

Much Too Early

by DAVID ELKIND

Children must master the language of things before they master the language of words.”
—Friedrich Froebel, *Pedagogics of the Kindergarten*, 1895

In one sentence, Froebel, father of the kindergarten, expressed the essence of early-childhood education. Children are not born knowing the difference between red and green, sweet and sour, rough and smooth, cold and hot, or any number of physical sensations. The natural world is the infant's and young child's first curriculum, and it can only be learned by direct interaction with things. There is no way a young child can learn the difference between sweet and sour, rough and smooth, hot and cold without tasting, touching, or feeling something. Learning about the world of things, and their various properties, is a time-consuming and intense process that cannot be hurried.

This view of early-childhood education has been echoed by all the giants of early-childhood development—Froebel, Maria Montessori, Rudolf Steiner, Jean Piaget, and Lev Vygotsky. It is supported by developmental theory, which demonstrates that the logical structure of reading and math requires syllogistic reasoning abilities on the part of the child. Inasmuch as most young children do not attain this form of reasoning until the age of five or six, it makes little sense to introduce formal instruction in reading and math until then. The theory is borne out by a number of longitudinal studies that show that children who have been enrolled in early-childhood academic programs eventually lose whatever gains they made vis-à-vis control groups.

Yet there is a growing call for early-childhood educators to engage in the academic training of young children. The movement's beginnings lay in the fears sparked by the Soviet Union's launching of Sputnik in 1957. The civil rights movement and the growing public awareness of our educational system's inequality led to the creation of Head Start, a program aimed at preparing young disadvantaged children for school. Although Head Start is an important and valuable program, it gave rise to the pernicious belief that education is a race—and that the earlier you start, the earlier you finish. This encouraged educators like Carl Bereiter, Siegfried Engelmann, and, more recently, E. D. Hirsch to introduce early academic programs based on the learning theories of E. L. Thorndike and B. F. Skinner. These writers assume that learning follows the same principles at all age levels—ignoring both children's developing mental abilities and the fact that academic skills vary in their logical complexity and difficulty.

Concerns over our educational system, fueled by our students' poor performance in international comparisons of achievement, have reinvigorated the call for early academic instruction as a remedy for inadequate teaching later on. All too many kindergarten teachers are under pressure to teach their children numbers and letters and to administer standardized tests. In some kindergartens, children are even given homework in addition to the work sheets they must fill out during class time. In a developmentally appropriate classroom, children are busy taking care of plants and animals, experimenting with sand and water, drawing and painting, listening to songs and stories, and engaging in dramatic play. It is hard to believe that these young children learn more from work sheets than they do from engaging in these age-appropriate activities.

In the end, there is no solid research demonstrating that early academic training is superior to (or worse than) the more traditional, hands-on model of early education. Why take the risky step of engaging in formal academic training of the young when we already know what works?

Giants of the Preschool

The educators who established early childhood as a legitimate time for guided learning all emphasized the importance of manipulative experiences—of seeing, touching, and handling new things and of experiencing new sensations—for infants and young children and the dangers of introducing them to the world of symbols too early in life. Froebel, Montessori, and Steiner all created rich, hands-on materials for children to explore and conceptualize. Each of them acknowledged, in his or her own way, that the capacity to discriminate precedes the capacity to label, that the understanding of quality precedes that of quantity. Children, for example, learn to discriminate among different colors before they can distinguish different shades of the same color.

This is not to suggest that the founders of age-appropriate practice were of one mind. They disagreed on such matters as the teacher's role in guiding young children's learning and the comparative benefits of individual versus collaborative learning.

Froebel, for example, believed that introducing children to different manipulative materials (which he called gifts), such as a wooden ball, a square, and a diamond, would teach young children not only geometric shapes but also abstract concepts of unity and harmony. Montessori, by contrast, doubted whether children would learn abstract concepts by using manipulative materials. She did argue that there were critical periods in development during which children had to exercise their sensory-motor abilities if they were to fully realize them.

Montessori regarded children's exercise of their sensory abilities, and indeed of all their activities, as preparation for adult life. Froebel saw play as a valuable mode of learning for young children; to Montessori it was frivolous and should be the child's work. For example, she wrote that children would be better served if they used their imaginations to fantasize about real foreign countries rather than fairytale kingdoms.

Steiner, founder of the Waldorf schools, believed that education should be holistic. In Waldorf schools, handicrafts, the arts, and music are integral parts of the curriculum. Children are asked to write and illustrate their own textbooks in science, history, and social studies, for example. Whereas Froebel and Montessori focused on having children learn from their own individual activity, Steiner's activities were more social and collaborative.

Piaget, while not supporting any particular early-education program, argued that children learn primarily from their own spontaneous exploration of things and a subsequent reflective abstraction from those activities. This is an indirect argument for the importance of manipulative materials in early-childhood education.

Vygotsky, while also believing that much of intellectual growth was spontaneous, nonetheless proposed that children could not fully realize their abilities without the help of adults. He argued that there was a zone of proximate development that could be attained only with guidance and modeling by adults. Vygotsky emphasized the teacher's role much more than other writers, who entrusted much of young children's learning to the children themselves.

Contemporary early-childhood educators also disagree on the teacher's role in the learning process and continue to debate what is the most effective curriculum for young children. What unites them, and sets them apart from those who would make early-childhood education a one-size-smaller 1st or 2nd grade, is their commitment to building early-childhood practice on their observations of young children. Put a bit differently, the giants of early childhood and their followers agree that early education must start with the child, not with the subject matter to be taught.

The guiding principle of early-childhood education is, then, the matching of curriculum and instruction to the child's developing abilities, needs, and interests. This principle is broadly accepted and advocated by most early-childhood educators. The National Association for the Education of Young Children (NAEYC) has issued a policy statement entitled "Developmentally Appropriate Practice in Early-Childhood Programs." The NAEYC now evaluates and certifies early-childhood programs that meet its criteria for developmental appropriateness.

Complex Understandings

Those who believe in academic training for very young children make a fundamental error: They fail to recognize that there are different levels of understanding in math and reading. Learning to identify numbers and letters is far different from learning to perform mathematical operations and to read with understanding. This is easy to support. "Sesame Street" has run for more than 30 years. Children today know their numbers and letters earlier than ever before. Many know them by age two. Yet children today are not learning math or reading any earlier or better than did children before there was "Sesame Street." Learning the names of numbers and letters is only the first step in the attainment of true numerical understanding and reading comprehension.

Take the concept of numbers. The three levels of numerical understanding—nominal, ordinal, and interval—correspond to different forms of scaling. Nominal numbering is the use of a number as a name, such as the numbers basketball players wear on their uniforms. By the age of two or three, children can use numbers in the nominal sense. By the age of four or five, children can begin to use ordinal numbers; they can order things according to quantitative differences. For instance, they can arrange a series of size-graded blocks or sticks from the smallest to the largest. Once the arrangement is complete, however, they are not able to insert a new, intermediate-sized element into the perceptual array.

It is only at age six or seven, when they have attained what Piaget calls "concrete operations," that children can construct the concept of a "unit," the basis for understanding the idea of interval numbers. To attain the unit concept, children must come to understand that every number is both like every other number, in the sense that it is a number, and at the same time different in its order of enumeration. Once children attain the unit concept, their notion of number is abstract and divorced from particular things, unlike nominal and ordinal numbers. Mathematical operations like addition, subtraction, and multiplication can be performed only on numbers that represent units that can be manipulated without reference to particular things.

The interval concept of numbers is an intellectual construction. It builds on children's practice in classifying things (attending to their sameness) and in seriating them (attending to their difference). At a certain point, and with the aid of concrete operations, children are able to bring these two concepts, of sameness and difference, together into the higher-order concept of a unit, which brings together the ideas of sameness and difference. It is only when children understand that something can be the same and different that they have a true understanding of quantity. Learning the names of numbers and rote counting are less important in this attainment than is practice in classifying and seriating many different materials.

A similar hierarchy of understanding is involved in learning to read. In fact, in some respects reading is a more complex process than arithmetic, in that it involves auditory and visual discrimination as well as cognitive construction. Nonetheless, the principle is the same.

The earliest level of reading is the recognition of words by sight. At ages two or three, a child may learn "stop" and "go" in part by the perceptual configuration and in part by the colors associated with these words. Sight words are like nominal numbers; they reflect a very early

level of reading achievement. A second level of reading is phonetic; this concept corresponds roughly to ordinal numbers. Children at four or five can learn the sounds for single letters and are able to read words like “hat,” “cat,” “sat,” and so on.

The same child who can read phonetically, however, may not be able to read phonemically. To read phonemically, a child must be able to recognize that a letter can be pronounced differently depending on the context. A child who can read “hat,” “cat,” and “sat” may have trouble with “ate,” “gate,” and “late.” Likewise, a child who knows “pin” may have trouble with “spin” because it involves a blend of consonants that may throw kids off. In Piaget’s terminology, “concrete” operations are required for this highest level of reading.

Those calling for academic instruction of the young don’t seem to appreciate that math and reading are complex skills acquired in stages related to age. Children will acquire these skills more easily and more soundly if their lessons accord with the developmental sequence that parallels their cognitive development.

A Developing Knowledge Base

From the outset, let’s acknowledge that hard data on the comparative benefits of one or another type of early-childhood educational program are hard to come by. The difficulty stems from the fact that education is a chaotic process. Each time children and their teacher come together they are different, thanks to the intervening experiences each has had. In other words, every classroom meeting is a nonreplicable experiment. Our research tools, however, are borrowed from the physical sciences, where regularity, rather than chaos, reigns. In physics and chemistry it is possible to control most, if not all, of the variables in play. This is almost impossible in education.

For example, classrooms that follow different educational philosophies will vary in many other ways as well. The teachers may vary in skill and experience as well as in personality. In addition, it is almost impossible to match two groups of children. A reliable match would require comparable families, a condition that is difficult, if not impossible, to satisfy. Moreover, the instruments used for assessment, whether observations or tests, are less reliable and less valid at the early level than they are at later ages. This does not mean that meaningful research cannot or has not been done. It just means that we may have to be more innovative in designing studies of educational methods than we have been in the past. The physical-science paradigm, which presupposes regularity and replicability, is simply not appropriate to the study of classrooms.

Longitudinal studies can overcome some of these difficulties, thereby providing meaningful evidence comparing one method with another. Long-term observation and measurement reduce the chance that random factors, such as a teacher’s bad week, are corrupting the data. In an analysis of ten independently conducted, and variously sponsored, longitudinal studies of the effects of early-childhood education for poor and at-risk children, High Scope Educational Research Foundation scholar Lawrence J. Schweinhart and his colleagues found that children who attended preschool performed significantly better intellectually, at least during the program and shortly thereafter. In some but not all of the studies, significantly fewer of the children who attended preschool were classified as disabled and placed in special-education classes. Likewise, in some but not all of the studies, children who attended preschool had higher rates of high-school completion.

These investigations of early-intervention programs provide clear evidence that early-childhood education, in most cases of the developmentally appropriate kind, had lasting effects on the lives of participating children. It is not clear, however, whether the results would be the

same if advantaged children were the subjects. Consider an analogy. If you take children who are significantly below the norm and feed them a full-calorie, nutritious diet, they will make remarkable progress until they reach the norm. But if you put well-nourished children on a similar regimen, there will be few if any effects. If you start at a low level, you have more room for improvement than if you start at the norm.

Studies of children in different types of preschools are merely suggestive. One study by Leslie Recorla, Marion C. Hyson, and Kathy Hirsh-Pasek compared children who had attended an academic preschool with those who had attended a developmentally appropriate program. Although there were no academic differences between the two groups, the children attending the academic program were more anxious and had lower self-esteem. These results diminished after the children began to attend public school.

An older study was carried out by Carleton Washburn, the famed Evanston, Illinois, educator. He introduced children to formal instruction in reading at different grade levels from kindergarten to 2nd grade. The children who were introduced to reading at these three levels were then retested in junior high school. The assessors didn't know the grade at which each child had learned to read. Washburn found little difference in reading achievement among the groups. The children who had been introduced to formal instruction in reading later than the others, however, were more motivated and spontaneous readers than those who had begun early. Similar findings were reported in the Plowden Report in England, which compared children from the informal schools of rural areas with children who attended the more formal schools of urban centers.

Studies of early readers, those who are able to read phonemically on entering kindergarten, have found similar results. In both the United States and Canada, only about 3 to 5 percent of children read early. In such studies, most children had IQs of 120 or higher and were at Piaget's stage of concrete operations. In addition, almost all of them had a parent or relative who took special interest in them. These adults did not engage in formal instruction; they read to their children, took them to the library, and talked about books with them. In order to learn to read early in life, children need the requisite mental abilities, but they also benefit from the motivation that develops from rich exposure to language and books and the special attention of a warm and caring adult.

Evidence attesting to the importance of developmentally appropriate education in the early years comes from cross-cultural studies. Jerome Bruner reports that in French-speaking parts of Switzerland, where reading instruction is begun at the preschool level, a large percentage of children have reading problems. In German-speaking parts of Switzerland, where reading is not taught until age six or seven, there are few reading problems. In Denmark, where reading is taught late, there is almost no illiteracy. Likewise in Russia, where the literacy rate is quite high, reading is not taught until the age of six or seven.

Current Practice

Why, when we know what is good for young children, do we persist in miseducating them, in putting them at risk for no purpose? The short answer is that the movement toward academic training of the young is not about education. It is about parents anxious to give their children an edge in what they regard as an increasingly competitive and global economy. It is about the simplistic notion that giving disadvantaged young children academic training will provide them with the skills and motivation to continue their education and break the cycle of poverty. It is

about politicians who push accountability, standards, and testing in order to win votes as much as or more than to improve the schools.

The deployment of unsupported, potentially harmful pedagogies is particularly pernicious at the early-childhood level. It is during the early years, ages four to seven, when children's basic attitudes toward themselves as students and toward learning and school are established. Children who come through this period feeling good about themselves, who enjoy learning and who like school, will have a lasting appetite for the acquisition of skills and knowledge. Children whose academic self-esteem is all but destroyed during these formative years, who develop an antipathy toward learning, and a dislike of school, will never fully realize their latent abilities and talents.

If we want all of our children to be the best that they can be, we must recognize that education is about them, not us. If we do what is best for children, we will give them and their parents the developmentally appropriate, high-quality, affordable, and accessible early-childhood education they both need and deserve.

—David Elkind is a professor of child development at Tufts University and the author of *Reinventing Childhood* and *The Hurried Child*.

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