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ABSTRACT

A description of the Follow Through program at Oraibi, Arizona, was prepared for the White House Conference on Children (December 1970), as were papers on 33 other selected model programs. In the Follow Through program, approximately 400 Hopi children (grades 1 to 3) are building proficiency in reading, mathematics, and handwriting via the Kansas model which utilizes the behavior analysis approach to learning. An explanation of the teacher, teacher-aide, and parent-aide role and function is included in the document. Sources of further information on this and similar programs are also provided. (LS)

Model Programs

Childhood Education

Behavior Analysis Model of a Follow Through Program

Oraibi, Arizona

A Hopi Indian community-selected Follow Through program with individualized instruction, concrete incentives, and parent aides

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FOREWORD

This booklet is one of 34 in a series of promising programs on childhood education prepared for the White House Conference on Children, December 1970. The series was written under contract by the American Institutes for Research for the Office of Economic Opportunity, and the Office of Child Development and the Office of Education, U.S. Department of Health, Education, and Welfare.

Within the broad area of childhood education the series includes descriptions of programs on reading and language development, the disadvantaged, preschool education, and special education. In describing a program, each booklet provides details about the purpose; the children reached; specific materials, facilities, and staff involved; and other special features such as community services, parental involvement, and finances. Sources of further information on the programs are also provided.

Atop the rocky mesas of northern Arizona where their ancestors have lived for centuries, Hopi Indian children start school in a modern educational program chosen for them by their tribal elders.

To build on their Head Start program, the Hopi Tribal Council selected the Behavior Analysis approach to Follow Through developed under the direction of Dr. Don Bushell, Jr., of the Department of Human Development, University of Kansas. So pleased was the Council with the results of the first year's program that they extended the Kansas model to Head Start classes as well. In five Bureau of Indian Affairs day schools, all 400 Hopi children in grades one to three participate in the Follow Through program; Head Start serves an additional 140 preschool-age children.

The key concept of the Behavior Analysis approach is the positive reinforcement of desired behavior as identified in specific learning objectives. As an instructional system it focuses on supplying each child with the basic academic and social skills he needs in order to succeed in school. A "token exchange" reinforcement system provides immediate rewards for good learning behavior by means of tokens earned by the child and then "spent" on pleasurable activities, such as the opportunity to play a favorite game. To build proficiency in the three basic skills of reading,

mathematics, and handwriting, students study all three subjects each day, in frequent alternation with the "backup" activities.

Parents serve as teaching aides, giving them career opportunities and making possible individualized instruction in the classroom.

A PEOPLE IN TRANSITION

The Hopi Indian Reservation covers 4,000 square miles of arid land in northern Arizona. Still living in scattered villages, the Hopi are in transition from an agricultural to a wage economy. While a few families still subsist on small-scale farming, most combine farming and some livestock raising with wage-earning. The major employer on the reservation is government--the Bureau of Indian Affairs, the Public Health Service, the Arizona Highway Department, and tribal services. Many Hopi live and work off the reservation at some time in their lives but still consider their villages home. Thus, although young people, especially, leave the reservation to seek better employment opportunities, the population of 4,500 as a whole remains stable and is even growing. The Bureau of Indian Affairs estimates average family income at $1,500 per year.

Tourism is a growing source of tribal income. The products of Hopi crafts--basketry, pottery-making, silversmithing--are in demand for their artistry and beauty of design. A 1/2 million dollar cultural complex, which will include a motel and restaurant, is under construction.

The Hopi have long been education-minded. Almost from the inception of Government schools on the reservation the Hopi have maintained one of the highest community attendance records in the United States. At the present time there are 1,600-1,800 school-age Hopi. While students now go off the reservation to high school, there is a growing movement to bring a high school to the village of Oraibi. About 100 Hopi high school graduates are enrolled in college or some other form of higher education.

The Hopi were alert to the opportunities provided in the 1964 Economic Opportunity Act, and a Head Start program was begun in 1966. In 1968 the joint efforts of the Hopi Tribal Education Committee and Bureau of Indian Affairs personnel brought Follow Through to the reservation to build on the Head Start foundation. In the first year, the program operated in "beginner classes" equivalent to a combination kindergarten and first grade. Second grade was added the following year, and in 1970-71 the program

covers grades one through three and two kindergarten classes. There are now 400 students in 16 Follow Through classrooms. In addition to the 16 teachers, who are Bureau of Indian Affairs employees, there are 16 Elementary and Secondary Education Act (ESEA) title I reacher aides employed by the tribe, and 45 parent aides paid from Follow Through funds. Administrative personnel include a program director, administrative assistant, field coordinator, and social worker, as well as two staff trainers and five parent coordinators, one for each of the five schools.

THE CHILD IN TRANSITION--THE PARENTS HELP

In contrast to the situation in many low-income groups eligible for Follow Through, the Hopi child enters school from a comparatively secure home environment based on strong affection between parents and children and a network of wider relationships in which he knows he belongs. Traditional Hopi society was organized around what anthropologists call "matrilineal clans"--groups of families considered to be related, with special tribal ceremonial responsibilities and mutual obligations. Clan membership is inherited through the female line, a Hopi child always belonging to the same clan as his mother. These clan ties still operate to give a sense of group support within the larger tribe, which itself has remained a cohesive entity. To this, add traditional

Hopi values stressing cooperation, good-nature, and industriousness, and it is not surprising that the visitor to a Hopi Head Start classroom is struck by the quiet reserve and generally dutiful demeanor of youngsters just starting school.

The children begin in a program designed to make learning a warm, positive experience, and they see parents in the classroom helping to make it so. Two parents share teaching responsibilities with the teacher and a full-time teacher aide. This is a full partnership, not simply a subordinate "helper's" role. At a salary of $1.65 to $1.95 per hour, parents are brought into the classroom for 10-week periods which overlap so that one parent can teach the next. They are trained in the teaching skills of the Behavior Analysis approach and participate in actual instruction in both the Head Start and Follow Through programs.

Fathers as well as mothers have been active. Parents have made particularly valuable contributions in the tutoring of individual students who need extra help, and they have proved especially successful in directing handwriting instruction. Another advantage of their presence is their help in language translation. In Head Start classes, parents can be heard prompting children in Hopi when they have difficulty understanding English words. Although

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all Hopi children have some background in English, it is a second language to many, especially where families have had least contact with English-speaking culture.

Given their close family relationships and warm feeling for children, Hopi parents are naturally interested in what their children are doing in school. They feel the program is their own and often drop in to visit the classroom, sometimes bringing food for the class to share. The exposure of more and more of them to the experience of actual teaching in the classroom gives an important added dimension to the partnership between home and school.

A DAY IN CLASS

"That's good, Sarah. I like the way you're making those letters. Try to get the line a little straighter." "Good work, Larry, that one is much better."

"What is this, Raymond? That's right, it's a triangle. *Very* good. Now, Alice, do you know what this next one is? Let's see if you know, Bonita--I like the way you're paying attention so well."

This is the kind of dialog that a visitor to a typical Follow Through class hears from small working groups of four to seven students and one teacher. At the same time, the teacher can be seen handing out numbers of silver-dollar-sized red tokens, which disappear quickly into the pockets of the gaily patterned apron each child is wearing. The pace is fast as the teacher questions, students respond, and the teacher reacts with approval and praise reinforced by intermittent token payments. Each student receives about the same amount of the teacher's time and attention.

In a corner of the room a boy is receiving the entire attention of a teacher aide. Seated before language laboratory equipment, they are practicing his word recognition and pronunciation. He has collected a small stack of the red tokens on the edge of the desk.

A bell rings. Three boys begin to put away the cars they have been running around a model garage; two girls pick up the jacks they have been playing with; a girl lingers momentarily over a storybook. The children in the math group gather around the teacher, counting out tokens from their apron pockets. "Bonita, what are you going to do? The dolls? Let's see if you have 10 tokens. Good." "I'm sorry, Alice, you only have seven and dolls

cost 10 tokens. Let's see if you can earn 10 tokens next time. Puzzles? That's fine--puzzles take five tokens, so you have how many left over? Two; that's right."

EARNING AND SPENDING

The bell is an ordinary kitchen timer; the tokens are red poker chips. The visitor is seeing the "token economy" in action. The children in the math group are getting ready to spend the tokens they have recently earned by paying attention, giving correct answers, or completing an assignment. The girls playing jacks bought that privilege with the tokens they earned in the previous instruction period. Such earning and spending periods alternate throughout the day in a planned and orderly sequence. When the bell rings, everyone must change--from earning to spending and back to earning again.

The role of the token economy in the Behavior Analysis classroom is to sustain a high level of student motivation by providing a concrete medium of exchange between good learning behavior and attractive child-selected rewards in the form of favorite activities. The handing out of tokens as a lesson is in progress is done with a minimum of distraction; yet, combined with verbal praise from the teacher, it rewards good behavior immediately.

Tokens are not mentioned--much more in evidence is the teacher's verbal reinforcement or correction--and students accept them casually, going on with what they are doing. Student responsibility is enhanced because they can relate their own behavior directly to the opportunity to engage in their favorite activities as soon as the study period is over.

Inappropriate behavior is ignored. Instead of coercing, threatening, or scolding a child who is talking when he should be working, the teacher will heavily reinforce the child next to him: "I like the way you are concentrating on your work." Then she will reinforce the offender's return to desirable behavior: "See how well you do when you work quietly." Serious misbehavior or disruption is never tolerated, however, and is dealt with by a procedure known as "time-out" (from positive reinforcement). Without emotion, and immediately, the child is told exactly what he has done wrong and put in a chair away from the rest of the class for a period of 3 to 5 minutes; he re-enters the group without comment from the teacher. He has lost the opportunity to earn tokens during the penalty period, and the consequences are clear during the next spending period.

The token economy is not a competitive one. Each child earns tokens for doing the work that is appropriate to him, regardless of the work of others. It is up to the teacher to know what each child is able to do at any given time and to reward him accordingly. Teachers in the Hopi program have found the system self-correcting: the act of giving out tokens constantly reminds them to pay attention to each child according to his individual capacities. A child who repeatedly earns too little forces the teacher to examine her behavior. Is she paying enough attention to him? Are the assignments appropriate for him? Are there enough backup activities that are attractive to him?

An unobtrusive sign on the wall near one teacher's desk reminds her to:

- Give *lots* of tokens and praise
- Never talk about tokens except during exchange
- Ignore behavior you don't like
- *Never* take tokens away
- Vary prices, time, and kinds of spending (backup) activities

- Provide *lots* of activities
- Keep it *fun*. Make it exciting for both you and the children!

SUPPLY AND DEMAND

The token economy, like any real economy, operates on supply and demand. The teacher must observe the children carefully enough to know what backup activities are most attractive to them and to set prices accordingly. Prices are changed and kinds of activities varied, both to sustain interest and to ensure that the only way students can earn enough to pay for what they want is to do the best work they can. Only if backup activities are interesting and enjoyable will they effectively back up the tokens in supporting continued student motivation. Pricing must ensure that average work buys activities in moderate demand and superior work those in greater demand (or short supply in cases of limited access to an attractive item); and no one should be continually limited to the least attractive choices. Often the teacher will set prices according to the requirements of a particular lesson.

Classrooms contain several play areas for the various kinds of backup activities. In one corner might be a dollhouse, dolls, and

play-kitchen furnishings; in another, books, puzzles, and games such as pickup sticks and Lotto; in another paints and other art supplies. Backup activities are limited only by student interest and teacher ingenuity. Sometimes extra food at snack time can be purchased, or a longer recess. It is not unknown for students to choose to continue with a workbook exercise or other study that has captured their interest. Some teachers bring in tapes of Hopi ceremonial dances, and in one ingenious teacher's classroom a long "crawl-through box" is in great demand!

The typical time schedule of the token economy changes over the course of the year and over the grade levels. In early grades and at the beginning of the year, there is frequent alternation between study periods and backup activities--perhaps 10 minutes of study and 20 minutes of activities, then 10 minutes of study, and so on. As the year progresses, this begins to reverse. By the end of the year there may be 45 minutes of study to 10 or 15 minutes of activities. At the second- or third-grade level a full morning's work might be followed by 20 to 30 minutes of activities.

CONCENTRATION ON BASIC SKILLS

In the token exchange setting, academic instruction concentrates on the basic subjects of reading, mathematics, and handwriting. During the child's first year--for Hopi youngsters, in the Head Start program--these skills are introduced in a highly structured but individualized pattern: clearly define the learning objective; analyze the child's behavior to determine what he already knows; prescribe learning activities appropriate to him which allow him to proceed at his own rate. An Entry Behavior Inventory developed at the University of Kansas and other diagnostic tests help to place each child in the sequence of specific instructional objectives in each subject.

Materials are chosen which allow for individualized instruction. This means that the materials must specify what he will be able to *do* after completing an exercise, require frequent and tangible responses from him in the process, and provide him with frequent checkpoints based on clear criteria for successful or unsuccessful performance. The following commercial materials are the basic ones in use in Hopi classrooms.

C. D. Buchanan and Sullivan Associates. *Programmed Reading.* New York: McGraw-Hill Book Company, 1963.

Patrick Suppes. *Sets and Numbers*. New York: L.W. Singer Company, Inc.

R. E. Eicholz, P. G. O'Daffer, et al. *Elementary School Mathematics Series*. Reading, Mass.: Addison-Wesley Publishing Company, Inc.

B. F. Skinner and S. A. Krakower. *Handwriting With Write and See*. New York: Lyons and Carnahan, 1968.

EFI Audio Flashcards and Reader. North Haven, Conn.: Electronic Futures, Inc.

In addition, the Kansas sponsors have developed their own prereading and prehandwriting primers.

The daily classroom schedule requires careful planning, not only to fit the changing academic needs of 25 to 30 students at different performance levels, but also to ensure successful patterns of motivation and backup activities. The amount of time during any one day devoted to reading or mathematics, for example, will depend on individual student progress. Having four adults in the classroom--the teacher, teacher aide, and two parent aides--makes this schedule possible. The teacher is the chief

behavior analyst, bearing primary responsibility for determining what instruction each child should receive. The aide shares in student diagnosis and the daily class scheduling, and conducts small group instruction. Parent aides also give small group instruction and provide individual tutoring.

Three tools provide feedback to help the teachers keep abreast of changing student needs. A detailed daily class schedule is maintained, describing each activity, the time devoted to it, and number of students involved. Individual student progress records are made out weekly, showing the exact book and page number on which the child is working in each subject. Both these records are sent to the Kansas sponsor weekly, along with regularly scheduled classroom videotapes for the analysis of both child and teacher behavior.

INSERVICE TRAINING AND EVALUATION

Continuous training and evaluation are conducted by the sponsoring Follow Through staff at the University of Kansas. Weekly classroom observation and followup training are carried on by local staff trainers, and a regional adviser from Kansas makes monthly visits. Every teacher attends a 1-week session at the

training school in Lawrence, Kansas. A workshop at the opening of school includes demonstration classes at each grade level, which all local staff attend; another regularly scheduled workshop is held in January. Other workshops are scheduled throughout the year, as needed to correct procedural problems, disseminate curriculum information, or reinforce teaching training in the various classroom roles.

In addition to the ongoing evaluation, which minimizes the need for summary evaluations, students are given the Wide Range Achievement Test for a pre- and post-test. The program is also being independently evaluated for purposes of national Follow Through evaluation.

Indications are that the program is achieving success. It is well supported by the tribe, which has extended it to all Head Start classes, and teachers say that after an initial misgiving about the individualizing of instruction neither they nor their students would ever want to return to traditional group instruction. Teachers also say that the giving out of tokens makes them more aware of how their activities affect children, and that training the parents gives them added insight into teaching methods.

At the program's inception, the Kansas sponsor provided all the classroom training, daily schedule plans, teaching strategies, and evaluation procedures. By the second year, local staff trainers began to take over many of these duties, with the help of monthly visits by a regional adviser from Kansas. The sponsors expect their role to diminish still further to periodic consulting only, with inservice training, workshops, and career development all carried out by experienced local staff.

The two staff training coordinators this year are former Follow Through teachers. Some parents, with experience gained as parent aides, are now employed full time as teacher aides under the title I contract. Estimates are that 90 percent of the staff participate in some sort of career development activities. All Head Start teachers are now working toward degrees in preschool education. Parents and other nonprofessionals take university extension courses, and non-high school graduates participate in adult education programs at area high schools.

PROGRAM ADMINISTRATION AND COSTS

Federal funding of $750 per child per year covers the instructional program, a complete health and nutrition program, and the parent program. In addition to the program coordinator, who

carries out the overall administration of the program and serves as the liaison between the tribe and the sponsor, a field coordinator works with the Bureau of Indian Affairs school district, contacts parents, sets up meetings and workshop schedules, and troubleshoots personnel or other operations problems. The five parent coordinators are the liaison with the community; some of their activities include explaining the program to parents, recruiting parent aides, and observing them in the classroom.

A policy advisory committee consists of nine parent voting members plus six representatives from tribal and government agencies. The parent representatives, usually chosen through the PTA groups, are the guiding force behind both the Head Start and Follow Through programs. General parent attendance and participation in PTA groups are extremely high.

FOR FURTHER INFORMATION

Information about the Hopi program may be obtained from or visiting arrangements made through:

Miss Peggy Taylor
Hopi Action Council
Box 178
Oraibi, Arizona 86039

Other Behavior Analysis Follow Through models are operating in the Northern Cheyenne Reservation, Montana; Kansas City, Missouri; Meridian District, Illinois; Portageville, Missouri; Waukegan, Illinois; Indianapolis, Indiana; Louisville, Kentucky; Philadelphia, Pennsylvania; Pittsfield, Massachusetts; Bronx, New York; Trenton, New Jersey. Additional information on the models, including a program description and audiovisual materials, may be obtained from:

Dr. Don Bushell, Jr.
Follow Through--Department of Human Development
The University of Kansas
Lawrence, Kansas 66044

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MODEL PROGRAMS--Childhood Education

This is one in a series of 34 descriptive booklets on childhood education programs prepared for the White House Conference on Children, December 1970. Following is a list of the programs and their locations:

The Day Nursery Assn. of Cleveland, Ohio
Neighborhood House Child Care Services, Seattle, Wash.
Behavior Analysis Model of a Follow Through Program, Oraibi, Ariz.
Cross-Cultural Family Center, San Francisco, Calif.
NRO Migrant Child Development Center, Pasco, Wash.
Bilingual Early Childhood Program, San Antonio, Tex.
Santa Monica Children's Centers, Calif.
Exemplary Center for Reading Instruction, Salt Lake City, Utah
Dubnoff School for Educational Therapy, North Hollywood, Calif.
Demonstration Nursery Center for Infants and Toddlers, Greensboro, N.C.
Responsive Environment Model of a Follow Through Program, Goldsboro, N.C.
Center for Early Development and Education, Little Rock, Ark.
DOVACK, Monticello, Fla.
Perceptual Development Center Program, Natchez, Miss.
Appalachia Preschool Education Program, Charleston, W. Va.
Foster Grandparent Program, Nashville, Tenn.
Hartford Early Childhood Program, Conn.
Philadelphia Teacher Center, Pa.
Cognitively Oriented Curriculum, Ypsilanti, Mich.
Mothers' Training Program, Urbana, Ill.
The Micro-Social Preschool Learning System, Vineland, N.J.
Project PLAN, Parkersburg, W. Va.
Interdependent Learner Model of a Follow Through Program, New York, N.Y.
San Jose Police Youth Protection Unit, Calif.
Model Observation Kindergarten, Amherst, Mass.
Boston Public Schools Learning Laboratories, Mass.
Martin Luther King Family Center, Chicago, Ill.
Behavior Principles Structural Model of a Follow Through Program, Dayton, Ohio
University of Hawaii Preschool Language Curriculum, Honolulu, Hawaii
Springfield Avenue Community School, Newark, N.J.
Corrective Reading Program, Wichita, Kans.
New Schools Exchange, Santa Barbara, Calif.
Tacoma Public Schools Early Childhood Program, Wash.
Community Cooperative Nursery School, Menlo Park, Calif.

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