep satisfaction are the desirable by-products of appropriate curriculum and teaching practices. I often wonder if we sometimes underestimate young children's capacity to find deep satisfaction in hard work, solving problems, and overcoming obstacles in their work.

Principle #8. Children's dispositions to be interested, engaged, absorbed, and involved in intellectual effort are strengthened when they have ample opportunity to work on a topic or investigation over extended periods of time.

The term *interest* refers to the capacity to "lose oneself" in something outside of oneself and to sustain the effort of pursuing ideas and completing tasks through even their routine elements. A curriculum characterized by a succession of brief one-shot activities completed in a few minutes and not resumed for further development may weaken children's dispositions to explore topics in depth, to reach for fuller and deeper understanding, and to become absorbed in worthwhile pursuits.

Children in contemporary society have little opportunity to appreciate the length of time and the amount of effort required for the most important basic elements in their lives (e.g., the provision of food and shelter). Project work in the form of extended in-depth investigations provides a context for learning about the origins of important aspects of children's environments, for appreciating the long processes involved in creating them, and for direct experience of long-term effort involved in representing their findings.

Principle #9. When young children's interests draw them to real events, particularly those in which adults are involved, and the adults respond to this interest by providing support and information, by focusing children's attention on important aspects of the phenomenon of interest, and by inviting their participation in the activity, the children are in an optimal environment.

Young children-especially in the toddler years-are often attracted to real events in their environment (e.g., an adult who is cooking, repairing a household item, cleaning the furnace, or building a fence). When the adult involved responds to that interest with information and suggestions for how the child can participate, or provides simple reasons why she or he cannot participate in some parts of the activity, or gives information in response to the child's questions and appreciates the elements the child shows interest in, the child is in an optimal learning environment and is learning as an apprentice.

Such learning can only occur if something real and intriguing to the child is in progress in his or her presence. Such real and actual events can be part of good project work. If few real events or tasks are available in the classroom, teachers are obliged to find other ways to motivate children. When a teacher, for example, is arranging the classroom environment so that it will be hospitable to a small animal, the children can be drawn into the process and adopt the teacher's concerns and interest in the task. When the teacher presents children with tasks for the children's benefit only and of no real interest to the teacher (e.g., copying the letter *m* ten times on a sheet of paper), she may have to resort to high praise, coercion, or cajoling to get the children involved. While not all tasks involved in the mastery of basic literacy and numeracy can be equally interesting, a balance of systematic skill instruction, interesting project work, and spontaneous play is most likely to support children's dispositions to learn and their general growth and development.

Principle #10. Desirable dispositions are not likely to be learned from instruction; rather, they are learned from being around significant others who exhibit, exemplify, and model them.

To return to the matter of dispositional goals, for dispositions to be strengthened, they must be manifested effectively and appreciated (i.e., responded to appropriately, rather than rewarded). As already suggested, desirable and undesirable dispositions are learned also from models and are strengthened by being manifested and effective. Research indicates that excessive use of rewards, prizes, certificates, stickers, and trophies may undermine and weaken the development of intrinsic motivation-that is, the disposition called interest. A curriculum that includes involving children in investigation projects provides contexts in which intrinsic motivation and interest can be manifested, satisfied, appreciated, and thereby strengthened.

Principle #11. Feelings are not likely to be learned through instruction; both desirable and undesirable feelings are learned in the context of and as consequences of experience.

Feelings of confidence and self-esteem, for example, are not likely to be strengthened from instruction, exhortation, incantation, or admonition, but they arise indirectly as the consequences of experiences that have other goals. Similarly, feelings of low self-esteem and anxiety, for example, are not likely to be alleviated by exhortation or empty flattery. Children are most likely to acquire self-esteem when adults esteem them. This means that children are treated respectfully as people³/₄though young ones³/₄with minds, ideas, thoughts, hypotheses, interests, and real concerns. Thus, when appropriate investigative project work is included in the curriculum, children have ample opportunity to make decisions, to assist each other, to argue about their ideas and plans, and to take initiative and responsibility for the work they accomplished.

Principle #12. Young children should be engaged daily in worthwhile activities and work in which their cooperation is functional and not phony.

This principle implies that children should be engaged frequently and regularly in group work in which each participant has the opportunity to make individual contributions to the total effort and to take a part of the responsibility for the accomplishment of the group's goals. Project work provides a highly suitable context for such meaningful cooperative effort.

Principle #13. The younger the learners, the more important is the goal to strengthen their disposition to look more closely at phenomena and events in their own environments worth learning more about.

This principle addresses the content of the curriculum of which a major goal is to strengthen children's inborn disposition to make sense of their experiences and environments. A major responsibility of teachers of young children is to alert them to phenomena and events in their own environments and experiences worthy of their attention and deeper understanding. As children grow older and gain a firm grasp of their own experience and environment, it is the responsibility of educators to strengthen children's dispositions to make sense of other people's experiences and environments—those that are distant in both time and place.

Principle #14. The younger the learners, the more important it is that what they are learning about (knowledge) and what they are learning to do (skills) have horizontal rather than vertical relevance.

Horizontal relevance means that the knowledge and skills to be learned are meaningful and useful at the time they are learned. Vertical relevance refers to learning of knowledge and skills that are intended and expected to be meaningful and useful at some point in the future and that are designed to prepare the learner for the next grade, the next school . . . the next life! As children grow older, their capacity to benefit from knowledge and skills that have vertical rather than horizontal relevance most likely increases. Furthermore, as children grow older they are more able to understand and accept the reasons for mastering knowledge and skills that will have relevance and value for future experiences. During the early years, excessive emphasis on knowledge and skills that have vertical rather than horizontal relevance may not only undermine children's dispositions to learn but also their confidence in their own intellectual powers.

Many teachers complain that they are required to instruct children in knowledge and skills for which they believe them to be unready. However, they say that if they fail to do so, the teacher of the next grade will complain. I have come to think of this kind of pressure to prepare for the next grade as a kind of "pedagogical paranoia." An example of this phenomenon was given to me recently by a teacher of a mixed-age group of 7- and 8-year-olds. She reported that she had become quite impatient with one of her older pupils about his difficulty with a mathematical problem and said to him, "I know you knew how to do this last year because I was your teacher last year! Now what happened?" She went on to explain to me that if she had not been the child's teacher the preceding year, she might have thought that teacher had not taught the concept!

Principle #15. The younger the learners, the more they learn through interactive rather than reactive and receptive experiences, through direct and first-hand experiences rather than indirect and second-hand experiences, and through active rather than passive experiences.

As children grow older, their capacities to benefit from passive learning, from indirect and second-hand learning, increase. While young children do learn from passive experiences (e.g., from stories, movies, or television), the major intellectual dispositions, such as to inquire, hypothesize, explore, experiment, investigate, analyze, and synthesize, are strengthened in the early years primarily through interactive experiences.

Principle #16. The younger the learners, the more important it is that they have ample opportunity to interact with real objects and real environments.

When young children are obliged to "acquire" or assimilate knowledge about things that are not real-or at least very vivid to them-they are likely to have difficulty in contributing ideas, hypotheses, predictions, and information, or to pose meaningful questions to be answered through investigation, exploration, observation, discussion, and argument. When the topics introduced to young children are too remote from their own first-hand experience, their dependence on the teacher for ideas and information is increased. Young children are dependent upon adults for many of the most important aspects of their lives; however, excessive and unnecessary dependence on adults in learning situations may undermine the development of their intellectual dispositions (e.g., to be curious, experimental, analytical, exploratory, investigative, thoughtful, empirical, hypothesizers).

Principle #17. The younger the learners, the more important it is that they have opportunities to apply in meaningful contexts the knowledge and skills learned in the more formal parts of the curriculum.

Good project work in which children investigate events and phenomena in their environments worth learning more about, and represent the results of their investigation, provides meaningful contexts for children to apply the skills taught in the more formal parts of the curriculum (Katz & Chard, 1989). Indeed, involvement in project investigations often motivates children to seek help from teachers and others in strengthening their formal literacy and numeracy skills to use in representing their observations and findings.

Principle #18. The younger the learners, the wider the variety of pedagogical approaches and methods that must be used.

When a single method of teaching is used with a group of children that is diverse in background, development, experience, interests, abilities, and aptitudes, a significant proportion of the group is likely to fail. When using a single method for teaching a whole class (e.g., teaching the whole group of more than about a dozen young children the same thing, the same way, on the same day, at the same time), the chances are that about a third of the children already know what is being taught, about a third will learn it, and the remaining third will be unlikely to grasp it; in this way, whole-group instruction means that two-thirds of the children may be wasting their

time! As to the thoughts and feelings of these two-thirds at such times, we can only speculate that their thoughts are unlikely to reflect interest or satisfaction!

The use of a single method of teaching for a whole group of children can be described as the application of a homogeneous treatment to a heterogeneous group. Such an application must lead inevitably to heterogeneous outcomes. While we do not wish all children to become alike or homogeneous in every way (i.e., we value some heterogeneous outcomes), there are some desirable homogeneous outcomes. For example, we want all children to acquire minimal skills in literacy and numeracy. We want all children to achieve optimum self-confidence. If children are different from each other in significant ways (e.g., in experience, background, language, ethnicity, aptitude, ability, interests, etc.) and we want a homogeneous outcome—that is, if we want all children to have the disposition to learn and reach competence in basic skills—we must use heterogeneous treatments.

Principle #19. The younger the learner, the larger the role of adults in helping them to develop social competence.

Children who fail to achieve at least minimal social competence by about the age of 6 are at significant risk for school failure, later mental health difficulties, and dropping out of school. As children grow older, the problems of overcoming social difficulties increase. Children's social competence can be strengthened, in the presence of adults prepared to assist them, through participation in activities requiring social understanding and social interactive skills.

Conclusion

A developmental approach to curriculum and teaching assumes that the emphases on strengthening desirable dispositions and on engendering positive feelings have a high priority when selecting among possible activities and pedagogical methods. When taken together, these principles also suggest that young children should have frequent opportunities to be engaged in small group efforts to investigate in depth significant phenomena and events around them. These investigations, which we call projects (see Katz & Chard, 1989), can usefully constitute a major part of the curriculum for children from about the age of 3 years through the primary grades, if not further. Projects provide contexts in which essential literacy, numeracy, and social skills can be meaningfully employed and thereby strengthened and are one element of a curriculum that can provide a context for the manifestation of such skills.

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