A Developmental Learning Strategy for Early Reading in a Laboratory Nursery School

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A three-year investigation on early reading, using a developmental learning model for cognitively structuring and sequencing learning processes, was designed to test the efficacy of the model in a practical nursery school setting with a diversity of teaching styles. Using primers, guides, and materials developed by the investigator, over 80% (107) of 132 three-to-five-year-old children learned to read with moderate to high fluency and interest. Pretest letter recognition skill, CA, and especially MA (but neither IQ nor sex of child) predicted success in learning. Certain analytic-integrative cognitive operations, which were built into the method, and a minimal general level (MA) of cognitive and language development appear essential to learning to read.

There are at least three major issues inherent in the question, "How early can a child learn to read?" Aside from whether early reading results in long-term advantages in cognitive development, perhaps the most essential issue concerns the match between the cognitive operations required in reading and those ordinarily developed in early childhood (Hunt, 1969). A third issue centers on whether certain strategies of developmental stimulation can systematically develop in young children the cognitive skills of reading, skills apparently too complex to appear normally at three and four years of age.

According to Piaget (1952; Inhelder & Piaget, 1964), the mental processes of the young child well into the elementary school years (until about ages seven to nine) are largely infralogical in form. That is, the child's reasoning is heavily rooted in perceptions and manipulations of contiguous groupings as compared with his later logical structuring of phenomena on the basis of multidimensional, abstract criteria, which may often run counter to perceptually salient patternings. In recent years, considerable theoretical and experimental effort has been expended on the problem of developmental shifts in the child from associative to representational forms of cognitive functioning capable of transcending perceptual patterns. There is, in fact, a substantial body of evidence summarized by White (1965) on language (Luria, 1961), transposition (Reese, 1968), conservation (Sigel & Hooper, 1968), and other processes that tends to support Piaget's theory of a major developmental transition toward integrative, generalized forms of mental functioning from early to middle childhood.

The process of reading itself appears to be composed of both perceptual and some abstract processes that clearly encompass integrative conceptual operations. These processes have been conceptualized by Fowler (1964, 1965a), Gibson (1965), and others as perceptual learning of written letter and word units and learning rules for decoding sequential patterns of correspondence between auditory and graphic language forms. These basic processes, in turn, involve increasingly higher-order rules for organizing grapheme-phoneme relations in morphemes and words, for inflecting words and integrating words into sentences according to syntactical rules, and for deriving and organizing meaning from these word strings. There are also specialized concepts or rules for graphic patterning, namely, left-right serial order, linearity, spac-
ing, top to bottom, punctuation, paragraphing, etc.

The predominant role that integrative or synthesizing cognitive processes enjoy in reading emerges from a study by Serafica and Sigel (undated), in which readers proved to be significantly greater at classifying common objects according to abstract criteria than were nonreaders. More directly, Kass (1966) with school-age children and Fowler (1964) with three-year-olds found that “blending” (synthesizing) grapheme units to make words and combining word units to form sentences were primary cognitive operations that distinguished successful readers from reading failures. In a related study modeled on the task of reading, Farnham-Diggory (1967) observed that three- and four-year-olds could easily learn individual pictographic units but encountered great difficulty in learning logographs (abstract word symbols) and synthesizing them into sentence forms.

It is probably for this reason that even today, despite some concentration of effort on early reading, comparatively few children under five are yet reported to be learning to read. Historically, numerous early readers may be found in the biographical literature (e.g., Cox, 1926), in studies of high-ability children (Hollingworth, 1926; Terman, 1925; Witty, 1940), in a few early experimental studies (Brown, 1924; Davidson, 1931; Terman, 1918), in the Montessori and a few independent schools, or even, apparently, a few children in the early English infant schools (Raymont, 1937; Wilderspin, 1832), as this writer has reviewed previously (Fowler, 1962a). But in proportion to the total population, to the numbers who learn in elementary school from the age of five or six on, or even to the number in any given preschool program with whom reading is attempted, the number of fluent early readers is generally small. Davidson’s (1931) early survey and study indicated that virtually no child with a mental age of less than four had ever learned to read—in the sense of integrative processing of text material—and not many children with an MA of less than five. This writer’s subsequent reviews (Fowler, 1962a, 1968) and studies (1962b, 1964) have produced no clear evidence to contradict her.

With regard to the issue of long-term consequences of early reading, the follow-up investigations of Durkin (1966) on three- to five-year-old children instructed informally at home by a diversity of methods constitute the only comparatively controlled studies on this problem. Durkin found that early readers maintained their mean superiority over later school-instructed children as far as the sixth grade, a significant finding in view of the lack of control of intervening experiences and parents’ teaching methods. Surveys of high-ability, high-achieving children and adults, as we have noted—who are also regularly superior in socioemotional functioning—turn up a high proportion who early learned to read (Fowler, 1962a).

In contemporary programs, children around five years of age appear to learn quite well in kindergarten, with a variety of different methods (Appleton, 1964; Keister, 1941; Kjeldergaard & Frankenstein, 1967; McKee & Brzeinski, 1966; McNeil, 1964; Stevenson, 1964; Sutton, 1964). In a few studies of children under five, however, from the limited data reported, only small proportions of the four-year-olds and even less of the three-year-olds make substantial progress. Findley (1968), for example, reports only 24 (40%) of 60 four-year-olds and six (10%) of 60 three-year-olds (all of average IQ, 100-105) progressed as far as reading and comprehending one 25-word pre-primer at the end of a one-year program. Perlish (1968) found as few as 14 (20%) of 70 three-year-old children (an additional 65 children had dropped the program) could so much as identify three to five sentences after nine months, hardly surprising considering the television instructional framework. Bereiter’s (1967) success with 15 slightly below average IQ (94), disadvantaged four-year-olds was limited to unit recognition and the beginning of simple blending activity on a few words by about two-thirds of the Ss. Moore (Moore & Anderson, 1968) has yet to report detailed results. In all of these instances we see largely confirming signs of a cognitive developmental transition, marked by the four-year MA level (in itself something of a gross approximation) as a phase of acquiring readiness for learning to read.

If, then, reading is a complex mental process for young children under five to learn, can methods be devised to regularly overcome these developmental limitations so prevalent in educational and common experience? To answer this and related questions, this investigator has carried out a series of studies (Fowler, 1962b, 1965a) that has led to the organization of a set of principles designed to systematically induce developmental learning across a variety of concept and content areas, such as reading, mathematics, plant life, and structure of a community. The essential features of the model, details of which have been dis-