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ABSTRACT

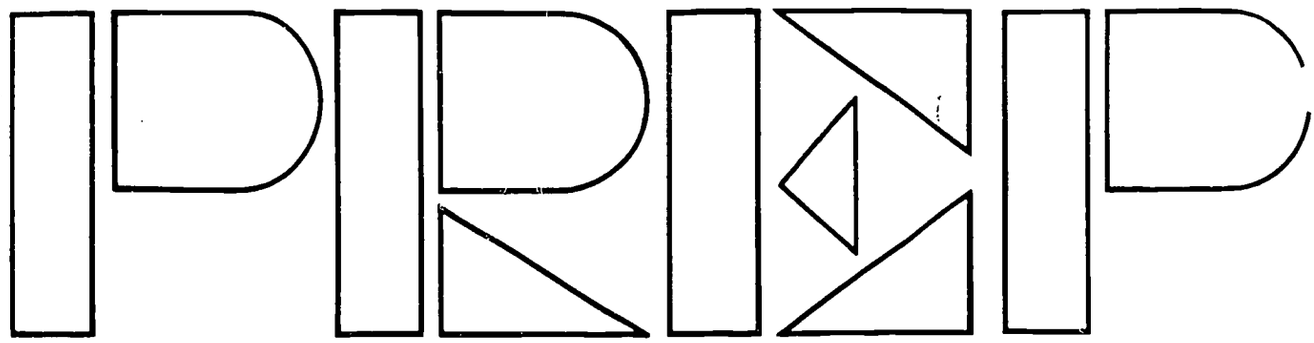
Programs that represent major curriculum development efforts in early childhood education are described as to goals and objectives, content and materials, classroom activities, parent involvement, professional and paraprofessional training, administrative requirements and costs, program development and evaluation, and program history and present status. The programs presented are the following: (1) Ameliorative Program (University of Illinois), (2) Appalachia Preschool Education Program (Appalachia Education Laboratory, Inc., Charleston, West Virginia), (3) The Bank Street Model (Bank Street College of Education, N. Y., N. Y.), (4) The Behavior Analysis Model (University of Kansas), (5) The Cognitive Curriculum (High/Scope Educational Research Foundation, Ypsilanti, Michigan), (6) Demonstration and Research Center for Early Education (DARCEE) (George Peabody College for Teachers), (7) Early Childhood Education Learning System (Southwest Educational Development Laboratory, Austin, Texas), (8) East Harlem Block Schools (East Harlem Block Schools, N. Y., N. Y.), (9) Education Development Center Open Education Model (Education Development Center, Newton, Massachusetts), (10) Engelmann-Becker Model (University of Oregon), (11) Florida Parent Education Program (University of Florida), (12) The Interdependent Learning Model (New York University), (13) Primary Education Project (University of Pittsburgh), (14) Responsive Program (Far West Laboratory for Educational Research and Development, Berkeley, California), and (15) Tucson Early Education Model (University of Arizona). A bibliography and references from RIE are given. (DB)

Putting Research into Educational Practice

Early Childhood Education

PREP Report No. 37

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE/National Institute of Education



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Early Childhood Education

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TRENDS IN EARLY CHILDHOOD EDUCATION

The Rationale for Early Childhood Education

If one thinks of education as a race from kindergarten to college, then Head Start seems a perfect name for the preschool program which aims to get poor children ready to compete on even terms with youngsters of the white middle class.

The Great Society's favorite educational project flowered very suddenly, it seemed, in 1965; but its roots went back a decade to two events which deeply influenced American public education. One was the Supreme Court school desegregation decision of 1954 promising—eventually—equal opportunity in education for all races. The other was the Russians' launching of their spacecraft Sputnik in 1957, and Americans' interpretation that being second place in the space race was at least partly caused by our schools being second rate.

Actually the public schools had been under fire for several years after World War II, as a loud group of critics from university professors to businessmen claimed that the schools were not training future mathematicians, physicists, engineers, and other kinds of advanced scientists whom—so the critics said—the Nation would need to cope with our complicated technological society by the year 2000. The whole range of the public education system was called wasteful. Even nursery schools were said to be slack in their duty, for the early years of childhood should be used for "learning how to learn," not just for gaining emotional security.

William Fowler was one of those who first strongly contradicted the prevailing notion about nursery school that toddlers must not be pushed to learn. This idea meant frittering away children's most precious learning years, Fowler claimed. He pointed not only to his own success with formal teaching programs for 3-year-olds but also to his studies of adults of high intelligence. Invariably, he said, they had had strong early intellectual stimulation. Thus Fowler claimed it is not simply that bright people are "gifted" but that they are stimulated very early in life to explore and discipline their talents. Intelligence is not fixed at birth.

Several other psychological studies published by the early 1960's agreed that growth in learning power, or "cognitive development," takes place in ordered stages during early childhood, each stage building upon what has been learned already, *but every stage equally dependent on the child interacting with his environment*. Of great importance among these studies was the lifelong work of the Swiss psychologist Jean Piaget, translated and available to American psychologists for the first time in the 1950's.

The American cognitive psychologists interpreted Piaget to mean that variety is not just the spice but the very building blocks of life, where learning is concerned. The greater the variety of objects and experiences which the child meets, the more varied and flexible his learning behavior becomes. He saves up every experience, savors it, stores it, and uses it with the next encounter. Thus the more new things a child has seen and heard, the more he can be interested in; the more he has coped with new situations, the stronger grows his ability to cope. In direct opposition to the beliefs of the traditionalists—that a child's mind matures according to an inborn pattern that must not be pressured—the new learning psychologists proclaimed that the child's own actions "build his mind," and that the structure can be slowed or speeded up by the influence of the child's surroundings.

The cognitive psychologists identified vital skills which the child teaches himself by about the age of 4, provided he has a sufficiently stimulating environment: (1) to zero his attention in on one object or event in his surroundings, and hold it in the focus of his senses; (2) to value as information the clues which his eyes, ears, touch, taste, smell bring in to his brain; (3) to collect these varied facts into a filing system he makes up himself and to combine them into organized ideas that make some sense of his world; (4) to use words as symbols for the facts and ideas he has collected, thus enabling him to gather much more information, and to express himself. These are "learning how to learn" skills which the psychologists observed that normal children from middle-class families possessed when they entered kindergarten.

Observing children who did not demonstrate

such skills in typical kindergartens or in tests, the psychologists deduced that these children had not received enough variety and richness of stimulation in their surroundings. Such a lack could retard a child's learning development as surely as lack of protein would stunt his physical growth. Similarly, they believed, an increase in variety and richness during early childhood (such as had been used in a number of teaching programs which had brought mentally retarded children up to the range of normal intelligence) might produce an entirely new, higher level intelligence in human beings. Thus the cognitive psychologists set about to find deliberate means of providing stimulation, or "enrichment," in learning environments. "One does not sit by and wait for children to 'unfold,'" said Martin Deutsch. "Growth requires the guidance of stimulation." He established the Institute for Developmental Studies at the New York Medical College especially to provide poor nonwhite children with "an organized and reasonably orderly program of stimulation at as early an age as possible, *to compensate for possible cognitive deficit*," and to study the relationship between this so-called deficit and the "slum" environment.

The Harvard Center for Cognitive Studies was established in 1960. Its director, Jerome S. Bruner, was convinced that growth in learning depends on the kinds of tools which the young mind finds in his surroundings. "I cannot conceive of growth just from the inside out. Man is born naked, and culture shapes him," Bruner told the journalist Maya Pines. "We are only now on the threshold of knowing the range of educability of man—the perfectibility of man!" he exclaimed.

As prestigious and as optimistic as Bruner at this time was J. McVicker Hunt of the University of Illinois. In 1961 he wrote that future generations of mankind could be made more intelligent if only we would guarantee that every child has proper preschool enrichment. But he cautioned that what is proper for one child may be silly for another, and identified what he considered to be the major problem in preschool education: "the problem of the match."

"This means," said Hunt, "that before you can teach a child you must discover what he truly needs to know at that moment. Don't offer him something too similar to what he has mastered already; he won't think it worthwhile to make the effort. Don't present new objects, new situations, words, or ideas that look 'far out' to him, or he will be afraid to try for fear of failing. The trick is to find 'the optimum of incongruity'—the exactly perfect amount of discrepancy between what the child knows and the new experience you can offer him."

By 1962 Hunt saw great promise in the new experimental programs of Deutsch and others which would use planned, organized "enrichment" in preschool years in order to prevent the school failures that seemed inevitable for children from poor areas of large cities. Hunt not only believed that the basic store of intelligence could be increased by the right enrichment at the right time, but was also increasingly sure from research on animals as well as humans that the process of learning is pleasurable and not painful. Children just naturally enjoy learning, Hunt wrote, provided that their other basic needs are satisfied. The work of Omar Khayyam Moore, who in 1959 started teaching 2- and 3-year-olds to read and write on an electric typewriter, was exciting evidence that learning could be its own reward.

In 1964 an analysis of the growth records of 1,000 children from infancy through age 18 gave more powerful ammunition to the idea that early childhood before elementary school is the critical age for learning. Benjamin Bloom found a common pattern running through all 1,000 cases. While a person's adult intelligence could not be reliably predicted from tests that had been given when he was a baby, Bloom reported that "in terms of intelligence measured at 17, about 50 percent of the development takes place between conception and age 4, about 30 percent between ages 4 and 8, and about 20 percent between ages 8 and 17."

Bloom and other psychologists and educators interpreted these statistics to mean that children apparently form more of their intelligence between birth and 8 than between 8 and 17, and thus the home environment during the early years is vitally important to later development. The assumptions and interpretations on which this rests have since been questioned, but at the time they were published, Bloom's statistical studies were looked at together with numerous tests of performance showing that poor children "achieved" less than middle-class

children. What came out was the profoundly influential idea that the homes of the poor children lack the variety and richness of stimulation needed for cognitive growth.

Maya Pines presented the evidence in her best-selling book *The Revolution in Learning* in 1966. "The mind-builders see the difference between babies from middle-class homes and those who are born into poverty emerging vividly about the age of one-and-a-half. . . . The middle-class toddlers forge ahead, investigating their exciting world of toys, speech, and games under the guidance of interested adults. The children of poverty, in their crowded and disorganized homes, learn that the best way to stay out of trouble is to keep quiet. . . . Coincidentally, their IQ's begin to drop. By kindergarten age these children have been so starved intellectually that their IQ's run some 5 to 15 points below those of their middle-class peers. . . . With every year in school, the IQ's of slum children continue to sink, until they reach a level some 20 points below that of more privileged children. . . . This does not mean that they have become more stupid than before, but it does mean that they have failed to grow intellectually while middle-class children did. . . . If a child's educational achievements depend so heavily on what he learned before the age of six, the home—not the school—emerges as the major educational institution in the land. . . . This naturally leads to the question, What should be done when the home fails? Should one just sit back and watch millions of children march toward wholesale school failure, or should one intervene? . . ."

"Interventions" in a number of programs and places were showing promise: Besides Martin Deutsch in New York there were Susan Gray in Nashville, Tenn.; David Weikart in Ypsilanti, Mich.; and Carl Bereiter in Urbana, Ill. All raised the hope that the preschool could "compensate" for the "deficit" of the poor child's home.

Thus during the decade following the Supreme Court desegregation decision, the cognitive psychologists enunciated the following theories which formed the new doctrine of early childhood education in the 1960's and prepared the way for Head Start.

(1) Intelligence is not fixed at birth. (2) It grows in interaction with the variety of stimulating objects and circumstances which are present in the young child's environment. (3) Just as much growth occurs between birth and 4 as between 4 and 17—thus the preschool years are more influential than the elementary school age. (4) The "critical time" for cognitive growth, plus the critical *place*—a stimulating environment—produce the theory that the home—or an "enriched" substitute for it, the preschool—is more influential than the elementary school.

Head Start and Follow Through

Head Start began with warm hopes in the summer of 1965. Twenty-four hundred communities throughout the Nation received U.S. Government funds to set up local preschool programs for 561,000 children. The following fall, year-round programs were started for 20,000 children.

Every Head Start program was different. There was no centralized control from the Office of Economic Opportunity (OEO) in Washington. No specific techniques of instruction were required by Washington since community decisionmaking was one of the main goals of the War on Poverty. Nevertheless, from the beginning there was a strong similarity in educational aproach among all the Head Start centers across the Nation. The first survey of Head Start in 1966 found "a preference for a supportive, unstructured, socialization program rather than a structured, informational program." The survey reported that four out of five center directors agreed that:

- Attention to family needs is all-important because whatever affects the family affects the child.
- The child's environment must be made friendly toward, and understanding of, the school's efforts and goals.
- A program should first of all take care of physical needs (feeding the children properly, providing adequate medical care, etc.).
- The learning process in young children is largely one of interaction with other human beings.

This was not the list of priorities that the learning psychologists had prescribed. In April

1969 the national evaluation of Head Start, commissioned by OEO, was released. It said:

- Summer Head Start programs do not lastingly improve children's learning or their attitudes about themselves or toward school.
- Year-round programs do not seem to influence the development of positive attitudes. They produce some measurable but not impressive increases that last through grades one, two, and three.
- Head Start children are below national norms or standardized achievement and psycholinguistic tests—although their reading readiness scores approach national norms.
- Success is mostly in Negro centers, central cities, and the Southeast.
- Parents participate in and like Head Start.

Although expressing disappointment at its findings, those who accepted the evaluation said, with President Nixon: "If we are to make the most of experimental programs, we must frankly recognize their experimental nature and frankly acknowledge whatever shortcomings they develop." But to others the evaluation seemed rather like blowing the whistle and announcing the results when the race had barely started. In Edward and Mary McDill's view, Head Start is "a qualified failure," but they chided the faultfinders to remember that "no public school system in history has ever been abolished because it could not teach children to read and write," yet Head Start was being asked to succeed in less time than that allowed the regular school systems.

Many reasons have been stated for Head Start's failure to succeed in 3 years. (The evaluation was based on achievement tests of children who were in Head Start in 1965, 1966, and 1967.) The first is that the program is basically good but hasn't had time to learn from its own experience and make improvements; that, in fact, graduates of the most recent years are doing better than did the early participants. A corollary to this is that Head Start is a basically good program but that it hasn't gone in the right direction yet. All the psychological research on which Head Start was based, as well as the experimental preschools which preceded it, stipulated that children should receive intensive, highly organized instruction. But the actual practice in most Head Start centers, at least in the beginning years, took the direction of "whole child" development—emotionally supportive and physically therapeutic rather than intellectually stimulating. No one should be surprised that "cognitive outcomes" were disappointing.

But Head Start also has critics who say that the program is failing because it is on the wrong track altogether. Stephen and Joan Baratz charge that Head Start is an example of "institutional racism" because of its goals of "altering the child's home environment, improving his language and cognitive skills, and most particularly changing the patterns of child-rearing within the Negro home." Black children's homes are *different,* the Baratzes say, but *not* "disadvantaged" either in culture or in language or in richness and variety of sensory stimulation. Intervention must be done, but it must "eliminate archaic and inappropriate procedures for teaching . . . and substitute procedures and materials that are culturally relevant." As long as Head Start people believe they need to correct or compensate for the black child's home, instead of discovering and using its different but equal strengths, Head Start, according to the Baratzes, cannot help any black child to succeed in school.

Finally there are the critics who cite the Head Start experiences as evidence that some of the basic theories of the cognitive psychologists in the past 10 to 15 years are faulty or at least greatly oversimplified. Lawrence Kohlberg now doubts that the age from 3 to 4 is a "critical period" for learning. Providing a stimulating environment at that age is no more productive than doing so during the elementary school years, he claims. In the same vein Arthur Jensen expresses his doubts that a stimulating environment can influence inborn intelligence to the extent that the "mind builders" so enthusiastically predicted.

Even before Head Start was tried it was clear that all the responsibility for change could not be put on the child, the parent, and the community. The elementary school needed to change, too.

"Retardation in achievement results from the interaction of inadequately prepared children with inadequate schools and insufficient cur-

ricula," Martin Deutsch wrote in 1964. "The failure of such children to learn is the failure of the schools to develop curricula consistent with the environmental experiences of the children and their initial abilities and disabilities."

Deutsch noted that the public schools which children from poor homes attended were "discontinuous" with their homes. To the poor nonwhite child the teachers are different from the people at home; they make puzzling demands and seem not to expect the child to succeed. Since the school surroundings are so strange and the school activities so often end in failure, the child does not have the early experiences of success which motivate him to learn. Deutsch had faulted poor parents and slum neighborhoods for depriving children of variety and richness that they needed for sensory development. But he also faulted the educators for failing to provide an environment in which poor children could develop the equally important learning attributes of feeling able to cope and have confidence in themselves. The public schools have always aimed to serve only the children of the middle class, Colin Greer charged. They have always failed the children of the poor—whether they were Polish, Irish, Jewish, Mexican, or black.

When Head Start gains were seen to be wiped out in elementary school, Follow Through was born. President Johnson, in calling for a Follow Through program in his February 1968 Message on Children and Youth to the Congress, stated:

> *The achievements of Head Start must not be allowed to fade. For we have learned another truth which should have been self-evident—that poverty's handicap cannot be easily erased or ignored when the door of first grade opens to the Head Start child. Head Start occupies only a part of a child's day and ends all too soon. He often returns home to conditions which breed despair. If these forces are not to engulf the child and wipe out the benefits of Head Start, more is required. Follow Through is essential . . . the benefits of Head Start must be carried through the early grades.*

In the school year 1967-68 40 pilot Follow Through programs were established to follow the graduates of Head Start into their elementary schools—eventually as far as grade three—and to continue to give them enriched instructional programs. The administration of Follow Through was delegated by OEO to the U.S. Office of Education.

In 1968-69, Follow Through projects were enrolling 15,500 children. In 1969-70, the enrollment figure was 37,000, more than double that of the previous year. By 1970-71, 60,000 children were enrolled in Follow Through programs across the country. Since Federal funding was not provided for a nationwide program, Follow Through has adopted an experimental approach in cooperation with the school districts which participate. The purpose is to adapt, try out, and evaluate programs for kindergarten through grade three, based on the several models for compensatory early childhood education which have shown success in their experimental forms.

These projects must be carried out so that children have some planned continuity of experience from Head Start into Follow Through, so that they receive health and psychological services in addition to the educational program, and so that "target area" community representatives and parents participate in governance and policymaking.

Approaches in Early Childhood Education

The major competing theories about how to teach poor children are seen in the instructional programs of projects described in the accompanying materials. They run the gamut from the theory that what poor minority children need in order to learn does not really differ from what any children need, to the theory that poor children need highly organized and carefully managed instruction quite different from what works with middle-class children in elementary school. In other words, the programs range from intensive, high-powered drilling or programed instruction in language, reading, and mathematics fundamentals, to relaxed classrooms full of learning playthings from which each child can choose whatever interests him. Catchword labels for the opposites in this theoretical range are *instruction* vs. *enrichment,*

or *enforcement from without* vs. *development from within, or structured* vs. *unstructured*. And there are some programs which combine characteristics from both extremes.

While no one *structured* program necessarily includes all of the characteristics which follow, several of the traits will be recognizable in each. The classroom is teacher-controlled, tightly scheduled, and highly charged. The teacher does not wait for the child to reveal what he is interested in because this is not necessarily what he needs to know for success. The teacher is confident that he or she knows what the child needs and when he needs it; and that with this knowledge, skillful intense instruction, and the promise of rewards ,the child's basic development schedule can be shoved ahead. The program organizers have minutely analyzed all of the skills that go together to make it possible for a child to master a task. The teacher always knows what skill (behavioral objective) he is teaching, and where it comes in the hierarchy. The curriculum emphasizes the fundamentals —language development, reading, mathematics. The teaching may be done by programed instruction, carefully managed experiences, or group drill which capitalizes on the exuberant morale of a group working together out loud. The child's time is exceedingly valuable. Every moment has to count; it cannot be wasted on random, irrelevant, or merely play activity—unless such activity is being used as a reward for serious work. In order to keep up the learning pace the child may need to be rewarded extrinsically with praise from the teacher, tokens that can be exchanged for candy or trinkets, or special privileges such as recess, movies, or free-choice activity. The ultimate reward, of course, is success in school.

Most of the "unstructured" programs operate on the conviction that "the problem of the match," which J. McV. Hunt analyzed, is best solved by closely observing the child himself, noting the playthings or learning equipment that he gets seriously involved with and the level of complexity of his involvement, and making sure to provide new choices each time he's ready to advance. This may be as careful an attempt at diagnosis and prescription as is done in programs that depend on programed instruction; the important difference is that the surroundings and activities are playful for the child rather than traditionally academic in manner. All kinds of experiences, not just academic ones, are believed to be cognitively stimulating. Classrooms may look very casual and may not provide any activities at all which children do "all together in a group with teacher up in front." The casualness and disorder are on the surface, for calculated care is taken with furnishings and learning equipment, arrangements of time and space, groupings of the children, observations, and recordkeeping about individual children. Equipment may be as sophisticated as a talking typewriter and as plain as buttons. This approach counts on the child's intrinsic motivation. Learning is expected to be its own reward, as work is for the professional or craftsman who loves his job. The child learns because it's challenging and because when he reaches out, something or someone in the environment reaches back and responds.

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SELECTING AN EARLY CHILDHOOD MODEL

The programs described in this report represent major curriculum development efforts in early childhood education. While all of these program sponsors agree on some ultimate educational goals for children, there is little agreement on the best way to achieve these goals. To help school administrators sort out major differences among programs, the following guidelines are offered.

Cognitive Development Vs. Behavior Modification

One of the fundamental differences among early childhood education alternatives today lies in a program's allegiance to certain theoretical persuasions. Basing their beliefs on the works of Piaget, the cognitive developmentalists argue that education is a process of building cognitive structures in children according to a developmental framework. The child learns to interact with his environment, first through some concrete means (sensory-motor), and later through the use of abstract symbols (language or numbers). The proponents of this view believe education must capitalize on these developmental stages to provide activities and experiences that coincide with levels of cognitive growth. The Cognitive Curriculum and DARCEE (Demonstration and Research Center for Early Education) models reflect this view.

The behaviorists (developers of the Engelmann-Becker Model and the Behavior Analysis Model) draw on the works of B. F. Skinner and argue that it is not productive to talk about internal mechanisms or processes which cannot be observed, measured, and therefore subjected to some control. Instead, they see education as a process to provide changes in observable behavior such as knowledge gains in children.

Extrinsic Vs. Intrinsic Motivation

One way of entertaining the extrinsic versus intrinsic motivation controversy is to ask: What is the payoff for learning? Is it external or internal to the learner? Some program developers (for example, Bank Street, Cognitive Curriculum, EDC (Education Development Center), and the Responsive Model) argue that children learn best when they are motivated and interested and that, therefore, activities should be geared to individual interests.

In the minds of other program sponsors (notably those from the Behavior Analysis Model and the Engelmann-Becker Model), young children—specifically those in Follow Through—need to rely on external rewards such as tokens and special attention from the teacher to build up their confidence before they can find learning instrinsically rewarding. In addition, these sponsors maintain that they do not wish to leave learning to chance; in other words, teachers cannot wait for children to become interested, they must ensure interest by whatever means necessary. Believing that internal motivation is teachable, proponents of extrinsic rewards see it as part of the schools' responsibility to set up an effective reinforcement system and to make sure that learning occurs. EDC, Bank Street and Responsive Program sponsors, however, find this approach unacceptable; they feel that children are manipulated under the extrinsic reward system to work for gratification from adults according to adult expectations.

Teacher's Role

The cognitive developmentalists and the behavior modifiers call for divergent teaching style and skills. These differences are somewhat analogous to the distinction between the art and the technology of teaching.

The cognitive programs require that teachers be inventive and bring together a variety of materials for a specific lesson. They also encourage teachers to prepare their own class activities based on class interests. Because numerous activities usually go on simultaneously, teachers must be flexible and tolerate frequent transitions from one task to another.

The behavior modifiers, on the other hand, supply teachers with all necessary materials. Teachers must be proficient in the techniques of reinforcement and be willing to follow prescribed teaching methods.

Evaluation and Accountability

The programs which emphasize skill development and knowledge acquisition (Engelmann-

Becker, DARCEE) show more promising data regarding the program's effectiveness. In contrast, the programs that focus also on affective development (Bank Street, Tucson, EDC) have little or no available data to show that these programs work. Developers of these programs believe that standardized tests are inadequate to cover their program objectives and that no instrument is presently available which adequately measures affective concerns. Many developers are eager to show success, however, and efforts are being made to design more appropriate instruments.

Costs

Cost estimates are generally vague or simply unavailable. The only programs with adequate cost figures are the Behavior Analysis Model and the Engelmann-Becker Model. For the other, more open models, the costs are difficult to ascertain since a variety of instructional materials are needed and prices will vary according to what materials schools already have in use.

Final Comment

This section has pointed out some things to consider when curriculum alternatives are being reviewed. There are, of course, more concerns which go into the selection of a curriculum—for example, the innovativeness of the superintendent, community readiness, available funds, personnel, and so on. The following program description should serve as a starting point for the administrator when considering alternatives in early childhood education in light of local needs, constraints, and resources.

AMELIORATIVE PROGRAM

Project Director: Merle B. Karnes
Institute for Research on Exceptional Children
University of Illinois
Champaign, Illinois 61820

Goals and Objectives

The major goal of the Ameliorative Program is to "prepare the young disadvantaged child for effective participation in a standard school program," providing students with good attitudes about themselves and school, and equipping them with the necessary cognitive or learning skills to succeed. Subgoals are as follows:

- To enhance cognitive development, particularly language
- To develop motivation conducive to learning
- To acquire effective information-processing skills
- To develop a positive self-concept
- To enhance social and emotional development
- To promote motor skills
- To encourage parental participation
- To enhance staff competencies.

Content and Materials

The basic concepts and skills considered prerequisites to academic success in the early elementary years are taught in three areas: language development-reading readiness, mathematics, and science-social studies.

There are numerous curriculum guides for teachers in each curriculum area. Each lesson has stated behavioral objectives with corresponding, "criterion tasks," which help the teacher assess whether or not children have learned what each lesson was designed to teach. The behavioral objectives and criterion tasks also inform the teacher of the children's progress and special needs, and alert her when to examine the effectiveness of her teaching.

In the science-social studies, the curriculum starts with a body awareness unit that includes body exercises, songs, precut unassembled figures, and body outlines of the children in the class. This is followed by a unit on family members and home environment where children cut clothing ads from catalogs and sort them according to body parts. Other units include community buildings, workers, and seasons.

The mathematics curriculum focuses on basic number concepts and manipulative skills; it also teaches a mathematics vocabulary. The following general areas are stressed: identification of five geometric shapes, one-to-one matching and how it relates to copying patterns, matching quantity, establishing sets, counting, dimension and seriation, numerals as visual symbols, and beginning addition and subtraction with manipulative objects.

In the language development-reading readiness curriculum, teachers often read to the children. Children learn to hold books correctly, turn the pages in sequence, associate the pictures with the spoken word, and develop a left-to-right progression. In other activities visual-motor coordination and visual-auditory discriminations are emphasized. The program places the highest priority on language development, and this area receives the major emphasis each day. Manipulative materials such as puzzles and lotto games are used to elicit verbal responses from the children.

Teachers plan activities, evaluate the children's progress, and have daily briefing sessions with aides and volunteers about how well the program is working with their class. Curriculum guides are not expected to be followed assiduously; the developers feel that the lesson plans can serve only as models and that meaningful and effective curriculum must be developed by teachers. The developers suggest that, when planning lessons, teachers must not only consider their own talents and limitations in devising new activities, but must also pay close attention to the interests and needs of the children. The only real requirement for planning lessons is that they be structured to require verbal responses from the children.

To help determine linguistic strengths and weaknesses of children, the Illinois Test of Psycholinguistic Abilities (ITPA) is used. The ITPA subtests include areas such as grammatic closure, auditory association, visual association, and visual decoding. Using these subtests, teachers, trained aides, and volunteers prepare diagnostic profiles on each child at the beginning of the year to be used in planning appropriate learning activities according to individual strengths and weaknesses. The ITPA profiles also help the teacher to see if he is spending appropriate amounts of time and work in those areas covered by the subtests, and help him maintain a more individualized form of teaching.

The materials for the Ameliorative Program are not yet commercially available, but the developers expect to have them ready for distribution sometime in 1972. These materials will include about 1,500 lesson plans packaged in approximately 23 books. In addition to the guides, a variety of inexpensive manipulative materials will be required for each class using the program.

Classroom Activities

The typical class consists of 15 children, who are assigned to instructional groups on the basis of ability (Binet IQ). Each instructional group generally has five children.

A typical day starts with a teacher planning session where teachers discuss the plans for the day and demonstrate any new materials to be used. After the children arrive and eat a breakfast snack, spontaneous conversation takes place. Children are then ready for the first structured period, in which language development-reading readiness, mathematics, and science-social studies are taught. These periods last from 15 to 25 minutes each. In the structured periods incorrect responses are immediately corrected and the appropriate or correct responses are reinforced by verbal praise. In this way children are constantly reassured as to their own competencies, and are more motivated to learn.

In addition to the structured periods, the children are allowed to form their own groups for music and directed play. At the end of the class, teachers evaluate the session, discussing the progress of the children and the success of the lessons used that day. This schedule can be adapted for half days or full days; storytime, sleep periods, and meals can be added accordingly.

Parent Involvement

After being trained by the classroom teacher, parents may work as aides and volunteers in the classroom. Parent involvement helps the program gain community support and provides employment for many mothers from low-income families.

Professional and Paraprofessional Training

Teacher training is an ongoing process. Activities are planned each day, and successes and failures are recounted in open discussions. "Debriefing" sessions are held often to relieve built-up tensions and promote positive attitudes on the part of the teachers, aides, and volunteers. Aides and volunteers are generally mothers or older sisters of children in the class. They are trained and supervised by the certified teachers; however, the developers do not provide materials for training.

Administrative Requirements and Costs

No special administrative requirements are specified. As the program materials are not yet available commercially, it is premature to estimate the costs of implementing the program.

Program Development and Evaluation

The program was heavily based on two conceptual models—Guilford's Structure of Intellect and the Illinois Test of Psycholinguistic Abilities. The developers also drew from the work of other researchers. For example, the decision to use behavioral objectives was largely the result of Mager's work (1962, 1968); the emphasis on positive reinforcement can be linked to studies that indicate that learning may be best accomplished by positive reinforcements and rewards. Other research in the area of parental involvement (Karnes, 1969) revealed that low-income parents can be taught teaching competencies which will result in acceleration of their chidlren's learning abilities.

Extensive evaluation studies using control groups have demonstrated gains in IQ, language development, vocabulary comprehension, and visual perception for children in the Ameliorative Program. The most comprehensive of these studies compared the effectiveness of four preschool intervention programs:

- A traditional nursery school program that used music, art, and outdoor play activities to promote personal, motor, social, and language development
- A community-integrated program similar to the traditional school except that it operated at four neighborhood centers and was integrated socioeconomically
- A Montessori program
- A structured experimental program identical to the Ameliorative Program described in this summary.

Children were screened to ensure comparability in the areas of age, sex, race, IQ, and socioeconomic status. The following tests were administered at pretest and posttest settings: Stanford-Binet Individual Intelligence Scale, Form L-M, 1960; Illinois Test of Psycholinguistic Abilities (ITPA), experimental edition, 1961; Peabody Picture Vocabulary Test; and The Frostig Development Test of Visual Perception (posttest only).

The following data strongly support the effectiveness of the program:

	Binet Mean IQ		*ITPA Difference score*		*Peabody Mean IQ*	
Group	*Pretest*	*Posttest*	*Pretest*	*Posttest*	*Pretest*	*Posttest*
Traditional	94.5	102.6	−5.3	−1.0	80.2	92.6
Community-Integrated	93.3	98.4	−6.3	−5.2	81.4	85.6
Montessori	94.1	99.6	−3.9	−5.3	83.3	87.3
Experimental	96.0	110.3	−3.3	2.9	85.8	96.1

Program History and Present status

Work on the Ameliorative Program formally began in 1965 with a research grant from the U.S. Office of Education. During the 5 years of development, the program staff, under the direction of Dr. Merle B. Karnes, tested the program in different settings with various staffing patterns, for example, with a paraprofessional staff consisting of teenage sisters of preschool children, and also with children who were at the same time being taught at home by their mothers. Results of these evaluations may be obtained from the developer.

The year 1970-71 was spent on further field testing, final editing of the materials, and negotiating with publishers so that the program might soon be disseminated nationally.

The developers have expressed a willingness to disseminate working papers, evaluation studies, and other descriptive materials about the Ameliorative Program to interested persons. All inquiries should be directed to the Institute for Research on Exceptional Children.

APPALACHIA PRESCHOOL EDUCATION PROGRAM

Project Director: Roy Alford

Appalachia Education Laboratory, Inc.
Box 1348, Charleston, West Virginia 25325

Goals and Objectives

The Appalachia Preschool Education Program is a demonstration project designed to provide for children from rural Appalachia a preschool education which they would not otherwise receive. In a region which has a sparse population scattered over a large area with poor access roads, the traditional nursery schoolhouse concept is geographically and financially unfeasible. The Appalachia Educational Laboratory, one of the regional laboratories funded by the U.S. Office of Education, has developed a home-oriented preschool program as an alternative approach to prepare 3-, 4-, and 5-year-olds for first grade. The program focuses on the development of language, cognitive, motor, and orienting and attending skills.

Content and Materials

The home-oriented program consists of three major components: a television program, a home visitor program, and a mobile classroom program. The television program, called Around the Bend, consists of 150 half-hour lessons which are broadcast over a local TV station on a weekly basis. Patty, the on-camera teacher, explores places such as a library, which rural children seldom have a chance to see, through songs, games, art work, and puppets. She teaches number skills, color and size discrimination, and the alphabet. Each broadcast is centered around the development of skills.

The television program is supplemented by a home visitor program. Eight trained home visitors visit about 30 homes a week, spending about 30 to 45 minutes at each home. They bring materials, such as books, to supplement the television lesson. The home visitor tutors and encourages parents to take part in learning activities.

The third major component of the program is a mobile classroom, a large van with an 8′ by 11′ "classroom." It is heated, air-conditioned, carpeted, and has a water supply and a chemical toilet. It contains child-size furniture, audio-visual equipment, a cooking area, a chalk board, a bulletin board, cabinet space, books, and an assortment of manipulative toys. Staffed by a teacher and an aide, the van makes nine stops a week. At each stop the staff provides 2 hours of instruction for 15 children who live within a 2-mile radius. The activities in the mobile classroom are planned to relate to the skills taught on the TV program and home visitor program. One distinctive feature of the mobile classroom program is that it provides children with social contacts with other children.

Materials used in all these three programs include commercially available books, puzzles, manipulative toys, and other home-made or teacher-made items.

Professional and Paraprofessional Training

The project staff is divided into two teams: the curriculum team and the field team. The curriculum team is responsible for the development of all curriculum materials used by the TV teacher, the home visitor, and the mobile classroom teacher. The field consists of the van teacher, her aide, a field team leader, an instructional monitor, and eight paraprofessional home visitors. The field team members are given 3 weeks of preservice training by the project staff at the Appalachia Educational Laboratory, which involves an introduction to the study of child development, use of materials appropriate for preschool children, sensitivity training, and practice in the use of interview techniques. Training materials are available from the Appalachia Educational Laboratory.

Administrative Requirements and Cost

The startup cost to purchase a fully equipped mobile classroom is $22,000, which will service up to 160 children per year. TV lessons and training materials are available from the developer on loan and at no cost to school districts

interested in implementing the program. The developers estimate that the annual cost to implement this program for all 3-, 4-, and 5-year-olds in the State of West Virginia will amount to about $235 per child, as compared to a cost of $496 per child per year if the traditional schoolhouse concept is implemented.

Program Development and Evaluation

Since 1968, the program has reached 450 3-, 4-, and 5-year-old children in rural Appalachia. To evaluate the effectiveness of the program, a battery of tests was used, including the Peabody Picture Vocabulary Test, the Forstig Visual Perception Test, the Illinois Test of Psycholinguistic Abilities, and the Appalachia Preschool Test developed by the project staff to measure objectives of the program. The 1969-70 test data showed some significant differences on the Appalachia Preschool Test between the experimental groups and the controls. Other significant differences were shown primarily for the 3-year-old girl subgroup. The developers felt that these results were encouraging enough to continue development of the program for a third year (1970-71).

An attempt was also made to measure social learning in the mobile classroom by using an interaction analysis technique devised by the project staff. The technique involved observing and recording social behavior on 28 social skill indicators, such as "requests assistance" and "initiates antagonistic action." The results showed that the group with mobile classroom exposure tended to be less withdrawn than groups without the mobile classroom experience. The developers felt that certain social skills were related to the mobile classroom experiences.

Another evaluation study, comparing achievement of regular kindergarten graduates and graduates from the Appalachia model, is underway. Results from this comparative study are unavailable at this time.

Program History and Present Development

The Appalachia Preschool Education Program is a 3-year demonstration project which began during the 1968-69 school year. To the present time, 450 3-, 4-, and 5-year-old children in rural Appalachia have been enrolled in the home-oriented program. The project hopes to demonstrate the effectiveness of this approach and to implement the program for the entire 3-, 4-, and 5-year-old population in the State of West Virginia.

THE BANK STREET MODEL

Project Director: Elizabeth Gilkeson

Bank Street College of Education
Follow Through Program
610 West 112th Street
New York, New York 10025

Goals and Objectives

The Bank Street Model, operated by the Bank Street College of Education in New York City, is a model for Follow Through and Head Start classes. It is designed primarily for children from non-middle-class backgrounds in preschool through third grade. The developers believe, however, that the program is suitable for all children within these grade levels regardless of social or economic background.

The primary goal of the program is to stimulate involvement and self-direction in learning. This approach is based upon the premise that educational goals for individual children are not preset, but instead evolve continuously according to the child's progress. The developers believe that, in order for a child to become a self-directed learner, he must first develop a positive self-image and develop skill competencies in the cognitive areas. Specific educational objectives for the children are:

- To develop a facility with numbers and leiters.
- To develop thinking processes.
- To develop ordering processes.
- To develop a sense of space and time.
- To develop a sense of change as it occurs in both natural and man-induced forms.

Content and Materials

In subject matter coverage, the Bank Street Model does not differ greatly from tradltional approaches; reading and computational skills, written and spoken language are emphasized. Skill development in these academic areas is seen as only part of the total growth of the child; the developers consider ego strength, cognitive functioning (reasoning), relationships with others, inventiveness, and initiative as equally important areas to consider.

No student materials are provided. Teachers are encouraged to make their own and to purchase commercially available aids such as lotto games, form boards, and electric typewriters. Bank Street emphasizes the maintenance of a varied environment; classrooms should be stocked with a variety of materials, such as play blocks, dressup clothes, dolls, paints, cameras, toys, books, yarn, etc.

Bank Street College has developed a series of readers called The Bank Street Readers (primers through third grade, publisehd by the Macmillan Company) and language stimulation materials called the Early Childhood Discovery Materials. These are recommended for the program.

For mathematics, the developers suggest Cuisenaire rods, the Catherine Stern materials, and the Nuffield Series developed by the Nuffield Foundation in Great Britain. None of these materials are required, however.

Classroom Activities

The developers see play as the "work of childhood" and emphasize play as the primary means of learning. Through intense play, they believe, children learn skills and acquire knowledge because it is important to them, not because it is imposed upon them from the teacher. Teachers are encouraged to listen to the language of play and to use spontaneous activities as learning situations, supplying children with materials and encouragement.

For example, in a project to make applesauce, the class is divided into small groups. One group may go to the store to purchase apples to get practice in weighing and counting money. Other groups speculate about what the apples will look like when they are cooked. Several groups will measure the ingredients, read the recipe, and cook the applesauce. Finally the class might discuss how to divide the

applesauce among themselves. Using this active learning approach, the developers feel that a system of extrinsic rewards is not necessary, that motivation should flow naturally from the satisfaction of learning.

Parent Involement

The extent of parent involvement varies from school to school. However, Bank Street encourages parents to visit the classrooms and to receive training to become paid teaching aides.

Professional and Paraprofessional Training

Teams of consultants or advisers are sent to those districts using the Bank Street Model to assist in implementation of the program. During the school year, orientation sessions, training institutes, and workshops are held at Bank Street College for teachers and aides. The Bank Street College of Education offers eight units of graduate credit for teachers who take part in the training program. Training materials (film clips, intercommunity newsletters, tapes, and sample classroom studies) are currently being tested.

Administrative Requirements and Costs

A detailed list of "Basic Equipment and Supplies" for use with kindergarten through third grade is available from the developers. Besides teacher- and children-made materials, this list includes equipment for woodwork, cooking, sewing, science, and art. Commercial programs for mathematics and reading are also suggested.

The teaching staff consists of one teacher and, ideally, two teacher aides. Ancillary staff should include a psychologist, nutritionist, nurse, parent coordinators, and social service personnel.

The developers state that the initial cost for equipment and supplies for each grade using the model comes to $3,000 per class (25-30 children). Maintenance costs are considerably less.

Program Development and Evaluation

The Bank Street approach has a multiple theoretical base. The model combines the influences of psychologists and theorists such as Piaget, Freud, John Dewey, and Susan Isaacs and is the result of several decades of development. Within the central theme of providing educational experiences for the whole child, the model has undergone numerous modifications and refinements.

No "hard data" are available that point to the success of the program because the developers reject standardized testing as a relatively unimportant segment of the learning process. Instead, the developers use behavior patterns as the basis for evaluating their program. The program is considered successful if individual children consistently display satisfactory behavior patterns.

The developers have devised six methods for evaluating behavior patterns; among these are observations of teacher-child, teacher-teacher, and child-child interactions. There are also parent interviews and skill tests. All testing is done on an individual basis by the teacher and a psychologist. Evaluation data of this sort are currently being gathered and are scheduled to be released in 1973.

Program History and Present Status

The Bank Street College of Education has been developing early childhood programs for the past 50 years. Until the early fifties the concentration was on children whose families could afford to pay tuition at private schools, but since the recent upsurge of interest in minority problems the college has shifted to the special problems of the poor and worked to create a program that was suitable for all children. Because of this shift, many modifications have taken place. The program has gone from a nursery school to one including elementary grades and recently linked with the USOE Follow Through Program as a model program for schools throughout the country.

At present the model is operating in schools from Vermont and Connecticut to Alabama and Colorado. The staff at the college is working on specific methods of evaluation and training programs and materials.

THE BEHAVIOR ANALYSIS MODEL

Project Director: Don Bushell, Jr.

Follow Through
Department of Human Development
University of Kansas
Lawrence, Kansas 66044

Goals and Objectives

The Behavior Analysis Model is designed to teach children from preschool through the third grade social and academic skills which will enable them to compete effectively in the public schools and to train teachers, aides, and parents to use positive reinforcement as an approach to develop these skills.

Content and Materials

Within the broad areas of social and academic skills, the program focuses on skills in reading, mathematics, spelling, and handwriting and a wide range of social skills such as cooperation with peers and adults, decision-making, independence, and self-confidence.

The Behavior Analysis Model recommends programed materials which contain clear criteria for success, require frequent responding by the child, and provide individual rates of progress and periodic monitoring of achievement. Among recommended programed materials are:

Reading: *Behavior Analysis Phonics Program* published by the developers; Buchanan & Sullivan Associates' *Programmed Reading* and the *SRA Reading Laboratory.*

Writing: *Behavior Analysis Handwriting Primer,* published by the developers and Skinner and Krarower's *Handwriting With Write and See.*

Arithmetic: *Sets and Numbers* by Suppes

Spelling: *Spelling and Writing Patterns* by Botel, Holsclaw, Cammarota, and Brothers.

Classroom Activities

The Behavior Analysis classroom is normally staffed with a lead teacher, a full-time aide, and two parent aides. This team arrangement ensures that each child receives frequent personal attention. Almost all of the instruction is conducted individually or in small groups. Early instruction periods are short (10 minutes). During the instructional periods, children work with programed materials and are reinforced for desired behavior such as following directions and responding correctly to items. Desired behavior is reinforced immediately with the use of tokens (plastic chips) and with verbal praise. Each instructional period is followed by an activity period during which the children can exchange the tokens they have earned for preferred activities such as free time or special attention from the teacher. This pattern of an instructional period followed by an activity period is repeated throughout the schoolday. As the year progresses there is more instructional time per activity period. It is not uncommon to find that at the end of the year 45-50 minutes of instruction is supported by 10-15 minutes of activities.

The developers of the Behavior Analysis Model believe that initially young children need to be frequently reinforced for good work. The model teaches children to become less dependent on external rewards and to enjoy learning for the success it brings them.

Parent Involvement

In addition to participation in the local Policy Advisory Committee, parents may serve as parent aides or become full-time teacher aides. Materials for training parents are available from the developers.

Professional and Paraprofessional Training

Teachers and teacher aides must be able to teach in the manner required in a Behavior

Analysis classroom. They should be able to disperse tokens correctly and use prescribed verbal techniques; they should know how to manage the classroom, do team planning, conduct activity periods, and prescribe lessons for tutoring sessions.

Since the beginning of the 1970-71 school year, teachers and aides are trained at two Regional Training Centers (Lawrence, Kans., and Philadelphia, Pa.). These centers operate on a year-round basis, providing 1-week training cycles, during which teachers and aides become familiar with descriptive literature on the Behavior Analysis Model and its underlying research base, and work in the center's demonstration classrooms to acquire necessary practical experience. Materials for training teachers and aides are available from the developers.

Administrative Requirements and Costs

Since most of the instruction is conducted individually or in small groups, the classroom should contain work tables large enough to accommodate a group of four or five children each. No other special facilities are required other than the usual amount of furniture, storage space, and equipment normally found in a classroom. An EFI recorder and cards (approximately $270 plus accessories) and a videotape recorder, monitor, and camera for ½-inch tapes (approximately $1,200) are recommended.

Personnel requirements include a lead teacher, a full-time teacher aide, and two parent aides for every 25 to 30 children. Costs for these personnel depend on local salary schedules. The training cost for teachers and aides is estimated at $100 per trainee.

Program Development and Evaluation

Behavior analysis is an outgrowth of a research discipline known as the experimental analysis of behavior. B. F. Skinner, his colleagues and students have been responsible for generating a body of research on the subject over a period of three decades. The applied aspects of behavior analysis have also been studied by followers of the Skinnerian approach, and effects of applied behavior analysis have been extensively documented in professional literature, especially in the *Journal of Applied Behavior Analysis*. The Behavior Analysis Model for Head Start and Follow Through is another direct application of the discipline.

Program History and Present Status

The kindergarten through third grade model began in 1968 when Follow Through was implemented. Prior to that time, Dr. Don Bushell, Jr., the director of the model, had been employing the behavior analysis techniques at Webster College and at the Juniper Gardens Parent Cooperative Preschool. As of 1971, the Behavior Analysis Model is being implemented in 18 Head Start classes and 200 Follow Through classes.

THE COGNITIVE CURRICULUM

Project Director: David P. Weikart
High/Scope Educational Research Foundation
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Ypsilanti, Michigan 48107

Goals and Objectives

The Cognitive Curriculum preschool program is designed for 3- and 4-year-old children but can be extended to cover grades K-3. The program, intended to promote intellectual growth and to help children organize the complex world around them, is a direct application of Jean Piaget's theories of the development of intelligence in which each step in intellectual growth makes the next step possible. The developers state two broad goals for the program:

1. To help the child develop logical modes of thought through concept formation.
2. To help the child develop the capability to manipulate symbols and thus to act on and represent the environment.

To accomplish these goals, four cognitive skill areas are specified by the developers.

Classification:	To recognize similarities and differences among objects and to be able to group them accordingly.
Seriation:	To arrange objects in an order by size, quality, or quantity.
Spatial Relations:	To acquire body awareness and concepts of position (in/out), direction (to/from), and distance (near/far).
Temporal Relations:	To understand time sequence, for example, beginning and end, first and last, and before and after.

Content and Materials

The Cognitive Curriculum is designed to develop thinking skills rather than subject matter skills. The staff believes that, once the foundations and prerequisites for reading and writing are acquired, academic skills will follow. To provide these foundations, learning activities for each skill area are based on Piaget's "levels of representation"—index, symbol, sign, and "levels of operation"—motor and verbal. Teachers are provided with this developmental framework from which activities can be planned.

The Cognitively Oriented Curriculum: A Framework for Preschool Teachers is a handbook designed for teachers. It contains sample lesson plans, information on curriculum planning, teacher attitudes, classroom structure, and suggested instructional strategies. The program does not provide specific instructional materials; those found in most traditional preschools may be used.

Classroom Activities

Children in the classroom learn by actively involving themselves in their environment. Four activity areas are provided for this purpose: the art area, the doll area, the block area, and the quiet area. A variety of activities may go on simultaneously in these areas; however, these activities have been carefully planned in advance to teach specific concepts and skills, such as classification skills or spatial relation skills.

Parent Involvement

A home visit component is included in the program. One afternoon a week for 90 minutes, the teacher visits a child's home. The purposes of this visit are to involve the parents in the teaching process by giving them background knowledge about their children's educational needs so that they can provide educational support at home, and to implement the curriculum on a one-to-one basis with the child in the home. The teacher usually works with the child for about 1 hour on activities selected from those

areas where the child needs extra help. After working with the child the teacher spends the remainder of the visit in informal conversation with the parent, discussing such things as materials, discipline, and the child's needs and answering any questions the parent might have.

Professional and Paraprofessional Training

An optional training program for teachers and aides is under development at the program office in Ypsilanti, Mich. This training will cover all aspects of the program's approach and include consultation by the staff.

In addition to this training, the developers recommend that the teaching team—teachers, aides, and one supervisor—create their own continuous inservice training program. The supervisor should be an experienced teacher, ideally one who has taught the curriculum. The High/Scope Foundation staff will suggest activities to include in this inservice training and supply a catalog of publications and films applicable to the program.

Administrative Requirements and Costs

The developers state that the ideal staffing situation would be two teachers and one aide for every 15 to 20 children. However, schools are expected to adapt the program to their existing conditions. There should be one full-time supervisor for every six classrooms.

The classroom should be physically arranged in work areas so that children may be grouped together in different areas at the same time.

The cost of the program will vary by area or region, and will depend on what equipment and materials the school already has in use.

Program Development and Evaluation

The Cognitive Curriculum evolved from the Perry Preschool Project which operated in Ypsilanti, Mich., from 1961 to 1967. Briefly, the Perry Project was an experiment to assess the longitudinal effects of a 2-year preschool program designed for children classified by a series of tests as "culturally deprived" and "functionally retarded." The early years of the Perry Project (1962-64) reflected converging lines of theory and research in early childhood education. Theorists who influenced the early design of the project include Samuel A. Kirk, Martin Deutsch, Fred L. Strodtbeck, Maurice Fouracre, Omar K. Moore, and J. McV. Hunt. In 1964 the program was revised to follow the developmental stages and theories of Jean Piaget. Measures of student achievement were used to evaluate program success. The results should not be considered complete; however, on the whole the differences favor the experimental groups in the early years, but by the second grade these differences disappear on intellectual measures. Factors such as classroom conduct, motivation and performance, and socioemotional state were also examined by using a Ypsilanti Rating Scale developed by the staff. On these factors, the experimental groups consistently score higher than control groups.

Present Status

Currently, the High/Scope Research Foundation operates a Training and Development Center in Ypsilanti with preschool, kindergarten, and first and second grade classes. Through the National Planned Variation Head Start program the Foundation is implementing the Cognitive Curriculum in centers in Washington (Seattle), Missouri, and Florida.

The High/Scope Research Foundation staff is developing a training program for teachers of the curriculum and working on further refining the program in terms of theory and application. Dissemination efforts are also currently underway.

DEMONSTRATION AND RESEARCH CENTER FOR EARLY EDUCATION (DARCEE)

Project Director: Susan W. Gray
George Peabody College for Teachers
Box 151
Nashville, Tennessee 37203

Goals and Objectives

The program at the Demonstration and Research Center for Early Education (DARCEE) is designed for preschool children of low-income, so-called disadvantaged family backgrounds. DARCEE's goal is to teach the skills and attitudes which, according to the developers, most middle-class children acquire before entering school but which low-income children generally lack.

Another major focus of the DARCEE program is a parent-training component, the goal of which is to improve parents' ability to develop the specified skills and attitudes in their children at home.

Content and Materials

The developers identify three classes of skills which they believe to be essential to later success in school: sensory (perceptual) skills, abstracting and mediating (conceptual) skills, and response skills. Sensory skills include orienting and attentional skills, discriminatory skills, relational skills, and sequential skills. Abstracting and mediating skills include concepts (e.g., color, shape, and size) as well as the ability to make certain associations (e.g., labels with objects), classification, sequence, and critical thinking (e.g., predict or make inferences). Response skills include verbal and motor skills. Skill development is organized around unit themes such as "Autumn" or "Home and Family" on the assumption that a theme makes learning more meaningful to the child.

The attitudes that DARCEE tries to develop include positive self-identity, independence, persistence, the ability to delay gratification, identification with achieving adult role models, the ability to follow directions, and positive attitudes toward own and other social and ethnic groups.

The program uses standard manipulative materials and teacher-made materials (or parent-made toys). No student materials are available from DARCEE; however, the developers provide a list of suggested items such as flannel boards, peg boards, beads, blocks, puzzles, games, Peabody language kits, housekeeping items, and dress-up clothes.

Paperback guides to teaching four of the units—"All About Me," "Autumn," "Home and Family," and "Farm Animals"—are available from DARCEE. Seven others are expected to be ready by late 1972. Each unit guide or resource unit contains the concepts and skills to be developed, suggested activities, and directions for teacher-made materials.

Classroom Activities

The DARCEE instructional strategy is to build skills step-by-step through a sequence moving from simple to complex, and sensory-motor to conceptual-verbal. Every activity is designed to develop one or more aspects of specific skills and attitudes. The choice and sequencing of activities for the development of a given skill are left to the teacher.

Parent Involvement

Parent involvement is the other major component of the DARCEE program. Believing that the mother's role is crucial in the child's early development, the staff has designed a training program to encourage the mother's active interest in her child's education and to equip her with skills to make the home a better learning environment. There are two alternative models for parent involvement, the home visitor program and the classroom plan.

Under the first plan, each home visitor (an experienced preschool teacher or a trained paraprofessional) is assigned 20 parents of DARCEE preschoolers. She works with four

children a day, either individually or as a group. She first tries to develop the parent's feeling of self-worth and ability to teach her child. Later she demonstrates techniques: how to conduct dramatic activities and counting songs, how to read a story and ask questions about the pictures, how to use ordinary household items and activities as learning experiences. A manual for home visitors is available from DARCEE. Under the classroom plan, the parent spends 1 day a week for several months observing the class from behind a one-way window, while a trainer explains what is going on. After each observation period, parents are taught to use some of the materials. Later they are introduced into the classroom as participants and eventually learn to plan, implement, and evaluate activities for a small group of children.

Professional and Paraprofessional Training

DARCEE conducts 1-week orientation institutes and 2-week training institutes for teachers. Paraprofessionals may also attend these institutes. Materials for training classroom teaching assistants, aides, and home visitors are available from DARCEE.

Administrative Requirements and Cost

No special equipment is required. Standard preschool furniture and equipment is usually adequate. The classrooms should be staffed by a lead teacher and at least one teaching assistant. The costs of the program should be comparable to that of a standard nursery school except where more personnel are required.

A manual for home visitors is available from DARCEE at $2. Four resource units for teaching four of the 11 units are also available at $1.50 each. Seven more resource units are expected to be available by late 1972.

Program Development and Evaluation

The Early Training Project (1961) was the forerunner of the present model. One product of this project was a manual, *Before First Grade* (Gray, Klaus, et al., 1966), which sets forth skills and attitudes to be taught, suggests activities for teaching them, and provides a few sample lessons for use in replicating the model.

Since the opening of the first Early Training Center in March 1966, seven groups of 20 children have attended two of the centers for 1 year. Two groups of 20 children have attended the third center for a 2-year program. In a 1970 manuscript, the DARCEE director described the results as "modest but gratifying."

In December 1969 DARCEE released the report on the children in the Early Training Project at the end of the fourth grade. The results showed that the Early Training Project caused a fairly sharp increase on the Binet and the Peabody Picture Vocabulary Test at first. In later tests the scores leveled off and slowly declined. The experimental children remained "significantly superior" to the control groups on intelligence tests over the years, but there was no significant difference between the groups on language (PPVT) and achievement (Metropolitan) by the end of the fourth grade. "There is a slight but parallel decline across groups," state the developers.

Program History and Present Status

DARCEE grew out of the Early Training Project, an intervention program begun in 1961 by faculty members of George Peabody College for Teachers in Nashville, Tenn. Sixty black children between the ages of 3½ and 4½ composed the sample. The project was funded by the National Institute for Mental Health, Department of Health, Education, and Welfare. Dr. Susan W. Gray, Professor of Psychology at Peabody and presently director of DARCEE, codirected the project with Rupert A. Klaus.

In early 1966, the present Demonstration and Research Center for Early Education was established under grants from the Office of Education and Office of Economic Opportunity to refine the model and curriculum of the Early Training Project. DARCEE's mission was threefold: demonstration, research, and training.

At present there is one DARCEE Early Training Center on the Peabody campus. Prior to fall 1970 there were two other centers, one in North Nashville and one in a rural area, Fairview, Tenn. Both have been turned over to community groups to operate Head Start programs on the DARCEE model—one to a group

working with the Tennessee Department of Labor and the other to a Community Action Program group.

During the 1971-72 school year the DARCEE model will be disseminated through the Central Midwestern Regional Educational Laboratory (CEMREL) in connection with its National Program on Early Childhood Education. Reading, (Pa.), Louisville (Ky.), and the Mille Lacs (Minn.) Chippewa reservation will be the sites for the new DARCEE model classrooms under this program.

EARLY CHILDHOOD EDUCATION LEARNING SYSTEM

Project Director: Shari Nedler
Southwest Educational Development Laboratory
800 Brazos
Austin, Texas 78701

Goals and Objectives

The Early Childhood Education Learning System includes a 3-year sequential program for children ages 3-5, a 2-year sequential program for ages 4-5, and a 1-year program for 5-year-olds who have not attended preschool before. The program is currently under development at the Southwest Educational Development Laboratory in Austin, Tex. The program has two components: one for low-income urban and rural black children, the other for low-income urban and migrant Mexican-Americans.

The goal of the program is to alleviate the difficulties low-income children usually meet in school. The program development staff believes that many such children never receive the full benefit of public education because the school does not build on their strengths. The staff hopes that its program will help children to "acquire the educational experiences and the verbal and social skills necessary to prepare them for formal education."

Content and Materials

The program for black children and its bilingual counterpart for Mexican-Americans stress verbal and reasoning skills and healthy self-concepts. Both provide training in visual and auditory skills, motor skills, English, and problem solving and reasoning skills. With visual training, the child is expected to progress from "sensation" through "perception" to "conceptualization." Eye-hand coordination and perceiving one's position in space are typical topics. Activities in "auditory location" and "perception of rhythm" are typical of auditory training. Motor skills development stresses body awareness and visual coordination.

The purpose of the language activities is to develop linguistic competence. Lessons to develop vocabulary and control of sentence structure are presented in a prescribed sequence. The teacher is provided with explicit instructions for presenting language concepts, and the specific tasks for children are described in detail.

In the bilingual component for Mexican-American children, all activities are presented first in Spanish. When the children demonstrate mastery of concepts in their native language, the same concepts are presented in English, their second language. The program includes activities to train the children to understand and produce simple language forms in their native language and in English. The developers believe that these activities should lead children to describe, narrate, and generalize their own and others' actions.

For each training area in both components there are planned learning activities, sequenced from simple to more complex tasks. Each lesson prescription contains a clearly stated behavioral objective, a description of the materials needed to teach the lesson, and an outlined procedure designed to help the child reach the desired objective.

The program provides the teacher with a package which contains a curriculum guide, pictures, puzzles, transparencies, audiovideo tapes, and all of the manipulative materials children need for the prescribed activities. From her supply the teacher selects student materials for specific purposes.

Classroom Activities

The major teaching strategy employed by the program is "role modeling," which has been adapted from the theories of Jerome Kagan. Role modeling is based on the belief that children want to be like adults and that the behavior of the teacher is an important motivating force in the classroom. The program staff sees the entire classroom environment as dependent on the teacher. They state that the teacher, in serving as a "model," should exhibit "enthusiasm, buoyancy, commitment to learning, a can-do attitude, affection, warmth, concern (with-

out sentimental overtones), fairness, and flexibility."

The staff recommends a class of 18-25 children to one teacher and one assistant teacher. The children should be divided into three or four groups which alternate direct instruction and independent study. The staff suggests that the room be arranged with "learning areas," for example, a language skills area and a large group activity area.

The following description of a lesson in auditory training will demonstrate a typical learning activity. This lesson is called "Follow the Sound." The behavioral objective is stated in these terms: "Upon hearing the sound of the drum and being told by the teacher to 'walk to the sound of the drum,' the blindfolded child will walk to the sound." The participating children sit on the floor in a circle. The teacher explains and demonstrates the procedures: one child is to be blindfolded and one child is to hit the drum. The teacher checks to see that no obstructions are in the way and then the children begin the lesson.

A continual testing process enables the teacher to gear the learning activities to the needs of the children. Before each new skill area is introduced, a pretest is given and the results diagnosed. After instruction a posttest is given to determine what the child learned. If the lesson objectives have been met, the child proceeds to independent study or a new activity. If he demonstrates difficulty, he is retaught. Unit tests and mastery tests (covering units) are also administered. All tests are provided by the program.

Parent Involvement

The parent-community component is designed to "involve parents in the education of their children through the development of a working partnership between the school and the parents." Educational materials for parents to use with their children are designed to reinforce and extend concepts introduced in the classroom. The staff has also developed assessment techniques to measure parent participation and teaching effectiveness.

Professional and Paraprofessional Training

The project has a model for training personnel to implement the programs under development. This model is being pilot tested. Schools involved in the pilot testing are provided with summer workshops, consultant services, and audiovisual training materials.

A training model for paraprofessional aides or teaching assistants is also being developed. A text, *Handbook for Paraprofessionals in Migrant Education,* is undergoing pilot testing.

Administrative Requirements and Costs

No specific facilities or equipment are needed to implement the program, only State-recommended traditional early childhood materials. There is a list of suggested supplemental equipment to use for reinforcement purposes. All other materials are supplied by the program.

Currently the program is available to local school districts and educational centers for pilot and field testing. The approximate cost for one level of the program (e.g. Level I, Bilingual 3-year-olds) is $1,100 per classroom. This cost includes training materials, consultants' fees, and instructional materials; it does not include the teachers' and aides' salaries or classroom furniture and supplies.

Program Development and Evaluation

The Early Childhood Education Learning System staff has identified a growing body of research data indicating that children who go through preschool are better prepared for formal schooling at age 6 than those who have not been in preschool. The staff also cites the finding of Elizabeth Peal and Wallace Lambert (1962) that the earlier a child is exposed to a second language the easier it is to master. Among the other theorists who influenced the design of the program are Jerome Bruner, Carl Bereiter, and Marion Blank.

The Early Childhood Education Learning System has been through 3 years of design and data evaluation with four populations: urban Mexican-American (three sites), migrant Mexican-American (two sites), rural black (one site), and urban black (one site). The program has been pilot tested with the above populations in San Antonio, McAllen, Galveston, Edinburg, Dallas, and Fort Worth, Tex.; Bossier and Caddo Parishes, La.; and Somerton, Ariz.

According to the developers, the program has undergone a detailed evaluation process

which includes teacher checklists, oral conferences, and observations in addition to the pupil performance data obtained by testing. The developers state that results from the San Antonio site have demonstrated gains in the intellectual performance level of the experimental groups.

Program History and Present Status

The Early Childhood program was initiated in the spring of 1967 when, in determining its overall focus, the Southwest Educational Laboratory decided to develop a preschool program in addition to programs for grade K-6. It was felt that "special needs of various cultural groups could be met more effectively by beginning [training] earlier." At that time there was also a growing public awareness of the need for early childhood education, and this also influenced the laboratory's decision. Operational classes were set up in three educational development centers located in San Antonio, Tex. (for urban Mexican-Americans), McAllen, Tex. (for migrant Americans), and Fort Worth, Tex. (for urban Mexican-American and black children). A fourth center was located in Conway, Ark., to develop staff training materials. This center, the Southwest Center for Early Childhood Personnel Development, is a cooperative effort of the Laboratory and the State College of Arkansas.

Each center or school implementing the program must manage and supervise the classes. Laboratory personnel serve as consultants in organizing the program. A central staff in Austin coordinates all schools using the system.

At the present time the four alternative programs (for urban blacks, rural blacks, urban Mexican-Americans, and migrant Mexican-Americans) are still undergoing design, testing, and revision as the results of the pilot schools are analyzed. The sequential bilingual program for 3- and 4-year-olds will be ready for general dissemination by September 1972. No date has yet been set for the dissemination of the other programs.

EAST HARLEM BLOCK SCHOOLS

Project Director: Judith Macaulay
East Harlem Block Schools
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Goals and Objectives

The East Harlem Block Schools in New York City include two day-care centers serving 105 children; an elementary school enrolling 100 children in grades one, two, three, four, and five; and a tutoring program involving 150 children. The developers plan to add one grade each year to the elementary school, extending it eventually to grade eight. The block schools were designed to serve children of preschool and primary school ages. The ethnic population of the schools reflects that of the surrounding community—70 percent Puerto Rican, 20 percent black, and 10 percent white. Most of the children are bilingual and all are from low-income families.

The schools were established by parents who felt that in order for their children to receive a good education it was imperative that they (the parents) design and control the educational environment. It was felt that schools established and run by parents would create "continuity in attitudes and relationships between home and school." They saw the necessity for setting educational goals for their children and hiring staff and teachers who were responsive to these goals and accountable to the parents.

The educational goals set by parents were intentionally broad because the project was conceived as an institutional rather than a curriculum reform. The concerns were that the children make clear and definite progress in reading, writing, and mathematics, and that teachers encourage and work individually with those children who seemed to have no interest or little ability in academic work. In addition to academic progress, the program is also designed with the intention that children develop certain attitudes about themselves. The parents "want the children to learn to trust themselves . . . to have the sense that problems can be worked out through the use of their own intelligence . . . to learn to be responsible for their own behavior, to respect themselves and other people, and to be curious and confident about the world."

Content and Materials

There are no prescribed curriculums for the East Harlem Block Schools; curriculum development is a continual process. The teachers develop their own instructional units, teaching materials, and methods of evaluation with help from staff, parents, and children.

Classroom Activities

Students are encouraged to make inquiries and discoveries on their own. Many activities of the school center around students' active participation in real life situations. For example, students learn about units of measurement when they are engaged in a woodworking project.

Parent Involvement

The parents form the backbone of the administration of the East Harlem Block Schools. "The Board of Directors consists only of parents of children enrolled in the schools; parents have . . . final control over all policy, finances, and personnel decisions." Over half of the full-time staff are parents and community people, many of whom were formerly on welfare.

Parents are intimately involved with the daily activities at the schools. Parent-teachers are regarded as on equal footing with professional teachers. All staff meetings include parents, and all decisions are made with their full participation.

Professional and Paraprofessional Training

Both teachers and parent aides are exposed to the same preservice and inservice training procedures, including the following:

- Curriculum workshops and discussions of educational policies during a 2-week orientation period in September.
- Workshops at other agencies attended on a voluntary basis.
- Day-long staff meetings scheduled once a month for meeting with consultants.
- Visits to other schools.
- Ongoing supervision from education directors.

There is also a high school equivalency and college-preparatory course for paraprofessionals.

Administrative Requirements and Costs

For a class of 20 students in the day-care centers, there are one professional teacher and two parent teachers who usually speak both English and Spanish. For a class of 20 children in the elementary school, there are one teacher and one parent coteacher. No special equipment or facilities are needed.

The day-care centers cost approximately $2,000 per child per year. (This is somewhat lower than the average annual per-child cost in New York City.)

The basic cost per child per year in the elementary school is $1,100—also slightly less than the public school cost.

Program Development and Evaluation

The British Infant Schools, John Holt, and especially Caleb Gattegno and William Glasser have influenced the schools. The staff has considerable training in Gattegno's institutes. The resulting philosophy of the schools combines "an emphasis on intellectual development with an awareness of individual children's needs."

No specific evaluation data are available. A report by the executive director of the East Harlem Block Schools to the Carnegie Foundation in January 1970 cited individual cases of marked academic improvement among children who had been failing when enrolled in public and parochial schools. The developers believe that any significant evaluation should examine the importance of the students' sense of belonging, the changes in the lives of families, and the strengthening of community cohesiveness. They also believe that the positive feelings which they state their students have toward school should be evaluated for their implications.

Program History and Present Development

The idea for the East Harlem Block Schools was conceived in 1965 when a group of parents became concerned over the quality of education their children were receiving and decided that it was up to them to do something to change it. They obtained a grant from the U.S. Office of Economic Opportunity to establish a "bicultural, community-controlled nursery school program which would employ and train a maximum number of community people and . . . serve low-income families in a selected area." The nursery opened in a storefront in September of 1965 with 30 neighborhood children of preschool age and two carefully chosen teachers. In September of 1968, because of cutbacks in OEO funds, the nurseries, which had grown considerably, applied for funds and became the first parent-controlled day care centers funded by the City of New York.

Because the parents became anxious about having their children leave the nursery school only to enroll in a public school first grade, they established a day school for the elementary years. In September of 1967 a first-grade class was started. A second grade was added in 1968, a third grade in 1969, a fourth grade in 1970, and a fifth grade in 1971. They expect to add a grade a year until the school provides for grades one through eight. The East Harlem Tutoring Project, formerly run by the Friends Service Committee, was incorporated into the East Harlem Block Schools in 1967. Presently the East Harlem Block Schools consists of three projects: the nurseries, the day school, and the tutoring project.

As an institutional model, the East Harlem Block Schools has helped two other schools (in Greeley, Colorado, and Rough Rock, Arizona) to establish parent-controlled educational environments. A former director states:

> *The Block Schools are visited approximately weekly by community groups interested in following the example of starting parent-controlled day-care centers or schools. Parent-controlled day-care centers are grow-*

ing all over New York. The Block Schools were the first and are the largest, and as such have been included on several policy-making commissions for New York City, including the Mayor's Task Force for Child Development. They are now participating in another official task force to develop new guidelines for staffing patterns and credentialling in New York's early childhood program.

EDUCATION DEVELOPMENT CENTER OPEN EDUCATION MODEL

Project Director: George E. Hein
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Goals and Objectives

The EDC program is designed to help schools develop classroom environments which are tailored to the individual needs of children and the talents of teachers. The kind of classroom environment that EDC promotes is often referred to as the open education classroom where children plan their own activities under the guidance of teachers, are free to explore and pursue individual interests, and work in ways best suited to individual styles. It is characterized by the following: there is an abundance of varied physical materials to stimulate exploration, activities arise from interests rather than from a prescribed curriculum, groupings are flexible, and there are "few obvious separations" between subjects. EDC maintains a corps of skilled advisers to help a school develop and maintain this open education environment. Specific instructional objectives include:

- Improved ability to express thought and feelings verbally and in writing
- Growth of encoding and decoding skills
- Improved ability to generalize and form concepts from a variety of experiences
- Growth of problem-solving and problem-finding abilities
- Improved coordination and control of sensory motor operations
- Greater self-awareness and self-control
- Improved self-image in relation to problem-solving and intergroup relationships
- Increased levels of aspiration
- Increased reliance on intrinsic rather than extrinsic motivation
- Development of positive attitudes towards school.

Content and Materials

The EDC approach emphasizes mathematical concepts and comunication skills, such as reading and speech. However, EDC is opposed to the idea of a given body of knowledge which every child must acquire at the same time, in the same order, and by the same means. EDC encourages children to become self-motivating and able to set their own goals, and to work independently to achieve them.

The EDC open education classroom contains a wide variety of materials. In addition to commercial materials, EDC recommends common things—such as sand, lumber, cardboard boxes, and assorted "junk"—considering these materials as "the most basic and essential part of the material environment." Although no particular items are essential, EDC provides an extensive list of suggested materials for art, science, word work, dramatic play, mathematics, and reading.

A number of one-sheet activity ideas have been developed by the EDC staff and teachers using the EDC model; however, there is no predetermined curriculum.

Classroom Activities

The EDC approach, like the British Infant Schools approach, is based on the concept that learning is "rooted in experience," and that knowledge is important when it is relevant and put to use. Therefore, children in the EDC open education classroom initiate a wide variety of activities based on their own personal interests and experiences. They may work independently or in small groups. The teacher performs a supportive role, providing assistance when it is needed.

The open education classroom is more informal than the traditional classroom; that is, time schedules are more flexible, there is a great deal more overlap among subject areas,

and team teaching is common. Also, learning is not confined to a classroom; children move freely from one room to another, and engage in activities in other parts of the school grounds, such as the schoolyard or the cloakroom.

Parent Involvement

Follow Through guidelines specify that schools using the EDC model organize Policy Advisory Committees, consisting of local parents. Under this arrangement, EDC has held seminars for parents, provided opportunities for parents to visit the schools, and employed parents as instructional aids.

Professional and Paraprofessional Training

EDC points out that the open education classroom probably means more, not less, work for the teacher. To provide ongoing support, EDC advisers hold seven to nine workshops a year at the Newton center. These are designed to train both teachers and aides. In addition to workshops at EDC, arrangements may be made to provide on-site training for local teachers and aides.

Administrative Requirements and Costs

No special equipment, materials, or facilities are required to implement the program. EDC stresses the importance of having a variety of materials rather than any single item. More critical than materials, equipment, or facilities is the need for skilled teachers.

Estimates of cost will vary; however, EDC maintains that equipping the open education classroom should cost no more than equipping traditional classes. EDC recommends a budget of $1,200 for a classroom new to the program and $600 for a classroom already in the program.

Program Development and Evaluation

The British Infant Schools approach has evolved over a period of 25 years. Those involved in the approach consider it perpetually in development.

There are, at present, no evaluation data available from EDC-sponsored schools. The Office of Education has commissioned the Stanford Research Institute to conduct a national evaluation of the major Follow Through models, including the EDC Open Education model. Results will not be released until 1973.

Program History and Present Status

EDC's interest in the British Infant Schools approach began in the midsixties when several staff members paid unofficial visits to England to observe the infant schools there. During 1967-68, Len Sealey, formerly a Leicestershire adviser, served as director of the regional laboratory at EDC; and he, William Hull, and David Armingtom applied for and received Follow Through funding to set up open education classrooms in the United States. Currently, EDC has 21 trained advisers serving 10 school districts around the country.

ENGELMANN-BECKER MODEL

Project Directors: Siegfried Engelmann
Wesley Becker

Department of Special Education
University of Oregon
Eugene, Oregon 97403

Goals and Objectives

The Engelmann-Becker Model, for children from preschool through the third grade, is an accelerated academic program which focuses on the development of skills in the areas of reading, language, and arithmetic. The program aims to break the poverty cycle by providing children with the necessary academic skills to compete in the public schools.

Content and Materials

Instructional objectives are specified in the Distar curriculum materials, available from Science Research Associates. Two levels of Distar materials are available in the areas of reading, language, and arithmetic. Each level contains sufficient materials for 1 year of instruction. The Distar materials break down skills into numerous small easy steps, arranged in a predetermined sequence. Children are placed anywhere in that sequence depending on their entering skill level. Tests embedded in the Distar materials enable frequent monitoring of student achievement.

In addition to student materials, Distar includes complete guides and presentation books for teachers.

Classroom Activities

The Engelmann-Becker class is normally staffed by a teacher and two aides. Children are taught in groups of from three to eight according to homogeneity or skills mastered. They are seated in chairs (not desks) in a close semicircle around the teacher or aide so that attention is constantly focused on the teacher.

Lessons are presented at an accelerated pace, with a great deal of verbal praise and exchange. The following is an excerpt from the teacher's guide to teach a beginning reading exercise. (Note that verbatim directions are provided for the teacher.)

Objective: Teaching *mmm* as in "him"
Task I: Identify new sound

a. "Everybody, look at the book." (Praise children who look.)
b. (Point to letter *m* in book.) "Mmm. This is mmm. Say mmm. Good."
c. (Point to picture of ice cream cone in book.) "Is this mmm?"
d. (Wait, Praise the response "no.") "What is this?"
e. (Trace *m*.) "Mmm, say mmm." (Wait.) "Good."
f. (Point to letter *m* in book.) "Look at the book. Mmm. This sound is mmm. Say it loud. Mmm."
g. (Wait.) "Good."
h. "Look at the book." (Point to a picture of an ice cream cone in book.) "Here's mmm."
i. (Wait.) "You fooled me! What is it?"

Parent Involvement

Parents may be involved in a number of ways. They may be trained to become teacher aides in the classroom; they may learn to help their children with "take-home" sheets, or they may take part in a child management program which aims to help parents understand the concepts and applications of reinforcers and punishers in everyday life relationships between parents and their children.

Materials for parents are available from the developers.

Professional and Paraprofessional Training

The developers offer adopters of the model 2 weeks' preservice training plus continuous inservice training. Preservice training is usually conducted in the summer at the local school.

Materials for the 2-week preservice training are available from the developers.

Administrative Requirements and Costs

With the exception of movable chairs and space for small group work, no special physical arrangements, facilities, or equipment are needed.

The cost of Distar materials is as follows:

Reading I	Teacher kit	$ 45
	Student set of 10	60
Reading II	Teacher kit	65
	Student set of 10	95
Language I	Teacher kit	135
	Student set of 10	30
Language II	Teacher kit	150
	Student set of 10	39
Arithmetic I	Teacher kit	90
	Student set of 10	70
Arithmetic II	Teacher kit	120
	Student set of 10	90

Distar materials are available from:
Science Research Associates (SRA)
259 East Erie Street
Chicago, Ill. 60611

Program Development and Evaluation

An academically oriented preschool program started by Carl Bereiter and Siegfried Engelmann in 1964 at the University of Illinois was the forerunner of the present Engelmann-Becker Model. Evaluation of the program has been ongoing. In 1967, the developers completed a 2-year evaluation study; in 1969 a group of Western Michigan University educators made a comparative study of the Engelmann-Becker Model and a traditional enrichment program. Both these studies produced data favorable to the Engelmann-Becker program in terms of student IQ and achievement.

Program History and Present Status

Carl Bereiter and Siegfried Engelmann were the originators of the program. In 1967, Bereiter left the program and Wesley Becker joined the staff. In 1968 the program applied for and received funding to begin operation as a Follow Through Model. The program has recently moved to the University of Oregon at Eugene, where it sponsored up to 8,000 children in 20 school districts in 1972.

FLORIDA PARENT EDUCATION PROGRAM

Project Director: Ira J. Gordon
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Goals and Objectives

The Florida Parent Education Program is a Follow Through (kindergarten through third grade) model, developed by Ira Gordon of the Institute for Development of Human Resources, University of Florida at Gainesville. The model is based on the premise that parental behavior, such as maternal teaching behavior, and the quality and amount of verbal stimulation have a strong influence on the intellectual and personal development of the child. Thus the major thrust of the program is to educate parents to use skills that will improve their children's intellectual behavior, self-esteem, and motivation. The developers believe that parents can help their children achieve these goals if they themselves can acquire some teaching competencies and self-assurance in their ability to effect change. To accomplish this, the Florida program hires and trains community people to work as parent educators who in turn make weekly home visits to teach parents skills to use at home with their children.

Content and Materials

The Florida Parent Education model is still at the developmental stage. Many of the learning activities—designed to reflect the child's family life style, value system, and goals—are being developed and tested with the help of parents, parent educators, teachers, and the program staff. Parents are also encouraged to design learning activities with common household items for use in the classroom.

Classroom Activities

During weekly home visits, parent educators demonstrate and teach parents tasks to improve a child's intellectual abilities and social and personal growth. They help parents to estimate the ability of their children, understand the purpose of each learning task, and teach it to their children. The parent educators spend half of their time in the classroom as teaching aides; they become the liaison agents between the home and the school.

Parent Involvement

Parents are an integral part of the program. They are involved in educating their own children at home, are encouraged to take part in designing learning tasks, may participate as parent volunteers in the classroom, may be trained as parent educators, and may be active as members of the Policy Advisory Committee, an advisory body consisting of parents in the community.

Professional and Paraprofessional Training

Preservice and inservice training are provided for teachers and parent educators alike. Preservice training is conducted during a summer workshop at the University of Florida as well as at a 1-week workshop in the local community. Inservice training involves 2 days a month of on-site consultation provided by the program staff. During these 2 days, the consultant meets with the Policy Advisory Committee, conducts inservice workshops with local teachers and parent educators, and reviews videotapes of classroom and home sessions. After each visit, the consultant reports on findings and recommendations to the teachers and parent educators and to the program staff in Florida.

Administrative Requirements and Cost

Usually a classroom is staffed with a certified teacher, two parent educators, and other parent volunteers. However, since the model is tailored to meet the needs of each participating community, schools that wish to use the Florida Parent Education Program should contact the director for all implementation requirements and related costs.

Program Development and Evaluation

Success of the program is measured on the basis of its efforts to increase parental competency and self-esteem, improve children's intellectual abilities and self-image, and provide the schools with the capacity for institutional change. A number of instruments to measure the effectiveness of components of the program are being developed and tested. Many of the instruments are of the observation and progress report variety rather than standardized tests.

The Florida Parent Education Program grew out of several infant stimulation projects directed by Ira Gordon since 1966. In these early studies, paraprofessionals were trained to visit homes and teach parents to provide stimulation for their 3- to 24-month-old children. Results from these studies showed that children exposed to the parent stimulation obtained superior scores on infant mental developmental scales compared with children not included in the study, and that mothers involved in the project showed more self-confidence in their abilities than they did before they entered the project. The developers feel that they have demonstrated a workable scheme of parent education using paraprofessionals as teachers of parents in their own homes.

Program History and Present Status

During the 1968-69 school year, the Florida Parent Education Program became a Follow Through model for children from kindergarten to third grade. The model is presently being implemented in 11 communities throughout the country. Plans are being made to use the approach to establish day-care services.

THE INTERDEPENDENT LEARNING MODEL

Project Directors: Donald Wolff and Jack Victors
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Washington Square
New York, New York 10003

Goals and Objectives

The Interdependent Learning Model is designed for children in K-3 Follow Through classes. The goals of the model are to help children from low-income families acquire learning skills, especially social and communication (language) skills, that the developers believe would offer them more alternatives in their lives. The program's main concern is to design a structure for facilitating group interaction and developing individual and group independence, not to identify specific lesson objectives, since the model can be molded to meet any kind of lesson plan.

The developers believe that social and cognitive skills should be built in as part of the curriculum and that, if students are to become successful learners, they must be given an increased voice in their learning situation by controlling their own groups, activities, and scheduling. They believe that the small-group game format is ideal for developing cognitive, problem-solving and communication skills since (1) children like to play games, (2) instructional games provide learning sequences in graduated steps, (3) game rules provide a pattern for interaction, and (4) language is an integral part of play.

Content and Materials

The basic feature of the model is the use of "Transactional Instructional Games"—transactional because they require social and verbal transactions among students. The Interdependent Learning Model can theoretically operate within any curriculum or standard text by adapting it to the Instructional Game format. Games are usually "table type," involving boards, blocks, dice, or cards; pantomime games are also used. Most of the game materials are teacher-made, based on prototypes developed by the developers. However, teachers are also encouraged to make up their own games. Concentration is a typical game format that teachers can adopt to the curriculum. Commercially available games produced by the developers include Language Lotto and Matrix games.

In addition to a list of suggested games, the developer provides teacher guides in three curriculum areas: reading (Direct Approach to Decoding), communications (ENACTED), and a series of games designed to teach mathematics skills. The Direct Approach to Decoding Program (D.A.D.) is a decoding approach that can be integrated with most reading programs. According to its authors, the program teaches basic phonics skills through teaching letter sounds, auditory blending, and phonic analysis. When the child has mastered these phonics skills, he applies them to decoding, combining phonic analysis and blending, sight-word recognition, reading, and generalized word-attack. The program is detailed and highly structured to enable teachers to better understand the components of reading, but the teacher can develop new games (with the help of program consultants) to supplement the guide. The teacher may also integrate the D.A.D. program with a basal reader.

The ENACTED communications guide uses a creative dramatics approach. The program stresses affective and cognitive development; the child should acquire knowledge of human behavior leading to the ability to monitor and modify his responses. The guide begins with nonverbal communication (kinesics) and moves to role playing in hypothetical situations. Like the D.A.D. program, the ENACTED curriculum uses a teacher-directed, structured, and sequential approach; teachers are provided detailed lesson plans and game suggestions.

A 600-page mathematics manual offers suggested games that can be used with any mathe-

matics curriculum. If a teacher already knows what the objectives for his curriculum are to be, he can go to the manual and find games to reinforce the lessons. An experienced teacher can use the manual as the basis of a kindergarten through third grade mathematics program. The developers are completing a fourth program (EMERGENT) which will be available in fall 1972.

Classroom Activities

In the classroom, learning occurs in independent, small-group game activities. These activities are structured by the games' own rules rather than by teacher edict, so that the children may develop social and learning interaction among themselves, direct their own learning, and develop initiative and autonomy.

The teacher has two instructional functions: he tries to promote a group's ability to play games autonomously without his intervention, and he instructs directly in the decoding and ENACTED (role play) curriculums and in other subject areas in order to get initial skills across to the students. How this is done depends on the teacher's instructional methods. Generally, though, after the teacher has introduced main ideas, the students are divided into small groups in which the teacher introduces the game by participating initially as a member of the group. The games are then turned over to the children to play on their own (though the teacher or assistant may occasionally intervene or introduce new content). Sometimes the group can be organized with individuals who are at different levels of competence, with the more advanced being able to help those who need it. It is hoped that with increased sophistication children will be able to form their own groups, plan what they wish to accomplish, choose their own preferred activities, and keep records of what they have done.

A game frequently used is Concentration. A teacher can use it in several ways; for example, the teacher makes 52 brightly colored cards with each letter of the alphabet colored on two cards—forming 26 pairs. The children mix up the cards and place them face down, each on a different square on the playing board. The object of the game is to get two cards that match. If a child gets a match he keeps the cards; if not he turns the cards back over and lets the next player have a turn. Each child has to say what letter he turned over: "I got a W." If he doesn't know what the letter is, the child can ask someone to help him.

Program staff are currently developing and refining tests or checklists to help measure student progress. One kind of evaluation instrument under development is an observational checklist where language behavior, game behavior, and teacher behavior can be recorded and assessed. At the present, there are three such checklists being used: decoding checklists given weekly, D.A.D. Reading Criterion Test given at the end of the year, and Matrix games checklist. Standardized tests are given twice a year but this is more a requirement of the school or district rather than a part of the model. Also available are a Math Checklist in which the developers have listed all the major objectives for mathematics and a test to measure each of the objectives, and a Math Diagnostic Test for grades K-3.

Parent Involvement

Paid parent workers (or family workers), provided for under Follow Through guidelines, are used to teach the games approach to parent groups. They primarily serve as an information resource, but also help make classroom materials, such as instructional games, and serve as teaching aides in the classroom. Parent volunteers are also encouraged to help make games and be classroom aides.

Professional and Paraprofessional Training

Teachers and aides are trained in the same way, in small groups. The developers want the teachers to develop the same sense of control over their learning as they want the students to achieve. Once a technique has been demonstrated by the training staff, the teachers and aides are organized into small groups to discuss and/or practice the new technique. In this way the teacher understands the nature of learning through group interaction. The developers train a core of school personnel to help teachers with problems and to carry on training sessions when the staff consultants are not present. There is no standardized approach to training. Topics for training sessions depend on the sites and needs of trainees. Preservice training is

done before the beginning of the school year; emphasis is placed on defining the teacher's role in the classroom, creating and evaluating games, and planning and carrying out changes in the classroom. On-site workshops are held 4 to 5 days a month. Teachers and aides work together discussing problems, making new games, and exchanging ideas with other groups. Consultants in reading, mathematics, drama, etc., are also available to individual schools.

Administrative Requirements and Costs

The only requirement is that the classroom be equipped with tables and chairs, rather than desks, and with adequate movable shelving which can be used as storage and room dividers. Each movable shelving unit can cost a school $50 to $100. The only required materials are the Language Lotto and the Matrix games which are available from Appleton-Century-Crofts at a cost of $40 to $50 a set. For $70 per child a school can receive the Direct Approach to Decoding (D.A.D.) teacher's guide, ENACTED communications teacher's guide, the mathematics game manual, and consultant services. This is not a set fee; the cost depends on the number of classrooms using their materials. Consultant services are available to any school at a fee that is worked out between the developers and the staff. The teachers may also wish to purchase commercially available games. The developers estimate that the yearly purchase of materials could vary in cost from $1 to $30.

The model can work in classrooms where there is only one teacher; however, the developers recommend the use of teaching aides or a team teaching approach.

Program Development and Evaluation

Eleven hundred Atlanta Follow Through students (K-3) are involved in a longitudinal study started in September 1969. Metropolitan Readiness or Achievement Tests are administered in pretest and posttest settings. Results show significant gains at kindergarten and grade one; at grades two and three, scores were "no better or lower" than at comparison schools. Results of the developers' checklist testing are unavailable at present. The developers are also in the process of developing a comprehensive observation checklist to be used in spring 1972.

The January 23, 1971, issue of the *Christian Science Monitor* reports that, in one Atlanta school using the model, children's readiness test scores improved dramatically. Whereas no pupils ranked "superior" before using the model, 5 percent did so after the model had been operating a year. Twenty-six percent compared to 68 percent of students in the previous year were in the "low normal" category.

Program History and Present Status

This program evolved from Lassar Gotkin's work at the Institute for Developmental Studies; he was interested in developing a game format for learning. In 1966 the focus changed to include designing a model that would make the children independent learners relying less on the teacher, hence the name Interdependent Learner's Model.

This Follow Through Model is implemented in New York City; Atlanta, Ga.; and Lansing, Mich. A new communications curriculum, which will be called EMERGENT Communications, will be available in fall 1972. The staff also plans a science curriculum.

PRIMARY EDUCATION PROJECT

Project Director: Lauren B. Resnick
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Goals and Objectives

The Primary Education Project (PEP) is currently under development at the Learning Research and Development Center of the University of Pittsburgh. The project is concerned with the "development and evaluation of a model of individualized education for young children suitable for implementation in American public schools." To date, experimental materials for nursery school (ages 3 and 4) and first, second, and third grade (ages 6 and 7) have been developed. The program is designed for an urban setting.

The developers hope to create an educational environment that will benefit children from all backgrounds. They believe two things are essential if schools are to meet children's learning needs: the school must develop the child's confidence in his own ability to learn, and help him to become an effective learner.

To meet these requirements, the project staff is developing a carefully sequenced curriculum designed to be adaptable to individual needs and abilities. The PEP curriculum outlines predetermined steps the child is to go through at his own rate. If any difficulty is experienced at a step, the instruction is revised until the child has mastered the assignment. According to the rationale of the program, the child should thus never equate difficulty with failure. This is important because the child who experiences success is more confident and more motivated to learn than the child who meets only failure in the classroom.

Content and Materials

PEP concentrates on basic skills and concepts that are prerequisites for future academic subject matter. Three general classes of skills are included in the PEP model: (1) orienting and attending skills, (2) perceptual and motor skills, and (3) conceptual and linguistic skills. The first set of skills includes the ability to concentrate on a task and resist distractions, the ability to follow directions, and the ability to finish a task once it is started. These skills are intended to enable the child to function well in the classroom. Perceptual and motor skills include such things as directional movement, body control, and balance, as well as manipulative and visual and auditory discrimination skills. Conceptual and linguistic skills include classifying, reasoning, plan following, and early mathematical processes. Linguistic skill development focuses on functional language (e.g., asking for assistance, describing objects) and on increasing the accuracy of a child's vocabulary.

To teach these skills PEP has identified and sequenced specific learning objectives, organizing them into four curriculum areas: beginning reading; introductory mathematics; classification and language; and visual, auditory, and motor development. There is a behavioral objective for each lesson. These objectives are sequenced by degree of difficulty—from simple to more difficult tasks. A few examples of objectives are:

Orienting and Attending Skills

Attention span. The child can work at a given task for increasingly extended periods of time.

Focusing attention. The child can discover and attend to relevant aspects of a stimulus.

Motor Skills

Basic forms of movement. The child can:

- walk at various rates, at an even pace
- jump, landing simultaneously on both feet
- hop, on either foot
- skip, gallop, run, etc.

Classification Skills

One-dimensional sorting, without noisy attributes. Given an array of objects which differ in only one attribute (e.g., color or function or texture, etc.), sort them into separate categories on the basis of that attribute.

The PEP curriculum requires continual diagnosis of learning needs. Each child is tested frequently. On the basis of the test results, the teacher prepares "prescriptions" or assignments, using such behavioral objectives as are listed above. Assignments indicate the task to be completed and the kinds of materials with which the child will work.

When the child completes his task, he is tested again to see if he attained the objective. He is either given a new assignment if he demonstrates he is ready, or assigned additional work if his test shows the need. This continual testing process insures that each child receives instruction tailored to his own needs. A continuous record of each child's progress is maintained, allowing the teacher to know precisely at what "step" the child is.

As children finish the introductory PEP curriculums, they will enter revised versions of the Individually Prescribed Instruction mathematics and reading curriculums prepared for this purpose by the Learning Research and Development Center Staff.

Because the project is still in a developmental stage, PEP instructional materials are not yet completed and fully tested or ready for dissemination.

Classroom Activities

The daily activities begin wth a "prescription work period" in which the children work on their various assignments. During this period at least one adult, either the teacher or an aide, circulates among the children offering guidance and praise for work well done. The work period is followed by an "exploratory period" in which children choose their own activities from the variety available to them. Typical exploratory activities might be dramatic play or block building. The purpose of this period is "to permit the child to apply his basic skills in a variety of contexts and to stimulate interest in new kinds of learning activities," according to the developer.

Parent Involvement

The project staff hopes eventually to train parents to extend the learning environment from the classroom to the home. The director states that pilot programs in this area have been promising and future development is underway.

Professional and Paraprofessional Training

In addition to developing curriculum materials, PEP is exploring means of supervising and training the teaching staff. The training project is conducted jointly by the Learning Research and Development Center's Learning Laboratory and the School of Education at the University of Pittsburgh. Some of the training materials currently being developed include videotapes.

Administrative Requirements and Costs

Because the project is still in the developmental stage, there is no way of determining the requirements or costs of implementation.

Program Development and Evaluation

The PEP model is based on current theories that regard intelligence as learned and responsive to expérience rather than fixed and inherited (Hunt, 1961, *Intelligence and Experience*). In designing the skill sequences, the PEP staff drew heavily on the work of Piaget (*The Child's Conception of Numbers, The Child's Conception of Geometry,* etc.) and Jerome Bruner (*Toward a Theory of Instruction* and *Studies in Cognitive Growth*). The specific instructional sequences, however, were derived by the developers through behavior analysis of each task, identifying its components and prerequisites (Resnick, 1967; Resnick, Wang, and Kaplan, 1970).

A formal PEP program was first implemented in a classroom setting during 1968-69 in Frick Elementary School in urban Pittsburgh. A battery of diagnostic tests developed for PEP was used to assess student progress. The Stanford-Binet Intelligence Test (L-M Form) and three Level I Wide-Range Achievement Tests were also administered. Gains were shown.

The PEP research staff is also developing instruments to measure learning outcomes in the affective domain.

Program History and Present Status

The Primary Education Project (PEP) started in 1967 as a cooperative undertaking of the University of Pittsburgh, the Pittsburgh Public Schools, and the General Learning Corporation. The Learning Research and Development Center of the University of Pittsburgh is responsible for research and development work; the University's School of Education is responsible for developing inservice and preservice teacher training programs. The General Learning Corporation provided the initial funding for the project; the project is now supported by the Ford Foundation, with additional support from the U.S. Office of Education.

The project staff is continuing to analyze, test, write, and retest the PEP program, as well as explore new curriculum areas to add to the current model. As stated, PEP is also trying to develop new methods of parent involvement and to devise training programs that will enable teachers to function effectively in its program.

In addition to the developmental school, the PEP program is presently used in four Follow Through school districts and in two Pittsburgh schools. The projected date of completion of the project is 1972.

RESPONSIVE PROGRAM

Project Director: Glen Nimnicht
Far West Laboratory for Educational Research
and Development
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Berkeley, California 94705

Goals and Objectives

The Responsive Program model is designed to promote the development of intellectual abilities and a healthy self-concept, contributing to the welfare of the total child. The model is appropriate for all children from preschool through the third grade, regardless of background and ability.

Content and Materials

In order for the child to develop a healthy self-concept, he needs to develop a number of positive attitudes and values, including:

- A liking for himself and his people
- A belief that what he thinks, feels, says, and does makes a difference
- A belief that he can be successful in school
- A belief that he can solve a variety of problems
- A realistic estimate of his abilities and limitations and
- Feelings of pleasure and enjoyment.

In the area of intellectual development, achievement in the following areas is specified in the context of problem solving:

- Sensory and perceptual development
- Language development
- Concept formation.

Instructional units, called learning episodes, are used to achieve the objectives. The learning episodes make use of specific toys, games, or equipment, rather than printed materials, such as workbooks. A series of eight basic toys, used in a number of learning episodes, may be obtained through General Learning Corporation; other materials are also recommended by the developers. Many of the items can be improvised; and though no one piece of material is considered absolutely necessary, it is essential that a great variety of materials be provided.

Classroom Activities

The learning environment is designed to be responsive to the needs of children. In this environment, the child can explore activities that interest him, progress at his own pace, make personal discoveries, obtain immediate feedback, and find learning enjoyable for its own rewards. The teacher does not dictate what each child must learn; instead she waits for clues from the child by expressed interest. She will then work with an individual child or a small group of children. Most toys and games used in the model have self-correcting features, enabling children to work independently or in a small group. One or two large group activities per day are recommended. These group activities generally involve listening to a story, showing and telling or participating in a learning episode which introduces a new game or toy.

Parent Involvement

There are two separate parent involvement programs operating in the Responsive Program Model. The first one is used with parents of children attending Follow Through classes. Local teachers and assistants conduct weekly or biweekly meetings to familiarize parents with the program; to demonstrate the use of toys, games, and materials; and to receive suggestions and recommendations from parents for improving the program.

The other parent involvement program is a toy lending library designed for parents of 3- and 4-year-old children. Parents meet once a week for 8 weeks in a course conducted by a trained teacher-librarian. The course is centered around learning to use a series of eight

basic toys, and each week the parent takes home a new toy to use with her children.

Training materials for the toy library are available from the General Learning Corporation. Other training materials for parent involvement are under development.

Professional and Paraprofessional Training

A locally appointed program adviser attends four seminars during the year to learn about the program and procedures for training teachers and assistants. He in turn is responsible for training local teachers and assistants.

Materials for training teachers and assistants are available from both the developers and General Learning Corporation.

Administrative Requirements and Costs

The classroom should have various learning centers, alcoves, and activity areas. Wall-to-wall carpeting helps to reduce the noise level and provides a comfortable surface to play on. Ample storage space is necessary for toys, games, and materials. An electric typewriter is recommended as an optional piece of equipment for kindergarten and first grade.

A set of materials for a program adviser to use with 10 classes costs approximately $415; the typewriter costs approximately $300; the equipment needed to start a toy library costs approximately $160. Other cost information has not been established.

One teacher and one assistant are required in each classroom.

Program Development and Evaluation

The Responsive Program is an electric model incorporating research from a number of sources. The model is most influenced by the works of O. K. Moore, Maria Montessori, and cognitive developmentalists like J. McV. Hunt, Benjamin Bloom, and William Fowler.

The model undergoes a series of research and development steps with sample tests to ensure the effectiveness of the program, which include:

1. Designing and testing prototypes, selecting the best alternative
2. Preliminary testing for product feasibility
3. Performance testing
4. Operational testing.

A number of evaluation studies have been conducted to measure the effectiveness of the program. They include studies conducted by the developers, independent agencies, and schools implementing the model. The results of these studies tend to show significant differences on measures of intelligence, achievement, and self-concept.

Program History and Present Status

The program, initiated at Colorado State College in 1964, was called the New Nursery School. The school was founded to meet the needs of children from low-income and ethnically different backgrounds. Shortly after the New Nursery School was established, a second school, the Responsive Environment Nursery, was founded in Colorado for children of middle-class parents. In 1967, Dr. Glen Nimnicht, the founder of the nursery schools in Colorado, started the Responsive Environment Model at the Far West Laboratory for Educational Research and Development. During the following year (1968), a Follow Through model was initiated. At the present time, the developers are sponsoring Head Start and Follow Through classes around the country.

TUCSON EARLY EDUCATION MODEL

Director: Ronald W. Henderson
Project Director: Joseph Fillerup

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Goals and Objectives

The Tucson Early Education Model (TEEM) originated as a program for Mexican-American children in first through third grades. It is now used in preschool through third-grade Head Start and Follow Through classes with children of all cultural and ethnic backgrounds. The goal of the program is to prepare children for "later participation in the technical, social, and economic life of contemporary America" by developing an intrinsically motivating program designed to improve intellectual abilities and develop children's self-esteem. The objectives are classified into four areas—language, competence, intellectual base, motivational base, and societal arts and skills—further subdivided as follows:

- Language competence: Learning linguistic labels, concepts, language forms, and an awareness of the function of language.
- Intellectual base: Ability to attend, recall, and organize stimuli; to plan, choose, predict, and organize behavior toward goals.
- Motivational base: Acquiring positive attitudes toward school and learning, persistence, expectation of success, and willingness to change.
- Societal arts and skills: Learning skills in reading, writing, and mathematics, as well as social skills, such as cooperation and participation in a democratic process.

Content and Materials

The program covers a wide range of skills, concepts, and attitudes. Children are expected to develop academic skills and concepts, "learning to learn" skills, social skills, and attitudes related to self-concept and motivation; and to acquire skills which will make it possible for them to process information from diverse content areas and from their natural environment. There is no set curriculum for the program.

The Tucson staff does not supply student materials. The program uses standard manipulative materials such as Cuisenaire rods, blocks, games, and puzzles, as well as books, housekeeping equipment such as toy stoves and utensils, and dress-up clothes. Many of the manipulative materials can be made by the child and/or the teacher; the rest may be obtained from numerous supply outlets.

Classroom Activities

The program is designed to be intrinsically motivating, principally through the use of activities in which skills and concepts from different subject areas are combined. For example, in a cooking activity children may learn about quantity, read, learn new vocabulary, observe physical changes in matter, follow directions, and then write about the activity.

The classroom is arranged into interest centers for reading, arithmetic, science, or construction. Interest centers are equipped with materials suitable for children at different levels of development. The children work in small heterogeneous groups called committees and take turns being chairman. During committee time any child may leave his group and go to areas designated as free choice centers, such as the game center or housekeeping area.

Parent Involvement

There is no specific parent involvement program, although the developers intend to develop one. Parents are encouraged to visit the classrooms and serve as volunteers or teaching aides. The developers urge two-way communication between home and school. They feel that

parents should be informed of their children's progress and encouraged to take an active role in their education, and schools should learn to relate the classroom experience as much as possible to the knowledge and abilities the child brings from his own cultural background.

Professional and Paraprofessional Training

The Center for Early Childhood Education in Tucson provides two or three 1-week preservice training sessions a year for locally appointed program assistants. The program assistants, in turn, hold preservice training for local teachers and aides. Although the center does not directly train local teachers and aides, it will provide consultants to assist program assistants and teachers with problems that arise. The developers have produced slide sets and videotapes for training purposes. The materials are available from the developers.

Administrative Requirements and Costs

The classroom must be equipped with movable chairs and tables. The developers recommend a hot plate in each classroom for cooking activities and suggest such equipment as a primary typewriter, tape recorder, record player, and woodworking equipment. No one item is essential.

A teacher and one aide are recommended for each classroom. A program assistant is needed for every 10 teachers or aides (maximum). The cost per pupil for comprehensive services, including health and psychological services, is about $1,300 per year.

Program Development and Evaluation

The Tucson Model is an eclectic program, drawing on research in social learning, child development, and language development.

The design of the model was influenced by the ideas of Marie Hughes, the first project director. Modifications have occurred on the basis of classroom observation and informal feedback from teachers rather than through a formal development-evaluation-revision cycle.

Data collected by the local districts using primarily the Metropolitan Achievement Tests are reported "mixed" and cannot be released without the consent of both the school authorities and the parents. The Tucson staff states that standardized tests are not adequate measures of the outcomes the program is designed to produce. For this reason, the staff has put its evaluation efforts into developing new instruments and evaluating their reliability and validity.

Program History and Present Status

The Tucson Model began in 1965 as a 3-year joint project of the University of Arizona and Tucson School District No. 1 to design a new program for young Mexican-American children. The program was implemented in 68 classes at grades one through three in eight Tucson schools. In 1967 the Arizona Center for Early Childhood Education at the University of Arizona became responsible for continuing elaboration and evaluation of the project. Dr. Marie Hughes, co-originator of the program, became project director. In 1968 the center was asked to be a Follow Through sponsor for 14 communities around the country. Since its beginning, the project has shifted its focus from only Mexican-American children to include children of all backgrounds. The program has been expanded downward to preschool and kindergarten.

In 1971-72 the Tucson Model was implemented in 20 school systems across the country, from Alaska to New Jersey, in preschool through third grade (Head Start and Follow Through) classes.

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