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**ABSTRACT**

Curriculum development, field service issues, and training are discussed in this first volume of the 3-volume progress report. The overview contains a statement of the scope of the program, its major concerns in regard to teachers, parents, and children, and presents lists of objectives for these three groups. The second section, on the theoretical foundations of the program, is a distillation of the developmental theory of Piaget in terms of the learner, the learning process and the content of learning from a cognitive point of view. A detailed discussion of the application of theory to classroom practice is also presented. This is an in-depth statement of the Cognitively Oriented Curriculum centering on the structure of the classroom environment and the sequencing of learning experiences. The next section describes the classroom program operations and staff roles for the High/Scope model. Parent participation is then discussed, with emphasis on educational home visits, parent group meetings, and parent volunteers in the classroom. The final two sections are concerned with the delivery system for the Cognitively Oriented program (staff training, program monitoring, and training materials) and sponsor evaluation of Cognitively Oriented programs. (Author/CS)

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VOLUME I

PROGRESS REPORT  
COGNITIVELY ORIENTED CURRICULUM  
PROJECT FOLLOW THROUGH

September, 1973

CURRICULUM DEVELOPMENT  
AND  
FIELD ISSUES

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PS 007104

## PREFACE

This year-end progress report analyzes Follow Through activities between July 1, 1972 and July 1, 1973 at the High/Scope Educational Research Foundation and the ten centers sponsored by the Foundation as part of the National Follow Through experiment. The centers are:

Okaloosa County, Florida  
Howland-Lathrop, Chicago, Illinois  
Leflore County, Mississippi  
Central Ozarks, Missouri  
P.S. 92, Harlem, New York  
Denver, Colorado  
Greeley, Colorado  
Trinidad, Colorado  
Riverton, Wyoming  
Seattle, Washington

The report is divided into three volumes. Volume I discusses curriculum development, field service issues, and training. Volume II summarizes the 1972-73 evaluation activities. These include a report on the analysis of sponsor-collected outcome data from the ten Follow Through projects, a report on the findings and formative use of the Classroom Implementation Matrix, case study reports presenting supplementary data from individual Follow Through centers, and a report on the development and field testing of a new procedure for assessing the writing of elementary school children. Volume III presents the results of High/Scope Foundation's Analysis of Classroom Interaction, a classroom observation instrument field tested at four projects.

The first section of Volume I is a printed volume giving an overview of the High/Scope curriculum and operation. Included are discussions of theory as well as implications for curriculum practice. The second section presents general problems in the field application of the High/Scope model and a look at the High/Scope Training and Development Center (TDC), stressing the unusual importance this center has had on our evolving curriculum and on implementation at our field centers.

Volume I is divided into four sections representing separate phases of the evaluation. In the first section the standard outcome data collected by the sponsor are reported. The Stanford-Binet and achievement testing conducted since the project began in 1968 represent the most consistent aspect of the sponsor's evaluation. There have been several different approaches to evaluation and different instruments used at various times, but the Stanford-Binet and the Comprehensive Tests of Basic Skills provide the only data on a continuous longitudinal basis.

The second section of Volume II presents outcome data collected by school personnel at the Follow Through sites. This includes such things as attendance figures, parent involvement, the delivery of ancillary services, and the achievement of Follow Through and non-Follow Through students on tests administered by the school districts. These supplementary data are an important adjunct to the data that can be collected within the resources of the sponsor. It was originally hoped that a report on the supplementary data from each site would be included in this volume, but because of several factors (especially a delay in funding for the data collection and the quantity and complexity of the data received), the analyses could be completed for only five Follow Through programs. The remaining site reports will be completed later this fall and distributed to the programs.

In the third section of Volume II, the development of a new assessment procedure is described. During 1972-73 High/Scope research and curriculum staff developed criteria for evaluating the writing of Follow Through children and created procedures for eliciting, scoring, and analyzing samples of writing. Although the summative aspects of this procedure are stressed in this report, the writing assessment has obvious applications as a formative tool that could produce valuable information for teachers on the development of their students in language arts.

Volume II concludes with a report on the use of the Implementation Matrix for assessing the implementation status of classrooms. The Implementation Matrix was also developed by the High/Scope staff to provide a relatively straightforward procedure by which curriculum assistants could rate

each of their classrooms on variables considered important for the operation of a Cognitively Oriented classroom.

Volume III rounds out this report of sponsor evaluation activities by presenting the results of the classroom observation study. Following up on pilot work completed during 1971-72, the analysis of classroom interactions completed this year provides several important conclusions about the operation of the Cognitively Oriented Follow Through model at the critical point of individual teachers and children interacting in the classroom.

In any study of the magnitude of this National Follow Through project, literally thousands of people are involved in making an effective and responsive matrix to contain the research and development. Parents, teachers, aides, principals, school superintendents, regional officials, federal government staff, and of course, the children themselves are deeply involved in the dynamic process that creates education. Deep appreciation for their confidence and assistance is felt by all of the Foundation staff. We could not do our work without their help, and anything we do accomplish is because of their commitment to the development of quality education for their children.

This progress report represents both a written product of specific individuals as well as the direct support of a large staff. At some points in the report, specific individuals are mentioned as responsible for specific pieces of work. In every case, given the dynamics of cooperative work within the Foundation, many staff members had significant input for shaping the area of a work. This spirit of cooperation and interrelationship is essential to the quality of the overall work undertaken by the Foundation.

Work for the coming year includes production of detailed descriptions of areas of the curriculum and refinement of the research instruments. These will be reported as they become available.

David P. Weikart  
Project Director  
High/Scope Cognitively  
Oriented Curriculum

## Acknowledgments

The first section of Volume I, the High/Scope Early Elementary Program, was the joint effort of every member of the department. As project director, David Weikart provided guidance as the work evolved. Eric Chapman and Roger Rugg, field services coordinators; Charles Hohmann, curriculum development coordinator; and Jerry Goebel, training coordinator, each guided the development of sections of the work.

All staff contributed to make this report. Marion Erickson, curriculum developer, refined "Theoretical Foundations of the Cognitively Oriented Curriculum" and "Application of Theory to Classroom Practice." Eric Chapman and John Nowosad and the Follow Through field staff produced the section of "Field Issues." Field consultants Edwin Graham, Carolyn Jackson, Sam Hannibal, Donna McClelland, J. Victor Milner, and Dennis Vigil each contributed to the development and refinement of the program through their field experience and expertise. Program developers Sheila Mainwaring and Alice Hudson and the training and development interns, Grace Hsu, Lynne Seifert, and Clay Shouse, examined the concepts and methodologies espoused both in the field and at the Staff Training and Development Center and recorded the results of each attempt. Beth Schoppa and Gay Garcia typed and proofread each edition. Maria Zsigmond designed the cover.

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**Section 1**

**THE HIGH/SCOPE EARLY ELEMENTARY PROGRAM**

# The High/Scope Early Elementary Program



**THE HIGH/SCOPE EARLY ELEMENTARY PROGRAM**

**Cognitively Oriented Curriculum  
for Project Follow Through  
Grades K-3**

**High/Scope Educational Research Foundation  
125 North Huron Street  
Ypsilanti, Michigan 48197**

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## Preface

The High/Scope Foundation's participation as a sponsor in National Follow Through dates from the fall of 1968. With funding administered through Eastern Michigan University, a Follow Through program for grades K-3, closely related in theoretical orientation to preschool work begun in Ypsilanti in 1962, was put into operation at three sites: Okaloosa County, Florida; Leflore County, Mississippi; and P.S. 92 in Harlem, New York City. In the fall of 1969 two additional sites were added: Central Ozarks, Missouri, a program involving three cooperating school systems; and the Howland and Lathrop schools in Chicago. In the summer of 1970, the High/Scope Educational Research Foundation became independent as a non-profit and tax-exempt foundation. In the fall of 1970 five additional communities chose High/Scope Foundation Follow Through sponsorship: Greeley, Trinidad, and Denver in Colorado; Riverton, Wyoming, which included a non-public Indian reservation school in the local project; and Seattle, Washington. This group of ten centers, representing all areas of the United States but the Southwest, enrolled over 3500 children during the 1971-72 school year, with 50% of the enrollment black, 38% white, and 12% Indian and Spanish surnamed.

This booklet is a description of the High/Scope Cognitively Oriented Curriculum for Follow Through. The *overview* contains a statement of the scope of the program, its major concerns with regard to teachers, parents and children, and presents lists of objectives for these three groups. It summarizes the classroom program and curriculum framework, and gives a statement of the philosophy behind the staff model.

The second section, on the *theoretical foundations* of the program, is a distillation of the developmental theory of Piaget in terms of the learner, the learning process and the "content" of learning from a cognitive point of view. This section also presents a summary of the major principles of Piagetian theory and their practical implications for the classroom.

This is followed by a detailed discussion of the *application of theory to classroom practice*. This is an in-depth statement of the Cognitively Oriented Curriculum centering on the structure of the classroom environment and the sequencing of learning experiences.

The next section describes the *classroom program operations and staff roles* for the High/Scope model. This is followed by a statement on the integration of the cognitive approach to learning with academic subject areas and a list of the *instructional programs* recommended by the sponsor to achieve this integration.

*Parent participation* is then discussed, with emphasis on educational home visits, parent group meetings, and parent volunteers in the classroom.

The final two sections are concerned with the *delivery system* for the Cognitively Oriented program—including staff training, program monitoring, and training materials—and *sponsor evaluation* of Cognitively Oriented programs.

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# THE HIGH/SCOPE EARLY ELEMENTARY PROGRAM

## 1

### Overview of the Cognitively Oriented Curriculum

The development of the High/Scope Cognitively Oriented Curriculum began in 1962 in the Ypsilanti–Perry Preschool project. The first two years of this project were used to explore various dimensions of curriculum development, and to integrate curriculum structure with the traditional child-centered focus prevalent in preschool education at the time. Through the dialogue of teachers, parents, research staff and consultants, the program became oriented toward the developmental theories of Piaget and some of the classroom methodologies proposed by Sara Smilansky. By 1964 the curriculum reflected a serious attempt to integrate these child development theories into a viable educational program. In 1968 this curriculum development effort was extended downward to include a curriculum for infant education developed under the auspices of the Carnegie Corporation, and upward to early elementary education under the auspices of National Follow Through.

The Cognitively Oriented Curriculum is an “open framework” approach that places both the teacher and the child in active, initiating roles. It attempts to blend the virtues of purposeful teaching with open-ended, child-initiated activities.

#### Scope of the Program

The High/Scope Cognitively Oriented Curriculum for Follow Through is concerned with educational change through the implementation of a curriculum framework based on Piagetian developmental theory. This framework focuses on the underlying cognitive processes that are the ground from which the child learns the formal systems for acquiring and organizing knowledge of the world.

Implementation of the curriculum centers on training of the *teaching staff*, and the development of training procedures and materials is of the highest priority in the High/Scope program.

Of equal importance is the involvement of *parents* in the process of education. This is achieved primarily through educational home visits by teaching staff, and by participation of parents in the classroom program and on policy advisory committees.

The High/Scope program’s concerns for *children* begin with the belief that education must be “real life” for children, that children will enjoy school and learn to think with confidence in themselves and openness to others...

- If they have the *right* to be active and are encouraged to speak.
- If the materials in the classroom are challenging, accessible and can be used in a variety of ways.
- If the teachers are involved with the children and understand their ways of thinking and feeling.

## Objectives of the Program

The overriding objective for the Cognitively Oriented program is to provide a classroom environment that is optimally conducive to cognitive development. To do this, supervisor, teacher and child must be actively involved. General goals to facilitate the teacher's involvement in the learning process are given below. These are followed by a listing of goals for curriculum assistants (supervisors). Goals for children are given in terms of both classroom process and educational outcomes.

### Goals for Teachers

The teaching staff in a Cognitively Oriented program must:

*Establish a consistent but flexible daily routine* that includes time for planning by children, time for individual and group activity, and time for recalling and reviewing the day's events.

*Arrange the room in a way that makes sense to the children* and makes them feel that it is *their* classroom—by dividing the room into several work areas; using planning boards that represent the work areas; making equipment accessible to the children; placing similar items together to help children learn to classify and order; labeling shelves and drawers with pictures of the contents.

*Provide for active learning*—by encouraging children to discover concepts and ideas for themselves; helping children to plan and carry out their own activities; showing children how to use all of their senses in investigating something new; helping children to experience new concepts physically, not merely in words.

*Use language as a tool for thinking*—by asking “divergent” questions (questions with many possible “right” answers); encouraging children to express their ideas in words, to each other as well as to adults; modeling language usage but not correcting grammar or pronunciation; responding to and expanding children's remarks; helping children learn new words for things and for relations among things (concepts).

*Sequence activities from concrete to abstract*—by beginning each new unit or theme with a *concrete experience*, using *real objects*; helping children to *represent* objects and experience through art work, block building, use of toys in play, make-believe, role play, and storytelling; familiarizing children with the purpose of written language, the most abstract form of representation.

*Collect and organize materials* to provide experience in:

*Temporal relations*—for example, help children experience and label the beginning and end of time intervals, using signals, timers, “start and stop” games.

*Spatial relations*—for example, help children find out how things fit together, how they look when turned, folded, twisted, tied, stacked, stretched, how they look from different viewpoints and angles

*Classification*—for example, encourage children to investigate the uses and attributes of objects and to describe similarities and differences between them.

*Seriation*—for example, help children arrange materials in order along a continuum from soft to hard, smooth to rough, little to big, etc.

*Number*—for example, give children sets of distinct objects such as buttons or beads to arrange and rearrange; help children match a spoken number to an object as they count.

*Organize learning around themes or units, such as:*

*The Child*—his unique characteristics (name, appearance, belongings, family).

*The Classroom*—the things in it and in the immediate environment.

*The Community*—the people and places that can be visited on field trips; seasonal changes that may be directly observed; holidays.

*Evaluate pupil progress* in terms of individual progress toward program goals rather than grade-level standards.

In addition, teachers must demonstrate their knowledge of the Cognitively Oriented Curriculum in the following ways:

Teachers state general Follow Through goals (a) in terms of their particular site, (b) in terms of national project.

Teachers state rationale of High/Scope curriculum goals and sequences of activity in terms of cognitive theory.

Teachers show an understanding of the instructional model by implementing it themselves and by training their aide(s) in it.

Teachers demonstrate competence in achieving the goals of the various curricular areas (as assessed by local and High/Scope supervisory staff and evaluation of pupil performance).

### Goals for Curriculum Assistants

The curriculum assistant (CA) trains and supports the teaching staff by active involvement in regular classroom procedures, by conducting workshops for the

purpose of implementing the model, by assisting with long- and short-term planning and evaluation.

The CA communicates the needs of the children and the teachers to the appropriate project staff or school staff, and checks to see that action is taken.

Teachers and CA's regularly use observational techniques such as checklists or interaction analysis systems in order to identify the level and method of functioning of individual children and adults in the classroom.

CA's act as resource people to teachers, parents, school staff, and other interested parties, in answering questions and/or providing references on interpretation and implementation of curriculum.

### **Goals for Children**

#### **Classroom process:**

Child-initiated contacts between children and adults should be frequent and more casual than formal.

Activities in which children interact primarily with materials should be constructive, and a given activity should be pursued over a period of time.

Children should demonstrate ability to represent ideas at increasingly abstract levels.

Children should make choices for themselves, and these should be respected by the adults in the classroom.

Children should choose some activities themselves and complete these activities without adult intervention.

Children should organize and carry out cooperative activities.

The use of materials in the environment should be generally productive, rarely destructive.

Part of the classroom routine should involve deliberate planning and reporting of activities by children.

The introduction and/or elaboration of materials should be characterized by the children's physical involvement whenever possible; if involvement is limited to verbal activity, groups should be kept small so that children get as much opportunity to participate as possible.

In the process of learning, children should communicate their ideas and information in a variety of tangible forms which can demonstrate pupil progress

(e.g., stories, charts, graphs, verbal expression).

Outcomes for children—children will show growth in:

*Cognition (or thinking ability)*, by demonstrating ability to function at increasingly higher levels in tasks requiring

- classification
- seriation
- spatial relations
- time relations
- number concepts
- causality
- representation of ideas

*Social development*, by demonstrating increasing ability to

- recognize self as an individual
- recognize self as a member of a group
- recognize self in relation to social, physical environment
- interact with teachers and other children
- plan and evaluate for self

*Academic skills and learning processes*, by demonstrating increasing competence in utilizing the skills and processes emphasized in the following academic programs:

- Taba Social Studies Curriculum
- AAAS and SCIS science programs
- Nuffield mathematics
- Language Experience in Reading

*Physical skills* (large and small muscle)

- balance
- rhythm
- coordination

*Music and art skills and interests*

- enjoyment
- expression
- awareness of environment

### Summary of the Classroom Program

The High/Scope Cognitively Oriented Curriculum for Follow Through is concerned with the development of children's thinking skills, communication skills, and academic skills. Thinking skills, or powers of reasoning, are at the center of this program, because they are

the foundation for all learning.

*Thinking skills* come from the master, of logical, mathematical, scientific and social concepts. Children learn them through active experience with a variety of objects, people, and materials, both inside and outside the classroom. To provide for this active experience, children in our classrooms are free to make their own plans and carry them through, doing what is natural at their stage of development—building, arranging, ordering, exploring, solving problems, naming, discussing, trying out ideas. During more structured times of the school day, teachers give children practice in specific thinking skills, such as classifying a variety of objects and giving reasons for the groupings they have formed.

*Communication skills* are connected with the thinking skills developed through planning and doing. Children in our classrooms review and represent their plans and experiences by such activities as talking in groups, dictating and writing stories, role playing, drawing and painting, making diagrams and charts. Through such activities they evaluate their work and communicate what they have learned and felt.

Under *academic skills*, children in our classrooms are taught to read, write, spell and compute on an individual basis; that is, each child is allowed to work at his own pace and according to his own pattern of mental development. It is the teacher's job to see that the child has the thinking skills necessary for arithmetic and reading to be meaningful for him. For example, learning to count by rote is less significant, and easier, than gaining an understanding of number, and without such an understanding, counting will mean nothing to the child.

The teachers in the High/Scope model are guided by a *curriculum framework* that orients them to the way children think and behave at different stages of development. This "open framework" gives the teacher a basis for planning and a reason for doing. It is a source of ideas for activities that strengthen children's thinking, communication and academic skills.

### The Curriculum Framework

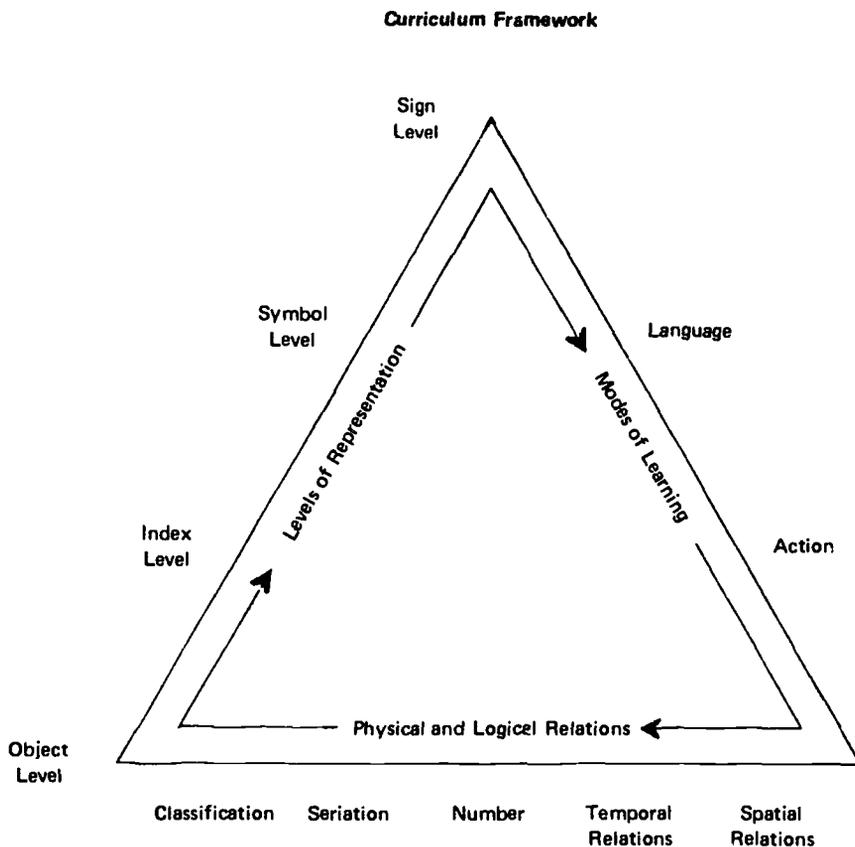
The Cognitively Oriented Curriculum is not a course of study for the child—it is for the *teacher*:

- To help her understand how children organize the world in their minds.
- To enable her to organize a classroom environment that is attuned to the individual child, to the group, and to the culture of the community being served.
- To give her the knowledge and the guidance she needs to be an effective teacher.

The overall objective for every Cognitively Oriented classroom is to create an orderly and predictable environment that nurtures and strengthens the natural process of intellectual (i.e., cognitive) growth in the young child.

The teacher is expected to be actively involved in this learning process. The purpose of the curriculum framework is to orient the teacher to the most important observable things

children do at different stages of cognitive development, and thereby to give her a basis for planning activities and observing children. Her knowledge of the elements of the three-sided framework presented below enables her to provide "cognitive perspective" to children's explorations and discoveries—to shape their diverse experiences into significant conceptual learning.



One part of the framework is the *Levels of Representation*. The very young child learns about the world entirely through his actions with objects and people—he learns how things feel, smell, taste, what shape they are, how they can be used. He learns that parts (or "indexes") of objects represent the whole—the earliest form of representation.

As he grows, he learns to identify and interpret "symbols": pictures and models of objects, people, and events.

Signs (written words and numerals) are the most abstract form of representation—a child learns to "read" symbols before he learns to read letters and numerals.

The early mode of learning—through action—doesn't disappear once a child learns to read. It is the way all learning of concepts begins. So the learning of math concepts begins, not by rote counting and memorization, but by direct experience, the kind of experience through which a child learns that objects can be ordered, arranged, counted, grouped.

While academic skills are taught in Cognitively Oriented programs, the prime emphasis is on the logical, mathematical, and scientific concepts formed by the child through experience with materials, people and places.

Logical-mathematical experience and spatial-temporal experience are categorized in the curriculum framework as *Physical and Logical Relations*. In this domain, children gain experience in *classifying*—forming groups on the basis of similarities and differences in attributes and use; and in *seriating*—ordering objects along a dimension; a combination of seriation and classification concepts leads to the all-important concept of *number*. Children gain experience in *spatial* and *temporal relations*—concepts that orient a person in time and space, and that help him to organize his experience of the world in his mind.

All of these areas of experience proceed from simple, concrete actions to more complex, abstract activity that is primarily mental.

The third part of the framework, which concentrates on the predominant *Modes of Learning*—action and language—summarizes what is probably the most important lesson for teachers about the learning process: that children develop concepts in a sequence from purely bodily experience, to coordinated action with objects, to purely mental actions involving verbal or mathematical propositions. Logical thought begins with physical action, and only gradually does language assume equal importance.

The theoretical framework provides the basis for teacher training in the Cognitively Oriented Curriculum. Certain key ideas follow from this theoretical orientation—ideas that teachers in Cognitively Oriented programs must absorb and implement:

- All learning begins with activity and direct experience.
- We should move away from the classroom wholly dominated by the teacher and allow the children to choose what to do and how to do it.
- The teacher should provide alternative activities within a range that encompasses the developmental levels of her group of children.
- Children should be encouraged to talk rather than be forced to be quiet. Active involvement means naming, questioning, discussing, defining, as well as exploring and doing.
- In planning classroom activities, teachers should exploit all the opportunities for intellectual growth in the everyday environment. Raw materials for all areas of the curriculum abound in the home, at play, and at school.
- Good planning also means collecting and organizing materials to provide experience in classification, seriation, number, temporal and spatial relations.

- The teacher should establish a flexible and consistent daily routine that includes time for planning by children, time for individual and group activity, and time for recalling and reviewing the day's events.
- Academic subjects should be integrated with cognitive experience, so that academic content becomes a means for the development of reason.
- The commercial materials used should support this integration of concepts and skills: in science, in mathematics, in social studies, and in communication.
- Dividing the classroom into learning centers for independent and cooperative activities is one important way to make the child's school world a laboratory for learning and a place for meeting.

The Cognitively Oriented Curriculum has evolved through ten years of effort aimed at discovering some of the practical truths about how to nurture and strengthen the natural process of mental growth.

It is not a product, not a package, not a kit; it is not an ointment a teacher dabs on a child's mind. It is a way of *understanding* a child's mind, and a guide to action.

### The Staff Model

A good curriculum is not sufficient in itself to guarantee an adequate and productive school experience for young children. The specific curriculum employed is only part of the program. Critical, and perhaps even more essential than the curriculum itself, is the way in which school staff function and interact to produce a school experience—that is, the way in which the staff accommodate the day-to-day demands made on themselves and on the children. This context for operation is called the staff model.

Research by the High/Scope Foundation in connection with other projects has demonstrated the importance of a carefully structured staff model. The staff model design for the Cognitively Oriented Follow Through program, including teachers, teacher aides, project director, and curriculum assistants (CA's), reflects the experience of the Ypsilanti Preschool Curriculum Demonstration Project, in which variation in program success corresponded significantly with variation in the staff model.

A teacher working in this Follow Through program must adopt the theoretical position which is the basis of the program and operate according to it, but the specific program she creates is uniquely hers, developed as an expression of her attempt to meet the developmental needs of the children in her group. At the same time, since the curriculum is based on a specific theory, the teacher's use of the curriculum framework can be closely examined by others familiar with both the theory and the children in the classroom, in order to provide the teacher with guidance and assistance, and to facilitate quality control of the program. Such supervision and quality control, which are crucial to the success of the program, are provided locally by the CA's and the project director and through consultation, training, and review by the sponsor's field staff.

The role of the teacher and supervisor in making the program effective is discussed below. While all aspects of the staff model interact to produce a school program which "works", they will be discussed separately. The most important components are:

- 1) The involvement of the teacher in planning within the curriculum
- 2) Participation in the give and take of a team teaching situation
- 3) Supervision by a knowledgeable curriculum supervisor

*Planning.* In the Cognitively Oriented Curriculum the classroom teacher is the essential element in the success of the program. In research projects using this curriculum model, teachers do best with those activities they themselves have created for the use of the particular children enrolled in their program. Rejected completely is the utilization of curriculum "scripts" of what to think, what to say, and how to achieve a particular goal. Instead, the Cognitively Oriented Curriculum offers a series of cognitive goals to guide classroom activity planning. Given this absence of prescription, planning becomes an extremely important function of the teacher in this program. Successful planning means that the teacher works within the curriculum framework, is willing to focus her attention upon key issues, and devotes sufficient time to the process of planning.

Planning time provides an opportunity to think about key issues of curriculum operation within the program. A major problem faced in any school is the use of time by both the children and the teacher. While ample opportunity should be provided for the individual child to explore materials on his own, a teacher must be very active in the pacing of the program to optimize the time spent in school. Careful advance planning will assist the teacher in reaching this objective. Advance planning can also "tag" wasted time which can be eliminated, for instance, when groups of children stand in line waiting to go somewhere. Planning provides occasion to focus upon elements that might be overlooked when "playing it by ear". For example, how many decisions can be made by each child during the activity being offered? Does the planned activity permit each child to be actively involved?

Through planning, an educational focus may be given to all classroom problems, including discipline. The classroom environment and routine can serve to structure the child's behavior; that is, areas of activity are clearly defined for the child, and he knows what he can or cannot do within an area. The routine clearly allows him to anticipate activities and even "plan" his own time. In the Cognitively Oriented Curriculum, a central question asked during planning sessions is, How can the instructional program be adapted to the level at which a particular child is operating? With this kind of focus, there is seldom any need for additional measures.

Given the range and importance of the teacher's planning responsibilities, sufficient time must be allotted in the teacher's weekly work schedule for preparation. Time for evaluating the results of the plans is included in the planning and documenting system.

In actual program operation there is general resistance from the staff to detailed planning. It is usually easier to respond to the myriad day-to-day problems as they occur than to allot adequate time for planning. However, planning in detail by teachers is a crucial

component of successful program operation. It is a difficult task, but it is the way to reach the desired level of child growth.

*Team Teaching.* Teachers, aides, and volunteers working together in a classroom and sharing educational goals, methods, and outlook constitute a teaching team.

On the whole, classroom staff functioning in a team teaching setting have advantages for producing superior programming over staff working in a clearly defined hierarchy. A general tendency of any project designed for efficient operation is to organize staff into levels of professional responsibility. This may be a natural outcome of professional experience and aspirations and a need for clear-cut assignment of responsibility, but it may also hinder successful programming. It is essential that all members of the classroom staff fully attend to the problems of education within the classroom. The teaching team emphasizes the role of all members in discussing curriculum theory and adjusting the curriculum to the individual needs of the children. The teaching team itself monitors the teaching behavior of each member, develops a variety of activities in accordance with the curriculum theory, and, in general, places the focus upon key issues that must be kept constantly before the total staff.

A properly functioning team is an excellent source of in-service training. Teachers working together can have an additional opportunity to observe children responding to specific lesson and program ideas. They begin to specialize in curriculum areas of special concern to them, and the information thus gained is passed on to the others in the program. The constructive criticism that may result leads to improved teaching performance.

Classroom aides are, of course, an integral part of process give and take. Aides frequently do not have an extensive formal education, and often their expectations for children differ from those of the professional teachers, especially in the area of classroom discipline. The tasks of honestly explaining the rationale for the classroom program and the concrete extension of theoretical ideas into actual practice are excellent learning experiences for both aides and teachers.

*Supervision.* Adequate supervision is the most essential ingredient of the staff model. Effective planning with careful focus on classroom educational problems and team teaching that fully implements the plans is made possible through adequate supervision. Supervision provides support to the teaching staff through assistance with classroom problems, in-service training in the curriculum, "advice and comfort" in coping with administrative structures, and direct facilitation of decision making. The CA, or local curriculum supervisor in the High/Scope Follow Through program, should be an experienced teacher who has learned the curriculum through in-service training and direct experience in the classroom.

The CA is not an administrator and should spend little time in any administrative function. This restriction is absolutely critical. If the CA must give time to administrative matters such as attendance, staffing policies, community liaison, and ordering supplies, then he or she will not be able to provide the support necessary for successful operation of the program.

While the CA must fend off both the temptation and the pressure to be involved in

administrative work, it is important for him or her to present instructional problems to administrators. The CA must be willing to speak out for the teaching team and to identify forcefully to the administrators the problems that the teachers feel are real.

The major tasks of the CA are in direct assistance to the classroom team. He or she reviews the plans the teachers have prepared, observes in the classroom for extended periods of time, and arranges for videotapes to be made of key lessons. The CA raises questions for the teaching team about the program operation, planning, and teaching functions. In addition, he or she is the referee for any problems within the team, bringing the difficulties out into the open rather than allowing them to be smoothed over.

Since genuine program difficulties with individual children and among staff can be a basis for program improvement, to smooth them over is to avoid the opportunities they provide.

From the knowledge and overview the CA gains in giving direct assistance to the classroom team, an adequate in-service training program can be developed specifically for that team. Discussion of lesson plans and application of those plans lead naturally into discussion of the theory upon which the curriculum is based. Demonstration teaching by the CA can give team members an opportunity to watch their children reacting to planned lessons.

The role of the CA is often accepted with considerable hesitation by administrators, teachers, and even CA's themselves. However, the CA's role is obviously crucial. The CA is clearly responsible for holding the teachers to the instructional tasks at hand, raising appropriate questions, and helping teachers find educational solutions within the curriculum framework. He or she serves as the balance wheel in the implementation of the Cognitively Oriented Curriculum, maintaining, through supportive services and through dedication and knowledge, the momentum that the staff has generated.

## Theoretical Foundations of the Cognitively Oriented Curriculum

Over the past half century, the Swiss psychologist Jean Piaget and his colleagues have, through patient observation of children, accumulated a body of evidence documenting the growth of intellect from birth through adolescence. Piaget has systematized these observations in a developmental theory of knowledge. This theory contains universal principles of human development, from which the major premises of the Cognitively Oriented Curriculum are derived.

The theoretical framework and instructional methods developed by High/Scope Foundation staff from Piagetian theory provide a basis for the education of children in preschool and the early elementary grades. While Piagetian theory is not intended as educational theory, it presents valuable precepts about *the learner*, *the learning process*, and *the structure of content*. These precepts have been considered carefully in the formulation of the Cognitively Oriented Curriculum.

Piaget describes the learner in terms of the "cognitive behavior" that characterizes his mental functioning at various stages of development. He describes the learning process in terms of changes that occur within the child as a result of incorporating new experiences into the existing structures and adapting the existing structures to accommodate new experiences. Content is considered in terms of the concepts that serve as the organizing framework for all areas of learning.

Using these characteristics of the learner, the learning process, and the structure of content, it is possible to develop a framework that will serve as a guide for:

- Determination of goals
- Selection of activities
- Sequencing of activities
- Assessment of cognitive levels
- Teaching strategies
- Classroom procedures

A brief review of that portion of Piaget's theory which relates to the learner, the learning process, and the structure of content will provide the background for a description of High/Scope Foundation's Cognitively Oriented Curriculum (see Section 3).

### The Learner

Piaget describes the child in terms of developmental stages, each characterized by certain kinds of cognitive behavior and each contributing to the development of the next stage.

The developmental stages commonly referred to as sensory-motor, concrete operations,

and formal operations are better understood if one is familiar with the term operations as used by Piaget. An operation in his context is an internal action which is coordinated with other actions within a stable organization. As explained by Piaget:

Knowledge is not a copy of reality. To know an object, to know an event, is not simply to look at it and make a mental copy or image of it. To know an object is to act on it. To know is to modify, to transform the object, and to understand the process of this transformation, and as a consequence to understand the way the object is constructed. An operation is thus the essence of knowledge; it is an interiorized action which modifies the object of knowledge. For instance, an operation would consist of ordering, or putting things in a series. Or an operation would consist of counting or of measuring. In other words, it is a set of actions modifying the object, and enabling the knower to get at the structures of the transformation.<sup>1</sup>

When a child sees water poured from a tall narrow container into a short, wide container and declares that the amount of water is the same, even though it appears to be different, he is functioning on the operations level. He is mentally coordinating his knowledge about water (it can be poured, can change shape to fit the container, and can be returned to the original form) and his knowledge about dimensions (height can be compensated for by width in the container) with his comprehension that nothing has been added or taken away. His conclusion that the amount remains the same is a result of mental activity. There is no need for physical action to solve the problem. The child who has not yet reached the stage of operations is unable to coordinate the dimensions of the containers and his knowledge about water and will focus on only one feature, the water level. On this basis he will declare that the amount of water is more, or less, depending upon the level in the container.

Operations cannot be explained without giving some consideration to reversibility, a mental process involved in operations. Before the child develops reversibility, he can consider only static states. The child who has developed reversibility can move forward and backward in thought; he can consider the transformations that take place when materials are changed from one form to another. In the task of pouring water from one container to another, the child knows that he can reverse the process and return the water to its previous container. It is this ability to consider a previous state while at the same time considering the present state that enables the child to recognize and explain the transformations that account for changes in form or appearance.

In performing operations the child uses cognitive concepts (classification, seriation, spatial and temporal concepts, number) but is not aware that he is doing so. He uses them because they are a necessary part of performing the task. The experiences the child has with objects during the preoperational (before operations) period provide him with knowledge about objects which is necessary before actions upon those objects become operations. For example, at the sensory-motor and preoperational stage the child begins to establish a basis for constructing relations of similarity and difference as he physically groups objects in

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<sup>1</sup>Piaget, J. Cognitive development in children: the Piaget Papers. In R. E. Ripple & V. N. Rockcastle (Ed.) Piaget rediscovered: Ithaca School of Education. Cornell University: March, 1964, p. 8.

various ways. At the operational stage the child can add and subtract classes (animals and plants combine to make a class of living things), separate a group (class) into subgroups and recombine them mentally.

Because operations are internal actions, they cannot be directly observed but must be assumed from the behavior and responses of the individual.

Piaget has described the transitions that take place in the development of operations in terms of patterns of behavior characteristic of the different stages of development. The stages identified as sensory-motor, preoperational, concrete operational and formal operational each make a distinct contribution to, and represent an advancement in, intellectual functioning. Familiarity with the stages helps the teacher to understand how a child thinks and learns at different stages. It provides information about the child's cognitive abilities and limitations, and it makes it possible to plan experiences on the basis of what the child had previously accomplished intellectually and what he will be ready to accomplish next.

*The Sensory-Motor Stage.* The sensory-motor stage, which includes the time from birth to approximately 18 months of age, provides the foundation for intellectual functioning. It is during this stage that the child develops knowledge about his environment through sensory-motor actions upon objects. As a result of his actions, he gains practical knowledge of space, cause and effect, forms, and various attributes of objects. Single sensory-motor actions are gradually coordinated into action schemes which permit the child to respond to an ever increasing number of objects. Each new experience involves the assimilation of that experience to the existing schemes; thus, newly assimilated experiences expand the existing schemes and the new experience is coordinated with other schemes. As implied by the label "sensory-motor", the child's "thinking" at this stage is in the form of external actions upon objects and events in his environment.

Two important concepts develop during this time: the concepts of constancy and permanence. These two concepts make it possible for the child to realize that objects remain the same in spite of changes in perspective or distance, and that whole objects continue to exist even though he cannot see them or can see only a part of them.

At the sensory-motor stage, the child's knowledge consists of actions related to objects. As the child progresses through the post-infancy years, his cognitive actions become internalized, schematic and transferable to more situations.

*The Preoperational Stage.* The preoperational stage is actually the beginning period of operational behavior. At this stage the child's thinking behavior is internal and tends toward, but does not achieve, the stage of operations; the child is not yet able to coordinate relationships to achieve logical reasoning. The major preoperational achievements are the development of relational structures (systems of classification, order, spatial and temporal relations, numeral order, causal relations, cause and effect) and the development of representation.

During this period the actions of the sensory-motor period are internalized, which is essential to the process of thinking. From this internalization the child can reconstruct an object or situation in his mind and act it out in some form of representation that is meaningful to him. For example, the two-year-old who frequently rides the ferryboat gains knowledge about appearance, movement, sound and location. He later represents this information in various ways, which may range from moving his breakfast toast along the edge of the table and making the ferryboat sound, to using a block or toy boat to convey cars from port to port. The child may also be able to recognize and react to a picture of a boat. He no longer has to see or hear the ferryboat to react to it; he can reconstruct it mentally and can therefore respond to the picture as a representation of a real boat.

This behavior is indeed an accomplishment beyond the direct action of the sensory-motor stage, but the preoperational child's representations are still isolated acts which do not involve a system of coordinated and mobile relationships. They are merely reconstructions of an earlier action or event that use only what the child already knows without relating it to other systems. The absence of a system places definite limitations upon cognitive performance. For example, a young child is presented with two identical jars of water, A and B, and is asked to pour the water from jar A into jar C, which is taller and narrower. When asked whether jar C contains the same amount of water as jar B, the child responds to the level of water in the taller jar and answers that jar C contains more water. This preoperational child's thought is dominated by his perceptions rather than by logic. Factors which contribute to this kind of reasoning are:

(1) The inability to consider more than one feature at a time. In the illustration of pouring water from one container to another, the child focused on the level of the water (height) and ignored the other dimensions of the container.

(2) The tendency to focus upon states rather than transformations. In this regard the child focused on a condition at different points but was unable to construct the relationships that linked one condition to the other. In the task of pouring the water from one container to another, the child considered the appearance of the water both before and after pouring when a difference became evident, but ignored the action which could have explained the transformation.

(3) The ability to mentally reverse actions. Once the transformation has been accomplished, the preoperational-stage child does not attempt to think about the process by returning the water to its former stage.

Another limitation upon the preoperational child's cognitive functioning is his "egocentrism", or inability to see things from another person's viewpoint. He believes that other people experience things in the same way as he does, and hence he makes no effort to adapt his speech or behavior to the needs of others. The gradual erosion of egocentrism is called "decentering".

The preoperational child also has difficulty in recognizing cause-and-effect relationships. At this stage his explanations about causality lack verifiable causes and may be constructed from subjective notions (God made it do that); finalistic (a river flows so it can get to the lake); phenomonistic—two facts are put together but have no cause-effect relationship (ice melts because it's cold outdoors); or magical (the space ship is being pushed by Mighty

Mouse). These initial kinds of explanations are replaced by explanations that are animistic, dynamic and artificial. In the subsequent explanations, the child has the tendency to explain cause and effect by attributing life to objects (clouds move because they are alive) and by attributing power to objects (clouds move because they want to).

In summary, preoperational thought reflects much of the earlier character of sensory-motor behavior. In terms of thought, the child is very concrete, static, visually dominated, unsocialized, unconcerned with proof and unaware of the effects of his communication upon others.

*The Concrete Operational Stage.* The child at the concrete operational stage, while still tied to direct experience, can coordinate experiences in a way that results in logical thinking. The single actions which were assimilated during the preoperational period are gradually combined with other internalized actions and finally become the coherent, integrated system which constitutes operations.

The concrete operational child who, at an earlier stage, was able to consider only one dimension of an object or only part of a system now exhibits the ability to think about two perceptions simultaneously (the glass is taller and thinner) and, consequently, to consider the compensation of one dimension for another in answering the question whether the water from one jar is the same amount when poured into a jar of different dimensions. Temporal relations are now understood as a system whose elements can be separated, combined, and integrated into other systems (time and space produce velocity). Elements are seriated along a continuous scale. The separate actions and relationships are coordinated into operations referred to as "groupings" because they involve a combination of mental operations which enables the child to deal simultaneously with several aspects of a problem.

There are several factors that enable the concrete operational child to perform operations which could not be performed by the child at the preoperational level. They are the abilities that permit reversibility of thought, seeing a situation from another's viewpoint, conservation of substance, coordination of cardinality and ordinality of numbers, and simultaneous coordination of several relationships. These abilities enable the child to think of parts and wholes at the same time, to move forward and backward in time (which permits recall, predicting, hypothesizing), and to hold a central idea in mind while performing an operation.

*The Formal Operational Stage.* The final stage in the operational period, formal operations, which appears during early adolescence, marks the beginning of the ability to classify, order, enumerate, and perform operations as verbal propositions. Being no longer tied to factual experience, the child can deal with situations that he has not previously encountered. He can reason inductively, formulate an hypothesis, consider possibilities and probabilities and present verbal arguments. As the child begins to systematize his concrete operations he becomes able to operate with the sum total of possibilities rather than concrete situations. With the final steps of decentering and reversibility comes the ability to reflect, evaluate, and criticize one's own thoughts.

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The preoperational and concrete operational stages have been described in some detail because these are the stages at which most preschool and early elementary children are functioning. Most kindergarten and many first-grade children will perform at the preoperational stage, a few will perform concrete operations in some situations, and occasionally a child will deal with a situation at the formal operations stage. While children in the first, second and third grades will fall into both the preoperational and concrete operational stages, the proportion of those at the concrete operations stage will increase in direct relation to grade advancement.

While the developmental stages are fairly clearly defined in Piaget's framework, the child's progression through the stages does not occur as abrupt changes from stage to stage. Each stage involves an initial period of preparation and a final period of achievement. In the preparation period, which resembles the former stage, the structures of the new stage of thought are in the process of formation and organization and are generally unstable. In the final period, the child achieves the behavior characteristic of that stage and exhibits more stability in his performance. During all stages there are irregularities. Children may perform at one stage in some tasks and at another stage in others. They may revert to an earlier stage in some kinds of tasks and go beyond expectations in others.

### The Learning Process

Piaget's description of the stages of development is useful for understanding the sequence of intellectual development and for recognizing the level at which a child is performing. To make this knowledge educationally productive it is necessary also to understand the process that explains the child's progression from one stage to the next. The progression is not due simply to an accumulation of knowledge, but rather to a continuous restructuring of the cognitive framework which enables the child to learn, or to take in and assimilate new information.

The learning process, as explained by Piaget, involves four major factors: (1) *maturation*, which refers to the increasing development of the nervous system; (2) *experience with the physical world*, which consists of gaining knowledge about objects and the actions that can be performed with them; (3) *social transmission*, which relates to learning from others by interaction with them; and (4) *self-regulation*, which is the achievement of balance between the external stimuli and the internal structure of the individual. Consideration of each of these factors will help to relate them to educational planning.

*Maturation.* Maturation is closely related to the developmental stages. As viewed by Piaget and others, maturation is a natural development which follows an orderly sequence that is similar among all human beings. Studies of human development indicate that all children go through the same developmental stages but that there is some variation in the ages at which children reach these stages. The variations, which exist among children of the same age in different cultures and among children of the same age in a common culture, are assumed to be due to differences in intelligence and in social and environmental factors. Like physical maturation, intellectual maturation is a predetermined process, but it can be affected to some degree by the nurture provided during the process.

*Experience with the Physical World.* Experience, which is the child's way of finding out about objects and what can be done with them, is obviously an important factor in the development of cognitive functioning. In explaining the role of experience Piaget describes two kinds of experience which, because of their psychological differences, require separate consideration. The first, *physical experience*, consists of the kinds of activities that involve observation and exploration which result in acquisition of knowledge about the properties of objects or events. They include experiences with plants, animals, objects, materials, and events which have certain recognizable attributes.

The other kind of experience, referred to as *logical-mathematical experience*, refers to actions which the child performs. They include actions such as separating, combining, equalizing, and arranging in various forms. These actions, often represented by mathematical symbols such as +, -, x, ÷, =, have their origin in activities with materials, but they are not directly tied to the materials. The action involved when a child discovers that he can combine two bags of marbles; arrange them in groups according to size, shape, color, number; seriate them by size; and count them in various ways without altering the number of marbles represents logical-mathematical experience. These experiences are concerned with the properties of the *action* performed (ordering, classifying, counting) rather than with the properties of the marbles. The early actions performed upon materials lay the foundation for concrete operations when the actions become coordinated, and for formal operations when the child is able to perform the logical-mathematical actions with ideas rather than with concrete materials.

*Social Transmission.* Social transmission refers to the learning that takes place as a result of teaching, imitation, demonstration and other interactions in which one person learns from another. Much of the learning that takes place in this way is self-initiated and self-regulated. It occurs because the child has the interest, the skill, the mental structure, and the opportunity to learn. When learning is imposed upon the child by others, as is often done at school, there is a problem of recognizing when the child has the interest, skill and mental structure to use the opportunity provided for him.

*Self-Regulation.* Self-regulation is considered by Piaget to be the most fundamental of the four factors that account for learning. It is the factor that explains how the other factors function in the learning process. Piaget uses the term *adaptation* to explain the change that takes place as the child progresses through the stages. As the child's cognitive framework adapts to more complex situations, he is able to move from one stage to the next.

The process of adaptation is commonly used to explain biological development, but it can also be used to explain cognitive development. Adaptation in both contexts involves two processes: *assimilation* and *accommodation*. Accommodation refers to the changes the organism makes in its own internal structure in order to assimilate the new material.

Since biological adaptations are more concrete and easier to observe, it is possible to illustrate cognitive adaptation with an example from biology. A simple biological example exists in the ingestion of food. If the food happens to be an apple, assimilation involves recognizing the properties and altering the apple in ways that make it possible to incorporate it into the existing structure. It must be chewed, swallowed, digested and

distributed through the body. Through that process the apple loses its identity and becomes a part of the total body structure by assimilation. At the time the organism was assimilating the apple, it was also making accommodations to the apple. The mouth, tongue and the teeth had to adjust to the peculiar shape, texture and hardness of the apple and had to recognize when the pieces were right for swallowing. Once it was swallowed, the enzymes specific to the chemical structure of the apple had to transform the apple so that it could be absorbed into the bloodstream and distributed throughout the system. The whole process was possible only because there was an organized, reliable structure for eating, processing and distributing food.

Cognitive adaptation, which is perhaps less obvious, functions in a way similar to such biological adaptation. Within the individual a structure exists which is able to receive stimuli (hear, see, taste, feel), process it (classify, order, compare), integrate it into an existing framework (adjust it to present knowledge), and incorporate it into the system (make it part of the cognitive system). Assimilation consists of receiving the stimuli and recognizing the properties of it; exploring and manipulating it to gain additional information; and adjusting, comparing and contrasting it with previous learning to make it fit the existing mental structure. Through the accommodation process, the existing concepts are expanded to include the new experience and this, in turn, makes it possible for the individual to deal with increasingly more complex material. As a result of accommodation there is constant expansion and reconstruction of concepts to include new situations, correction of misconceptions, and transference of knowledge from one situation to another. The new material is used to strengthen, sustain and extend concepts and make the organism increasingly able to acquire and process additional knowledge.

A major component of all four factors that contribute to learning is the symbolic system, which permits internalization and transmission of experiences through representation. A symbolic system makes it possible to consider situations and objects that are not actually present and thus greatly extends cognitive possibilities.

*The Development of Representation.* The process of representation requires a means of recalling and referring to an idea. Development of the ability to represent follows a sequential pattern beginning with the ability to represent an experience to oneself, followed by the ability to represent with symbols which relate closely to the actual situation, and ending with the use of arbitrary referents—signs—which have no resemblance to the objects they represent. There are, of course, transitional stages between these levels of functioning. Symbolic behavior follows a sequence that parallels cognitive development and reflects the cognitive skills characteristic of each of the developmental stages. In fact, representational behavior is one of the criteria for recognizing and assessing developmental stages.

The child's first knowledge of objects results from his own sensory-motor actions upon them. As the child gains familiarity with objects in his environment, he grows to expect certain things to happen and gradually develops the concept of object permanency. The concept of permanency is essential to representation because it enables the child to realize that objects remain essentially the same in his absence and that he can depend upon their attributes not changing. Dependence upon the actual object is gradually diminished as the child's knowledge of the object enables him to respond to a part of it just as he would to the total object. At this level, referred to by Piaget as the *index level* of representation, the child

is able to recognize a cat by its tail or its "meow", which serve as signifiers but are not separated from the real object.

By the time the child reaches the preoperational stage, some of his actions have become internalized. He represents his experiences in ways that are meaningful to him with no concern for communicating them to others. He makes objects and sounds stand for concepts, thoughts, images and actions. This level of representation in no way increases the child's knowledge or allows an operation. It can only represent what the child already knows. The characteristic egocentrism, centration and inability to represent space which are associated with preoperational behavior limit the child's ability to represent at this level. As these tendencies are corrected and overcome, the child develops the ability to represent operations.

The ability to perform actions mentally becomes increasingly useful during the period of concrete operations. At this stage the child is able to conduct mental experiments on things he has experienced previously. Representation now allows the child to solve a problem mentally without actually using the materials that were necessary at an earlier stage. For example, he no longer needs his counters to add three objects and four objects because he can do so mentally. He can now respond to a conservation task which involves consideration of two or more dimensions at the same time because he has had experience with the relations of dimensions in activities that included pouring liquids into containers of various sizes and shapes. He cannot, however, deal with an abstract proposition such as:

Mary, Sue and Nancy are together at the train station. Some members of this group are friends and some are strangers. How many strangers could there be?

While verbal representation, or language, is present from the preoperational stage and is useful as a referent and as a means of interaction and socialization, it does not provide an adequate tool for thinking until the formal operational stage.

### **The Structure of Content**

Understanding the environment requires some means of relating its diverse elements in a way that reduces the diversities so that they can be considered as systems rather than as separate entities.

The recognition of the need to organize information in ways that emphasize inter-relationships among parts, and relationships of parts to wholes, has resulted in the development of a number of curricula. Generally, these curricula relate to a particular subject area such as mathematics, science or social studies. Key concepts are identified and used as a means of organizing the information related to that subject. Curricula such as these help children to develop some major concepts and to organize a great deal of diverse information into generalizations that are useful for problem solving in that particular discipline.

Piaget suggests another way of organizing the environment that may have greater potential for the development of logical thinking because it results in the development of

systems for organizing information in all areas of learning. These systems are based, not on information, but on *actions* upon information such as classifying, ordering, counting, measuring, arranging. Piaget makes the point that there is a difference between the knowledge that is acquired passively through perceiving and copying the environment and the knowledge that is acquired as a result of mental operation. According to Piaget, the first form, in which knowledge is impressed upon the individual, is a reflection of the environment, but is not cognitive. The latter form, in which knowledge is acted upon, is cognitive. An example of this difference can be shown in relation to experiences with number. The abilities to count, to tell one's age, to recite addition facts and to write numerals are not cognitive when they are achieved through passive reception, that is, when they are acquired through the process of rote memorization with little knowledge of the system from which the content is derived. The abilities to arrange objects in a series based on numerical order, to coordinate cardinal and ordinal numbers, or to classify materials according to a common attribute are cognitive, because the actions are based upon knowledge of the system of which they are a part.

The use of relationship systems such as classification, seriation, time, space and number as a way of organizing experiences has three obvious advantages: (1) the relationship systems provide continuity for cognitive development because they are present at every stage of development, (2) they can be concretely demonstrated in experiences at every level, and (3) they follow patterns of development that demonstrate increasingly more complex use and can thus provide a means of assessing progress toward a final stage.

The three advantages for using the relationship systems as a means of organizing content can be illustrated with examples from the classification system:

(1) Classification is present at every stage of development. The child at the sensory-motor level becomes aware of similarities and differences, which is the basis for classification, as he discovers that some objects rattle, others do not; some objects are soft, others hard; some foods are good, others not. At the preoperational stage, the child recognizes common attributes among dogs, cats, and horses that differentiate them from inanimate objects and from each other. At the concrete and formal operational stages, classification becomes a system which permits the establishment of hierarchies of relationships, and relationships that change according to the attributes considered.

(2) Classification can be demonstrated in experiences at all levels. Awareness of organization of the environment can be developed in any context at any age. The fact that all things and events have attributes makes them potentially classifiable—they can be grouped as having the attribute or not having it. The opportunities for applying classification to materials, weather, food, clothing, transportation, attitudes, people are unlimited.

(3) Classification behavior follows patterns of development that demonstrate increasingly complex use and hence can provide a means of assessing progress toward a final step.

At the sensory-motor stage the child is aware of likenesses and differences in objects and is able to make some responses that demonstrate this perception in activities such as shaking and rattling objects, squeezing others, and in the later stages, fitting shapes into a form.

At the preoperational stage the child can group objects on the basis of perceptual, conceptual, functional or other attributes and can often state his reason for grouping. The system at this stage is generally not stable and the child frequently begins to classify by one attribute, and changes to another attribute before completing the task. Toward the end of the preoperational stage, the child is able to identify multiple attributes of an object, label categories, define criteria for membership and, on the basis of those criteria, accept or reject objects and reclassify objects according to new criteria.

At the concrete operational stage, the child is able to construct hierarchical classifications which show relationships among the individual parts that constitute a whole and among parts and the whole. At this stage the child can also solve problems involving class inclusion. Given red wooden beads and white wooden beads and asked whether there are more red beads or more wooden beads, the child will answer, "more wooden beads", because he is now able to compare a sub-class with the total class, which he could not do at the preoperational stage.

Multiplication of classes becomes possible for the child at the concrete operational stage. This involves simultaneous recognition and integration of two or more attributes, as in the formation of a matrix in which objects are arranged according to two dimensions.

At the stage of formal operations, the same classification relationships are used, but now the child can deal with situations that he has not previously experienced and can apply the classification system to propositions and hypothetical situations.

## Summary

The foregoing description of Piagetian theory contains principles of child development that, when applied in the classroom by teachers trained in the Cognitively Oriented approach, should appreciably alter the process of teaching and learning. Following are statements of the four principles most relevant to early childhood education together with brief descriptions of their practical consequences.

1. *Mental development follows an orderly, sequential pattern for all children.* A teacher's knowledge of the characteristic behavior at each stage of development has enormous practical value—it gives her criteria for determining a child's readiness to learn new attitudes, skills and ideas; it helps her determine the kinds of experiences that should be provided to ensure a child's continued development; it helps her understand a child's logic, the way he has pieced together the facts and images of his world.
2. *Young children's minds grow through direct, active experiences with real objects, real people, and real places.* Such concrete experience must precede, must be the basis for, the learning of abstract concepts. Therefore, school activities should be sequenced from concrete to abstract, and materials should be sequenced from the real to the symbolic.

3. *Learning is self-regulated.* While certain kinds of learning can be imposed on a child—for example, rote learning of numbers, days of the week, letters of the alphabet—the most significant learning, the kind that expands a child’s capacity for complex and creative thinking, occurs because the child has the interest, the skill and the readiness and the teacher has provided the opportunity. Such learning is usually initiated by the child himself when he is part of a supportive environment where he is encouraged to make and carry out his own plans.
  
4. *Social interaction is important to mental development.* The interaction among children that takes place in dramatic play, cooperative projects, sharing of equipment and space, and group activities gives children an opportunity to respond to each other’s ideas and behavior. Children can teach each other very effectively. The ability to communicate, which plays a vital role in mental development, requires a physical and social environment where children are encouraged to talk and to explore with each other.

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### 3

## Application of Piaget's Theory to Classroom Practice

The theory and principles discussed in the foregoing sections suggest classroom practices in the areas of *structuring the classroom environment* and *sequencing the learning experiences*.

### Structuring the Classroom Environment

The principles related to stages of development, learning modalities, self regulation of learning, and social interaction are especially relevant to the classroom environment. Inherent in these principles are the following assumptions:

(1) Children need a learning environment that encourages exploration, experimentation, discovery and social interaction. While the child may receive ideas from others, it is only as he tries out these ideas within the context of what he already knows that they become his own. Day after day in classrooms teachers observe how quickly some children "forget" what they "knew" only yesterday. The child who "knew" that it took four cups of water to fill a quart jar but cannot answer the question, "How many of these cups can be filled from the water in this jar?" is a common example of the inadequacy of information without knowledge and understanding.

(2) Children require different amounts of time for learning. The variations in knowledge and cognitive development that children bring to a learning situation and the differences in the accommodations made by different children make it unlikely that any lesson can promote learning equally well even when within a small group of children. The teacher can plan the learning experience, but the child must learn according to his own capacities. The teacher must provide both the motivation to move forward and the time to repeat an activity.

(3) Activities must be appropriate to the child's level of functioning. This assumes that the teacher can determine the child's level from his behavior and his responses to various learning situations. For example, the teacher who has decided to introduce standard measurement units to the children must decide which children have developed the basic concepts of measurement. A task such as determining the distance between bases for a game provides a natural opportunity to assess the levels of concept and skill development of various children. Some children will be able to measure the distance by placing one foot in front of the other, but be completely unaware of the need to begin a new unit where the last one ended when using a stick or a ruler for measuring. Some children will not recognize the need, or know the process, for tallying units or understand why the number of units differs when measuring devices of different dimensions are used; some will demonstrate comprehension of all the concepts and skills involved in measuring and be ready to learn about standard measuring units. From such observation the teacher can determine each child's readiness for a particular experience and plan instruction accordingly.

The classroom environment that supports the physical and social interactions described in these assumptions is one that:

- Encourages pupil activity in the form of pupil planning and self evaluation, independent use of materials, and communication of discoveries to others.
- Encourages interaction among children in the form of cooperative projects, social-dramatic play, group planning, group discussions and other activities that involve the exchange of ideas.
- Provides a variety of natural materials that encourage children to discover attributes, uses and concepts.
- Provides natural and commercial materials that encourage development of cognitive structures (classification, seriation, time, space, number, causality).
- Permits teacher observation and interaction with children for the purpose of discovering their levels of functioning in various areas of development (language, concepts, skills, attitudes).
- Permits directed and independent activities to take place simultaneously.
- Has a daily routine that helps children develop awareness of time relationships and planning.

The classroom teacher is the crucial person in this environment. She determines to a large extent the materials to be used, the room arrangement and the daily routine, and she strongly influences the nature and quality of the interactions among children in the classroom. The teacher who recognizes the teaching potential of the classroom environment will give as much attention to planning the environment as to planning the direct instruction.

*Selection of Materials.* Through the child's involvement with materials he becomes aware of their properties and the actions that can be performed with them. In selecting materials for young children, the teacher should consider the potential of the materials for teaching size, shape, texture and other dimensions. Natural materials from the everyday environment that teach number, classification, seriation, spatial and temporal relations, and cause and effect relationships should be available for both directed teaching and independent learning situations. Materials should be available in sufficient quantities to permit children to handle their own materials rather than watch a teacher demonstrate.

*Room Arrangement.* The physical arrangement of the classroom serves both a facilitating and a teaching rôle. As a facilitator of learning the room arrangement should provide appropriate space for each of the learning settings: total group instruction, small group instruction, and independent learning centers. The nature and purpose of each of these learning settings must be taken into consideration in determining their location in the room.

Total group areas are generally used for activities such as film viewing, games, music and group planning. Since these activities occupy a small part of the day, the space for them should be easily adapted to other purposes by the use of movable partitions.

Small group activities are generally instructional and require space with some degree of separation from other activities. A table, chairs, blackboard or chart holder, and display rack are the usual equipment for these areas. The space used for these activities is generally provided by the placement of various kinds of functional room dividers (bookcases, pegboards) in the area used for total group activities.

Learning centers occupy a prominent position in the classroom, for it is here that much of the child's independent learning takes place. The centers may focus on particular content areas (mathematics, science, reading, social studies, art); on interest areas (housekeeping, construction, art, dress-up, puzzles); or other types of activities (sensory training, physical activities, social-dramatic play). The goals of the curriculum, which include development of concepts, self-direction, independent learning and communication require that the centers be carefully planned.

The teaching function of room arrangement lies in the child's recognition of the organization of his environment. His awareness that all of the materials in the housekeeping area or the art area have some common attributes helps to develop classification concepts. He learns that the things in various areas go together because of their function or some other characteristic. He develops concepts of space as he recognizes the position and location of objects in relation to himself and to other objects in the classroom. Storage of materials and arrangement of equipment in appropriate areas provides a general awareness of space and form. Concepts of time are developed as the child recognizes that certain areas of the room are available to him at specified times.

*Daily Routine.* Just as the room arrangement serves a facilitating and a teaching function, so does the classroom routine. As a facilitator of learning, the routine helps the teacher and the children to establish order within a classroom that encourages considerable pupil activity. It assures that pupil time will be divided between directed and independent learning and that one activity will not interfere with others. A daily routine enables children to assume much responsibility for their own activities. When the routine has been established, children can move smoothly from one activity to another with a minimum of teacher direction. A schedule also facilitates the teacher's work. If the teacher knows that the children are engaged in a certain activity for a period of time, she can plan her observation accordingly.

In serving a teaching function, the daily routine provides a meaningful way to develop concepts of time. The child learns about time intervals as he becomes aware of blocks of time designated for certain activities. He learns about time sequences as he recognizes that activities occur in a certain order and that the order is important to efficient operation (activities are preceded by preparation and followed by cleanup time). He learns the vocabulary of time by associating words with his own activity.

It is not enough that the child be aware of the routine; he must also be actively involved in it, for it is his active involvement that makes him an independent worker rather than a

passive conformist. Involvement in the routine takes various forms depending upon grade level and level of independence, but the goal remains the same—the development of self-direction. To achieve this goal, the daily routine includes periods for pupil *planning, work* and *evaluation*.

Pupil planning takes place during a specific period designated for that purpose. Children decide what they are going to do and how they are going to do it and either state their plans orally or record them in chart form. In the kindergarten the planning may be for only one period, work time. Older children may be able to plan their entire day and make their own time schedules. In some activities, particularly projects, children may make plans related to a particular part of the project. The important point is that children become increasingly able to plan for themselves within a given schedule. The teacher's role is to encourage and help children to make their own plans.

Work time is the time when children carry out the plans they made during planning time. During this period the teachers and the aides should be observing the children to see how they are performing in the work they had planned. It is during this time that the teachers discover the child's level of functioning and determine his readiness for new learning. Interactions with pupils should be in the form of questions or conversation rather than directions or suggestions for the activity. Allowing children to make mistakes is a legitimate form of encouraging learning. On the basis of teacher observations, plans are made for directed teaching, for changes in the learning center activity, for individual experiences and for other forms of teacher intervention.

Evaluation time is essential to the development of self-direction. The child must determine for himself whether he accomplished what he set out to do, and, if not, what prevented him. Through this process the child learns to analyze his problems and to deal with them in some positive way such as seeking help, changing his plan or deciding that the plan was unworkable. This helps him avoid the temptation to abandon the whole activity when the results do not meet his expectations.

*Social Interaction.* According to Piaget's theory, physical experience and manipulation of concrete materials are not the only ways in which the child learns. Social interaction plays an important role in learning, in adapting behavior to the situation, and in reducing the "ego-centric" thought that inhibits logical reasoning in young children. The implication of this view is that social interaction in the form of free play and social-dramatic play should assume a significant role in the classroom. Social interaction should also be directly incorporated into the curriculum. Children should be encouraged to work together on assignments that require sharing and planning rather than parallel work. Children who seem to understand a concept might be given the opportunity to work with children who appear less certain. Heterogeneous or cross-age grouping might be considered for some activities for the purpose of encouraging children to learn from each other.

By encouraging social interaction the teacher promotes the exchange of ideas that leads to clarification of concepts, development of communication skills, and recognition of the viewpoints of others.

## Sequencing the Learning Experiences

In addition to the implications of Piaget's theory for structuring the environment, the theory also has implications for teaching methods. All teachers agree that teaching must begin "where the child is" and that learning must proceed from the simple to the complex. However, teachers often do not know where the child is nor what constitutes simple and complex for various children in various situations. The child may be at different stages in different areas, and what seems simple to the teacher, and perhaps to some children in the group, may be very complex for other children.

An informed application of Piaget's theory in regard to sequencing of learning will help the teacher to plan learning experiences for children with intelligence and sensitivity.

*Development of Representation.* Piaget's outline of the development of representation, which begins with the *real experience* and progresses through stages of *representation in action* to the final stages of *representation in thought*, provides the model for sequencing learning experiences in the classroom.

Ability to represent experiences and understand representations varies greatly among children, and it is often difficult for the teacher to assess the child's knowledge of an experience or a concept on the basis of his response to representations. Ability to name objects in a picture and to verbalize about an experience frequently gives a false impression of the child's real knowledge of the experience. Studies of young children's ability to respond to representation indicate that many children who are able to pantomime the action when shown a real eggbeater are unable to do so when shown a picture of the eggbeater, even though they recognize and are able to name the object. Similar problems exist with verbal representations. The primary school child may repeat the words of the Flag Salute or count to 100 with very little comprehension of the meanings represented by the words. Examples such as these demonstrate the need for activities at each level of representation to insure that the child makes the transition from the real experience to the abstract representation. Failure to provide such activities risks incomplete understanding and empty verbalism.

The sequence for introducing an experience and developing skill in representing it is as follows:

- (1) Experience with real objects and events
- (2) Recall of real object or event from cue (index level)
- (3) Representation of experience in a form that resembles the real experience (symbol level)
- (4) Representation of experience in a form that has no resemblance to real experience (sign level)

Each step in the sequence provides a foundation for the succeeding steps and represents a

more abstract level of functioning. Awareness of the function and the development of each of these levels will help the teacher to plan activities in a way that assures pupil comprehension of representations and strengthens ability to represent experiences.

Teacher intervention is often necessary to encourage children to progress from a concrete to a more abstract level. On the basis of observation, the teacher can determine the level of representation of different children and plan directly for the desired changes. Intervention may be in the form of teacher arrangement of a play area to reconstruct an experience, participation in the activity to stimulate ideas or maintain a theme, addition or removal of materials to change behavior, or questions to children to suggest expansion or change of behavior. The teacher's awareness of the representational sequences will help to locate children's level of functioning and direct the planning forward or backward as indicated by their behavior.

*Experiences with Real Objects and Events.* In order to represent an object or event the child must be familiar with its physical properties and the actions that can be performed in relation to them. In the Cognitively Oriented Curriculum, learning begins with experiences with real objects and events. The classroom structure is based on learning centers, where children can manipulate, explore and experiment with objects to discover their properties. The use of all the senses is encouraged; the young child becomes familiar with the guinea pig as he feels its fur and its body, observes its eating and drinking habits, lets it out of the cage to observe how it moves, and listens to the sounds it makes. The older child, who may already have this basic information, may learn more about properties and actions of the guinea pig by feeding it, by keeping records of its sleeping habits, by recording weight changes and by doing other activities that provide firsthand information.

Mathematics concepts are introduced with materials that can be manipulated before they are presented as symbols. The first-grade child first encounters one-to-one correspondence problems in activities that require him to determine the number of cups, cookies, scissors, or chairs needed to correspond to the number of children in the group. The concepts of conservation are developed through experiences that involve separating and combining materials in sand and water play, classification activities and other activities that involve re-arrangement of materials.

Science concepts are discovered as children explore materials, experiment with them, and check their information with that of other children engaged in the same activity.

In addition to learning center activities, real experiences are provided in the form of field trips, walks, interviews with people, classroom projects and out-of-school activities.

In all the experiences, the focus of the activity is upon a particular goal, so that the child can concentrate upon a limited experience rather than try to comprehend a total experience which may involve too many relations. For example, during a visit to the supermarket the teacher does not attempt to acquaint the child with the entire market, but limits the experience to a specific interest such as the kinds of machines used in the market, or the different workers and the kind of work done by them.

Teachers, especially those in later primary grades, often protest that the provision of real experiences is impossible in many cases. Of course, it is unrealistic to believe that all information can be presented through direct experience. The concessions to be made in this regard are that some experiences can be presented vicariously, providing that (1) children can relate the vicarious experience to a real one so that it takes on aspects of reality; (2) the child's existing information is similar enough to the experience to make assimilation possible; (3) the child possesses the representational skills to relate the representation to the real situation; and (4) the teacher recognizes the limitations of indirect experience. Awareness that construction of the object or event through direct experience provides a better base for representation should encourage real experience so far as this is possible; likewise, it should discourage presentation of ideas through representational means unless the teacher is certain that the children have had the real experience and can deal with representation at the level offered.

*Representation at the Index Level.* The index level provides the first step in the process of representing an object through mental image. At this stage the child has become familiar enough with the object and its parts so that any part can serve as a cue to the total experience. The child who is familiar with the fire engine can mentally recall the image and any knowledge he has of the fire engine when he hears the siren. Likewise, a child who finds a part of a familiar toy can immediately recall the whole toy and mentally replace the missing part.

The following types of activities encourage development of skill in using index cues:

- Identification of object by feeling it in a closed box or sack
- Identification of object on the basis of one of its parts (pumpkin from its seed)
- Identification of object from its sound (select eggbeater from array of objects)
- Identification of object from its outline (stencils, templates, form boards)
- Identification of missing object (recall object that has been removed from group)
- Identification of marks on pavement, floor, ground (games of detective nature)
- Preparation of spatter paints, blueprints, and block prints using parts of real materials as the subject
- Reconstruction of object from cut-out parts
- Recognition of worker from some cue such as hat, uniform, emblem, tool or equipment

Index level experiences help the child to construct a strong mental image by paying attention to the individual features as well as to the total object. Generally the index level

activities follow soon after the real experience as the children engage in activities that reconstruct the real experience from the recognition of its parts.

*Representation at the Symbol Level.* At the symbol level, the child is able to reconstruct an object (or experience) without having the object before him. The symbols used as representations bear some resemblance to the real objects but are recognized as representations. Symbolic representations are in the form of *actions* (deferred imitation, symbolic play, sociodramatic play), *models, drawings, pictures* and *other graphic forms* that follow directly from the child's experience.

Activities at the symbol level serve two important purposes: (1) they encourage assimilation of reality to self as the child reconstructs experiences in his mind; and (2) they provide readiness for dealing with symbols produced by others.

While early-elementary-age children usually have had considerable experience in using symbolic representation, they show great variation in their ability to represent experiences symbolically. Since the use of symbolic representation is a major step in the development of a child's capacity for logical thinking, children should have many experiences with representation in the form of:

#### (1) Motor-encoding activities

Motor encoding is the use of the body to represent an object or action. It is an important step in making the transition from a real experience to a mental image of that experience. The development of motor encoding follows a sequence that begins with direct imitation of an action (bounce like a ball); progresses to imitation based upon past experience with an object (show me what you do with this); and finally to performing an action based only on mental images and verbal cues (pretend you are toy soldiers, bouncing balls, etc.). Motor-encoding activities include:

- Play activities in which an object is substituted for the real object (a box and a wheel are used as a toy car, a row of chairs becomes a train)
- Pantomiming activities in which children represent actions suggested by an object (broom, hammer)
- Pantomiming games in which individuals or groups represent an activity and others guess what is being represented
- Action songs and records in which children accompany words with action, or follow directions for acting like certain objects
- Role playing with children taking roles of familiar persons
- Social-dramatic play with children assuming roles, interacting with other children assuming roles, using representational materials, and maintaining a theme

## (2) Models

The construction of models is a step further removed from the real object or experience than the physical representation present in imitation and play. Through models the child is able to reconstruct an experience or object in a way that resembles its general form and emphasizes its important features. The modeling activities of young children are generally limited to simple objects and to easily manipulated materials such as clay. Older children are capable of representing more complex ideas that show physical and social relationships. Modeling activities include:

- Clay modeling of familiar objects
- Wire and papier mache construction of familiar objects
- Construction of floor model of neighborhood based upon study of neighborhood
- Construction of wooden or cloth puppets to represent people
- Soap carving
- Block building

## (3) Pictures

Pictures are used freely in many classrooms as a way of introducing ideas. In using pictures, however, the teacher must be concerned about how well they communicate the ideas intended. Their effectiveness as representations depends upon two factors: (1) the child's understanding of the experience represented, and (2) the child's competence in interpreting pictorial representations. In relation to the first consideration, the child may be able to name the object in the picture without having any real knowledge about the object. How many people really conceptualize a mountain as anything but an upside down ice-cream cone until they have had the experience of traveling through mountain country and seeing its vastness. The limitation of a picture to represent reality for some children is illustrated by Leon, who was taking part in a classification activity that involved one child grouping pictures of animals together for a common attribute and having the other children discover the attribute. Leon grouped a duck, a turkey, a bird, and a cat sitting in an upright position together. After a number of unsuccessful attempts to discover the attribute, the children "gave up" and Leon gave the answer: "They go together because they all have two legs." While Leon certainly knew that a cat has four legs, he did not interpret the picture as reality.

## (4) Drawing

For the young child, drawing as a representation of experience is based more on conceptualization than upon perspective. The child goes through several stages before his conceptualization and perception become coordinated into mature drawing. In the

early stages, the child draws what he knows rather than what he sees. This accounts for the placement of the man on the horse with both legs visible, and the house with all the furniture visible through the walls. He can show proximity, separation, closeness and other spatial relations, but cannot represent perspective. Not until age nine or ten is the child able to represent what is visible from a particular perspective or to show background and foreground in different sizes. In spite of these limitations, most children find drawing a satisfying way to represent experiences, providing teachers do not try to impose a "correct" way of rendering reality.

#### (5) Other graphic forms

Children who are encouraged to record their experiences and communicate them to others discover many ways of representing them. Graphic forms may include pictorial representations such as charts, diagrams, and maps. Children who have acquired skills at the sign level may include signs in their symbolic graphic representations.

The creation of graphic representations at the symbol level prepares children for the interpretation of such representations when they are encountered at the sign level.

*Representation at the Sign Level.* In Piaget's language, this level refers to the use of words, numbers and other signs to represent ideas. This level is regarded as the most abstract. In all of the previous levels the representations bear some resemblance to the real object or situation. The sign in no way resembles the experience; it represents the experience only because society says that it does. The spoken words "stop", "cup", "pretty", represent ideas because society has developed a system of verbal signs and a system for writing them, and the child must learn these through imitation or instruction. The fact that children at age two begin to use signs suggests that signs are comparatively easy for children to learn. Why then are they considered the highest level of representation in the teaching sequence? The nature of the child's acquisition of the sign, the limitations of his experience, and his own distortions help to explain the limitations of the sign as a teaching modality.

The child acquires signs in connection with his experiences. In the early stages, the experience and the sign are closely linked. For example, for some time the word "board" may be associated only with the pieces of wood in the building area. Only as the child's experiences are broadened does he develop the concept of board in its various sizes, shapes, surfaces, and uses. It may be many experiences later before he realizes that the sign, board, refers to a group of people who make decisions, food which is paid for, a checkerboard, cardboard, covering an opening (board up) or getting onto a train or ship. In a situation in which the teacher is presenting material in verbal form, it is hazardous to assume that all children in the group have the same experience, concept, or interpretation of the words used in the presentation.

Lack of experience with the sign referent may be further complicated by the child's own distortions. He may understand a verbal explanation in his own way, but it may not be the way intended by the teacher. Because the child thinks he understands, he does not question what he has heard or ask for clarification. The child who daily "pledges Norwegians to the

flag" thinks he is using the correct word because he has some familiarity with the word "Norwegians", and since he doesn't comprehend the meaning of the statement anyway, he can pledge "Norwegians" as easily as he can "allegiance".

Then too, the teacher's words are likely to lead to some free association on the part of the child as the words stimulate ideas that may have no relationship to the content under discussion. No primary teacher is surprised when a child interrupts a discussion about a red firetruck with a remark such as, "I have a red dress at home that I got for my birthday when I was five and I had a birthday party too..."

Given these possibilities for communication problems while the sign level is still underdeveloped, the limitations on use of the sign level in the classroom are clear. The sign level is appropriate as a teaching modality only when children have first had experience with the ideas referred to by the sign. For example, understanding the concept of smoothness comes about through numerous experiences with stones, wood, glass, cloth, etc., all materials having different textures, different degrees of smoothness; in school children are asked to sort such materials according to texture and to bring things in that are smooth.

*Developing Sign-Level Skills in Reading, Mathematics and Science.* Development of sign-level skills is generally associated with the communication skills area of the Cognitively Oriented Curriculum, which includes language, reading, writing and spelling. The language experience approach to reading provides a sequence from the real experience to the sign. The experience is introduced at the concrete or object level to provide sensory information. During this stage, words are used to describe, label and refer to the experience. After the real experience, the child represents the experience in the form of dramatic play, modeling with clay or other materials, painting, drawing, and other forms of symbolic representation. The written signs are then introduced in experience stories which are later read by the children. Thus the teacher is sure that all the children have had the experience, that the signs clearly relate to the experience, and that the meanings of the signs have been developed through all levels of representation.\*

Signs related to mathematics and science are also introduced in the context of pupil activity. Vocabulary is developed through experience with real objects and events. For example, the concept of "amount" is developed through activity with sand, water, clay, paste, milk and other materials that can be used to call attention to quantity. After the word is introduced, it is used in many different contexts to help the child realize that it can be generalized to many situations. Only after numerous and varied experiences in comparing amounts can the child be expected to comprehend this concept in the form of an abstract sign. Mathematical signs are introduced as a means of expressing relations that have already been experienced through concrete actions.

The learning sequence suggested in this section—from active experience to abstract representation—does not preclude direct presentations of ideas by teachers; it does

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\*Other aspects of the communications component—phonics, critical reading, and representation of learning center experiences—provide further examples of the development of skills at the sign level. (See *Teacher's Guide to the Communications Program*, High/Scope Foundation, 1971.)

emphasize, however, that teacher explanations and illustrations involve the child less meaningfully than his own activity. In planning the child's learning experiences, it is important that the sign level not be used as a teaching modality until concepts and ideas have been developed at the more concrete levels—real experience, index level and symbol level.

## Program Operations and Staffing

### Operational Philosophy

A supervised daily planning-evaluation process for teaching teams is the core of the High/Scope model for program operations. Implementation of the program is thus built around continual inservice training.

The motive forces behind inservice teacher training in the Cognitively Oriented program are

- The recognition that the success of each cognitive classroom depends ultimately on the skill, sensitivity and commitment of the teaching team, and on how well that team works together.
- The recognition that the planning-evaluation process for teachers is closely tied to the learning process for children: the children's growing ability to organize their world reflects the teachers' ability to organize their classroom, plan activities around program theory and goals, and evaluate activities in terms of the children's responses.
- The recognition that when we speak of a "classroom environment" we mean the *people in it* as much as the physical layout: a teacher does not "manipulate" an environment in order to teach—she and the children *create* it in order to learn.

As a Follow Through model sponsor, High/Scope Foundation has gained considerable experience in implementing and monitoring Cognitively Oriented programs at diverse sites throughout the country. The supervisors, or "curriculum assistants", for these programs are trained by High/Scope Foundation staff in workshops held in Ypsilanti regularly during the school year. The knowledge they acquire is in five areas:

- Supervisory skills
- Piagetian theory and practical application
- Inservice training methods
- Ways of dealing with problems among staff
- Ways to assess the progress and caliber of the program

At the local center, the curriculum assistant is the key person in the inservice training program, whose leadership enables teachers, paraprofessionals, and parent volunteers to work in a classroom and plan activities as a cohesive team. The curriculum assistant is supported by educational consultants from High/Scope Foundation; the Foundation, in turn, supports the educational consultants by producing and disseminating written and audio-visual materials for teacher training.

The curriculum assistant can provide the spark needed to make abstract educational principles into real life for all involved in the program if these essential operating requirements are met:

- The curriculum assistant must be an experienced teacher who functions primarily as an educator. Most of the curriculum assistant's time and energy must be devoted to observing and participating in the classroom program, planning and evaluating daily with the teaching team, and conducting special sessions on aspects of the curriculum framework.
- Sufficient time for teacher planning and evaluation must be an integral part of the daily program.
- Paraprofessionals must be equal partners in planning and evaluation.
- Staff chosen for the Cognitively Oriented program must demonstrate a high degree of commitment to its goals and methods. The program must make sense to them, and, in effect, *they* must choose to be cognitive teachers.
- There must be ongoing evaluation and documentation of the program to assure its continued vitality. This "monitoring" is carried out by High/Scope Foundation educational consultants and research staff, by the curriculum assistant, by outside evaluators, by the teaching team in its daily planning-evaluation sessions, and by the parents of children in the program.
- There must be a sufficient number of adults in the classroom for both small group instruction and attention to the development of individual children.

Teachers working within the cognitive framework must create programs appropriate to their particular group of children and geared to the growth of the individual child. This demands planning, forethought, and self-criticism. In the classroom, the teacher must be a skilled and sensitive observer of children.

In the Cognitively Oriented program, the kind of supervision teachers have, the time allotted to them for planning and evaluation, the focus on teamwork among the teaching staff, and the supportive services provided by High/Scope Foundation give the direction and the sense of purpose needed to attain these attitudes and skills.

## Staff Roles

### (1) Project Director—one per site

#### a. Administrator

Selects staff  
Coordinates staff

Procures materials  
Manages finances  
Coordinates schedules

b. Public relations specialist

With community  
With school administrations

(2) Curriculum Assistant—one for every 6-8 classrooms

Local educational leader  
Trains classroom staff  
Supervises planning and evaluation sessions with classroom staff  
Attends sponsor workshops in theory and methods of the Cognitively Oriented model  
Evaluates curriculum implementation and application of training procedures

(3) Teachers and Paraprofessionals—no fewer than two adults per room (adult/child ratio approximately 1:8)

Function as a teaching team  
Conduct daily planning and evaluation sessions  
Responsible for knowledge of curriculum theory  
Responsible for implementation of the model—teaching staff create their own program within the Cognitively Oriented framework, with materials and consultation provided by High/Scope Foundation

(4) Home Coordinator—at least one per site (varies with local conditions)

Makes educational home visits and trains teachers and aides in home teaching  
Plans and encourages parent group meetings  
Responsible for knowledge of curriculum theory and practice  
Attends sponsor workshops

## Recommended Instructional Materials

As discussed above, the primary objective of the Cognitively Oriented Curriculum is the development of basic thinking and reasoning operations, and this is done in the context of familiar content materials in science, math, social studies, language, and other academic areas. It is this aspect that renders the curriculum flexible: any content can serve as a vehicle for the development of basic thinking operations. Basic concepts of change, system, variable, community, and conflict, and process skills of observing, predicting, generalizing, computing, measuring, and hypothesizing are natural outcomes of the curriculum focus on basic thinking operations.

High/Scope Foundation's recommendations for commercial instructional materials which support the development of basic thinking processes as well as academic skills are in four general areas:

*Physical reality* is concerned with the organization of phenomena in the physical world. Traditionally, science has been the academic heading under which this has been approached. Aspects of all the cognitive concept areas described above, particularly the developmental goals in causality, enter here, and the High/Scope curriculum also requires supplementary use of the Science Curriculum Improvement Study (SC/S) and the American Association for the Advancement of Science (AAAS) materials.

For *mathematics*, including number concepts as well as antecedent concepts in classification and seriation, the High/Scope model uses the programs of the *Nuffield* Foundation and the *Cuisenaire* Corporation of America.

*Social reality* involves the social organization of the environment, of people and interpersonal relations. Cognitive developmental concepts of classification, spatial relations, and temporal relations are particularly relevant in this area, and the major focus is provided by the *Taba* Social Studies series.

At present, the Van Allen *Language Experiences in Reading* (LEIR) series is required for use in the High/Scope *Communications* program, while formerly required materials, the *Sullivan Programmed Reading Series* and the *Miami Linguistic Readers*, are recommended to supplement LEIR. But it is also significant that the approaches of the AAAS science materials and the *Nuffield* program fundamentally involve children's writing about or communicating in some way their activities and discoveries. In addition, materials for communicating in other than the traditional language and reading modes, through skills in music and art, for instance, are being produced as part of the Foundation's curriculum development efforts.

## 6 Parent Participation

Experience in Follow Through suggests that a high level of parental support of the school's efforts and parental interest in the education of their children are necessary for the children's school experiences to be successful. The realization that there is often a psychological "distance" between the family or community and the school is not new. What is new, however, is the conviction that the school can lessen or increase this distance according to what information it provides to parents and how it disseminates this information, what opportunities for involvement it provides, and whether it supports or undermines the fundamental parent-child relationship.

It is axiomatic that the family and the school should share values and goals for children, and that they should be able to work together; unfortunately, this is often not the case in practice. It is a primary objective of the High/Scope Follow Through program to assure that parents are directly involved in the education of their children.

High/Scope Foundation supports the activities of local Parent Advisory Committees and provides assistance to the National PAC group. Parents take part in the Cognitively Oriented program by 1) participating in educational home visits conducted by Follow Through staff, 2) participating in group meetings, and 3) participating in classroom activities as volunteer teaching aides. Such involvement helps parents better understand the educational program so that they can both support and influence it. It gives the teaching staff the kind of contact with parents that makes them responsive to the needs of the children, the families, and the community they are serving. And it establishes continuity between home and school.

### Educational Home Visits

Home visits by teaching staff have been an important part of virtually all major projects of the High/Scope Foundation. The Foundation has thus built up a fund of experience in relating planned classroom activities to the life of the child in his home.

Each child in a Cognitively Oriented program regularly receives home visits from a member of the teaching staff. When the teacher visits a child's home, she

- Explains the purposes of the visit to the parents.
- Involves the parents and child in activities that make use of materials available in the home and reflect the goals and methods of the program.
- Suggests ways in which parents can initiate learning activities in the home that support and extend the child's classroom experience.
- Talks with the parents about the child's progress in school, about the parents' aspirations for their child, and about how the school can help the family realize their goals.

- Listens to and learns from the family—about the intangible qualities of the child that may otherwise go unnoticed in the classroom; about what is really important to the parents about their child's development; about how to work with the child sensitively and intelligently.

Home visits serve three general purposes: 1) to explain the curriculum, making clear what goes on in school; 2) to involve parents in the teaching process, showing parents how they can help their children's development at home; 3) to allow school staff to work with children on a one-to-one basis in their homes.

Activities in the home incorporate goals and concepts of the curriculum. The home visitor works to involve the parents actively in the process and suggests ways parents can extend activities and apply them to everyday situations. For example, if the class had been working on counting goals, the home visitor might bring cards, pick-up sticks or some game involving counting; she would show the parents how playing the game helps the child develop counting skills. She could join the mother and child in cooking or sewing, pointing out how concepts of space and classification are involved and how the use of divergent questions (questions with more than one "right" answer) can facilitate learning. Setting the table or sorting the laundry are also good classification exercises.

The home visit, if implemented carefully and with consideration for the views and concerns of parents, can be a positive force affecting the relation between the family and the school. It can provide support and insight to parents and individualized attention to children; and it can be a means by which teachers gain valuable insights from parents.

### **Parent Meetings**

Group meetings are another effective way to involve parents in the school program, to let them know what is going on in school and what the Cognitively Oriented Curriculum is about. They also provide parents with an opportunity to make their views known and to learn from each other.

Meetings can be organized by school staff or by parents and can take place in the school, in neighborhood centers, or at parents' homes. Parent meetings held in the school tend to be more formal and focus on specific school activities. They are usually attended only by the most committed parents. Neighborhood parent meetings can be parent-initiated and planned; they may deal with specific curriculum questions or may be general discussions of educational programs and child-rearing practices.

Parent groups often develop their own leadership and goals as they become more active and confident. The presence of a representative of the school may finally become unnecessary. Members of these groups may also invite other parents to join; some parents who resist formal approaches by the school welcome the interest of other parents with whom they can readily identify.

Group meetings have great potential because of their broad scope; many more parents can be reached at one time by a single school representative, and some issues may be easier to deal with in a group situation.

## **Parents as School Visitors and Classroom Aides**

Having parents visit the classroom and serve as volunteer aides is a very effective way to introduce them to the curriculum and establish lines of communication based on shared experience between classroom staff and families.

The process of attracting parents to the classroom can be carried out in home visits and group meetings. Often, parents take the initiative themselves. Parent volunteers receive training from the home coordinator or curriculum assistant so that they will be able to become active members of the teaching team. It is also the responsibility of teachers to work with the parents in the classroom, discuss goals and activities, and include them in the planning and evaluation process.

Parents in the classroom can add much to a program, bringing new spirit and incentive to the class, offering their knowledge and skills, raising the staff:student ratio. This is also the most direct way for parents to see the program in action and to be involved in the educational process.

## 7 Delivery System

The objectives the High/Scope Foundation sees as crucial to successful implementation of its early elementary model are as follows:

*Objective I.* To assist the field site staff in implementing the Cognitively Oriented Curriculum by strengthening the staff model on site and increasing the efficacy of its operations.

*Objective II.* To provide training through which sponsor and site staff achieve competency in the theoretical base, the content and methods of implementation, and evaluation of the Cognitively Oriented Curriculum.

*Objective III.* To involve the Follow Through parent in the educational process and to bring about attitudinal changes toward the school within the local community.

*Objective IV.* To monitor the degree of implementation of the instructional program, to evaluate the functioning of the staff model, to identify issues and problems at the center, and to provide consulting service to the local project administration.

The primary target of the delivery system is the curriculum assistant (CA). Within the framework of the staff model, the CA is expected to operate as the resident "expert" on the curriculum and the methods of its implementation. The local leadership that CA's can provide is essential to the successful operation of the program. The CA is a member of the local community close to the classroom staff. The program support he manifests as an "insider" cannot be duplicated in the site work of field consultants from the sponsor's staff. When the local program is dependent primarily on the training provided by field consultants, implementation is stifled. This observation has focused High/Scope training efforts on the CA and prompted development of training materials and procedures for his use.

The CA is the principal agent in the delivery of services to classroom teaching staff. The CA, together with the field consultant, works to monitor progress, to identify needs, and to deliver training materials and procedures to individual classrooms.

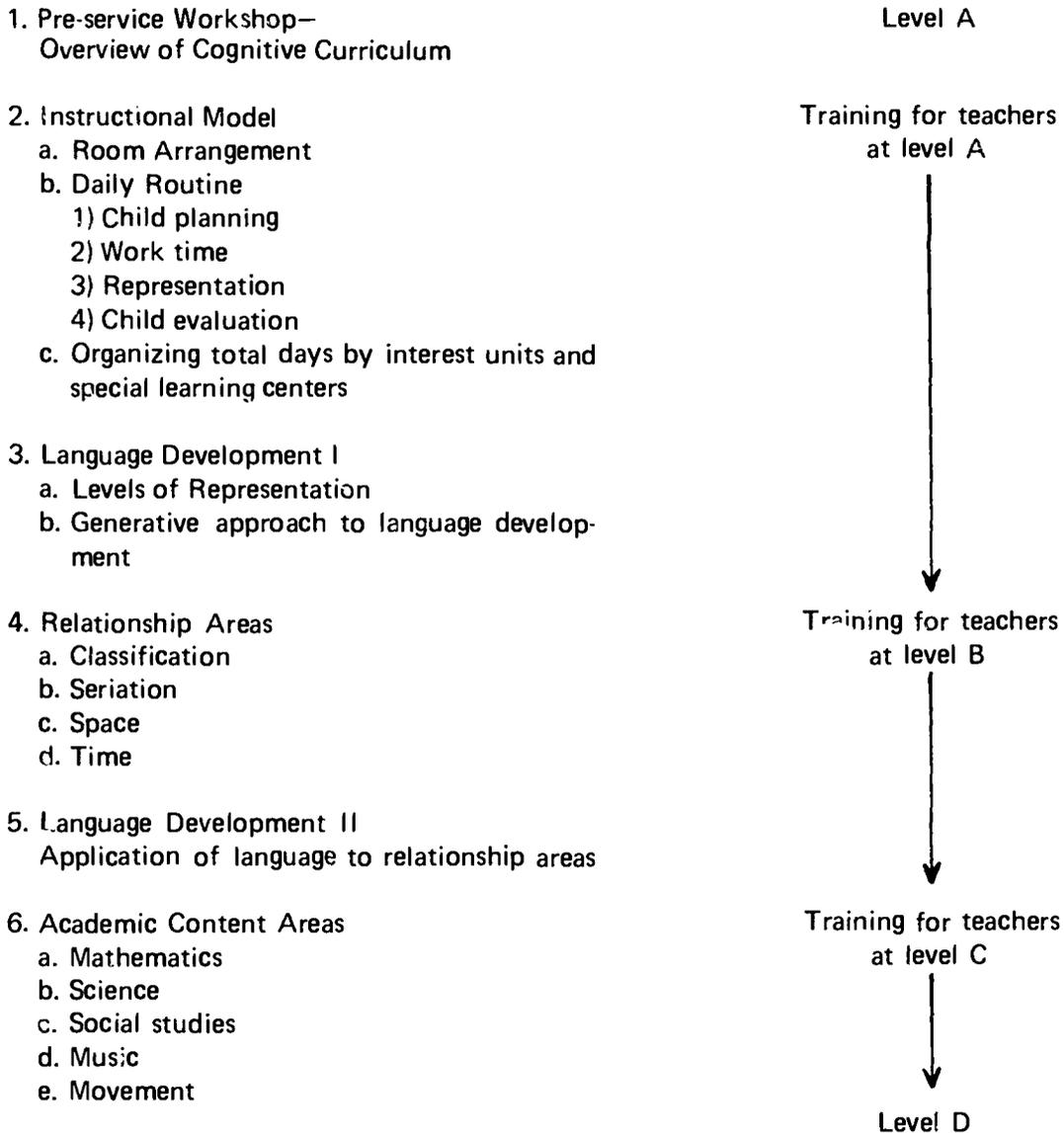
### Training Strategies

*Training Sequence for Teachers and Aides.* Training for new teachers and aides begins with a pre-service workshop conducted at the project site by the CA, experienced teachers and sponsor field consultant. The objectives for this workshop include motivating teachers and developing specific skills in the program components of Room Arrangement, Daily Routine, and Language Development.

These objectives are achieved through the use of a variety of media and printed training

Table 1

**Training Sequence for Teachers and Aides  
Keyed with Levels of Implementation**



materials. A film<sup>1</sup> illustrating overall program goals, methodologies and outcome is shown. A written guide<sup>2</sup> to the Cognitively Oriented Curriculum is distributed and studied. Training in the use of classroom methodologies includes classroom practice, simulation of teaching and learning situations, and feedback by CA's on the progress toward criteria for each segment of the classroom model. Through these procedures the classroom team is prepared to set up the room and to operate for the first few weeks of school. During this time the CA provides support and direction and additional training where necessary in techniques of routine and child management.

If a classroom team is unable to make these first steps of implementation independently, a technique called the *Intervention Team*<sup>3</sup> is used, upon the teachers' request, to implement methodologies in Room Arrangement and Routine. In this procedure a team composed of the High/Scope field consultant, CA(s), and classroom teachers work in an individual classroom with children to organize the room and establish a routine around the plan-work-evaluation cycle.

When implementation of the program components of Room Arrangement, Daily Routine, and Language Development reaches a satisfactory level, the CA, with or without the assistance of the High/Scope field consultant, conducts an in-service workshop for teachers concerning work with the relationship areas of Classification, Seriation, Space, and Time. These are approached one at a time. In order to develop both an understanding of these relationship areas and competence in their application to classroom teaching, a training procedure (see Table 2) is used by the CA which begins with an explanation of the sequential development of the child's conception of these relationships. This is accomplished by a film showing classroom exercises depicting each stage in the development of the child's understanding of the relationships, followed by discussion of each exercise in the film and a series of questions to check the teachers' grasp of the exercises. Next is a simulation among a group of adults of similar exercises with classroom materials. Ideal examples are then presented on videotape for the teachers' evaluation where the participant must identify the exercise from the child's behavior. Performance on this activity serves as an evaluation of the first segment of training.

These skills are then practiced in the teacher's own classroom. The teacher, with the assistance of the CA, places materials in interest centers that will facilitate learning in Classification, Seriation, etc. The teacher observes the child's behavior and attempts to identify evidence of specific relationships the child is employing. The teacher and CA evaluate the observations and make new plans for the next day. These sessions can be repeated, videotaped and evaluated until the teacher has grasped the concept and has demonstrated her ability to apply the principles in the classroom.

The CA works classroom by classroom with each teaching team and moves each team to the next relationship area when they have completed the last. The field consultant may assist in the process when he is on site, but the brunt of the responsibility is the CA's.

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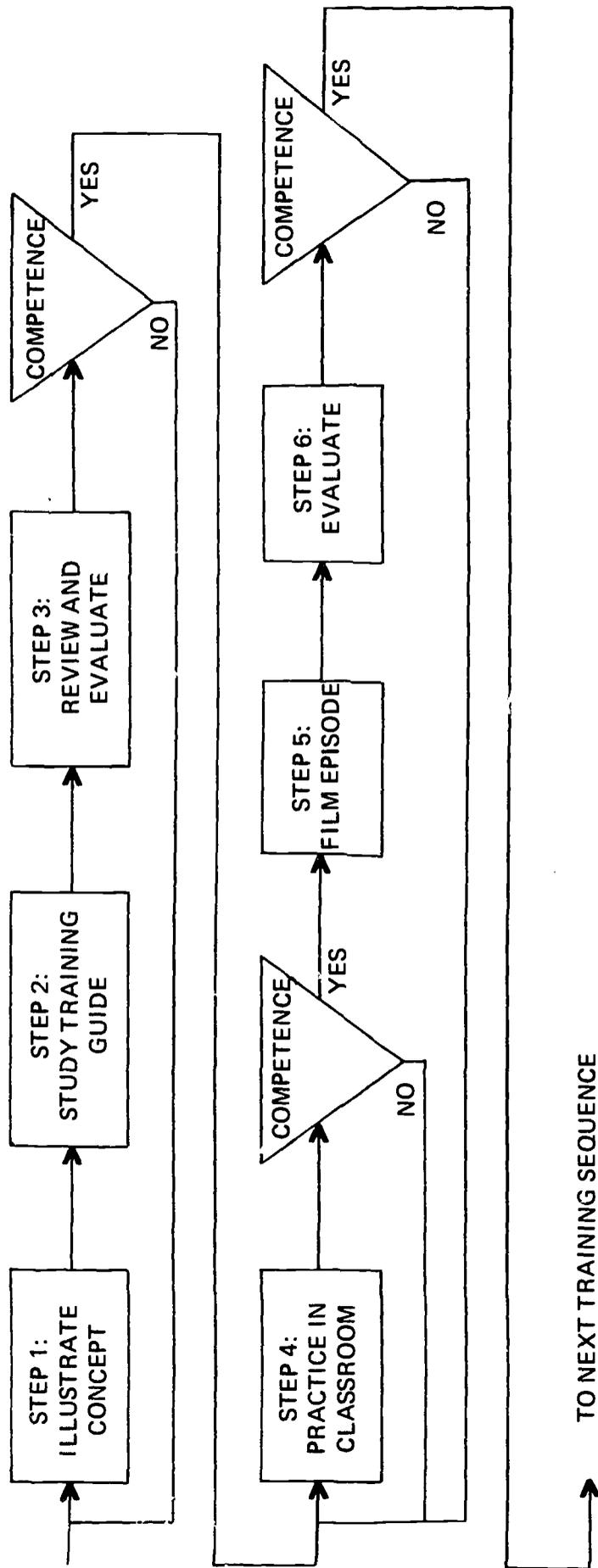
<sup>1</sup>An Overview of the Cognitive Curriculum, High/Scope Foundation, 1972.

<sup>2</sup>The Cognitively Oriented Curriculum in the Early Elementary Grades, High/Scope Foundation, 1972.

<sup>3</sup>A Technique for Implementation of Appropriate Room Arrangement and Daily Routine, High/Scope Foundation, 1971.

Table 2

Training Procedure



When teachers have mastered one or more of the relationship areas and thus moved to another level in implementation, the CA may provide similar training in the application of relationship areas to the content of academic disciplines such as mathematics, science and social studies.

The progress of implementation in each classroom is evaluated using the *Classroom Implementation Matrix* (see appendix). This matrix resulted from field experiences in which High/Scope Follow Through staff identified and documented distinct stages or levels that characterize the program as it is being implemented at field sites. Each level of implementation corresponds to specific conditions in the classroom and specific teacher and child behaviors. These conditions and behaviors have been identified for some 15 aspects of the curriculum model.

Evaluation with the matrix is carried out by the CA with the assistance of High/Scope consultants. The entire process may take six months or more to complete for a new teacher. More experienced teachers receive training depending on the level of program implementation in their classroom. When various levels of implementation are achieved, new training procedures are initiated by the CA. The training sequence in Table 1 indicates the implementation levels, A, B, C, or D, at which each segment of the training is initiated.

There is, in addition to specific training procedures, the ongoing support role of the CA. For more experienced teachers this support includes continued refinement of skill in the use of relationship areas and application to new areas as the curriculum becomes the framework from which teaching teams create their own unique program.

*Training Sequence for Curriculum Assistants.* Because of the dual responsibility of the CA for knowledge of curriculum goals and competence in the use of training materials and procedures, the training sequence for CA's involves a series of week-long workshops at the High/Scope Foundation Training and Development Center (TDC), as well as consultation and training in the field by field consultants.

The High/Scope TDC is the Foundation's own Cognitively Oriented classroom. Operating under the supervision of High/Scope Foundation staff, the TDC is a classroom for 35 kindergarten through fifth grade children from the Ypsilanti-Ann Arbor area. (There is also a separate preschool.) Located in a renovated service station garage\*, the TDC has sufficient room for a large number of extra observers and trainees to watch, videotape, or work with the children. This makes it a valuable training facility.

Training for CA's at the TDC is especially important because: (1) It permits a clear separation of the individual staff member from the political matrix of his or her center and the interpersonal and professional relationships there. (2) It enables trainees to become more deeply involved in problems of program operation. (3) Additional resources of the Foundation permit trainees to increase their confidence and capability to operate as the resident experts they are intended to be.

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\*Purchase and renovation of the facility were made possible through a grant from the Grant Foundation of New York.

Before a new CA appears at the first training workshop at the TDC, he receives a written guide to the curriculum<sup>4</sup> for study. The objectives of the first workshop are (1) to provide the CA with an overview of the curriculum so that various parts will be seen in relation to the whole; (2) to develop the CA's knowledge of the basic methodologies of Room Arrangement, Daily Routine, Language Development and Teacher Planning; and (3) to develop specific competence in the use of training materials and procedures relating to basic curriculum methodologies.

These objectives are achieved in part by the CA's active participation in the classroom setting of the High/Scope TDC. The CA then practices training techniques with High/Scope staff at the TDC.

A later workshop either in Ypsilanti or at the project site is used to train the CA in the use of the Classroom Implementation Matrix. With the help of this instrument, he is able to assess the level of program implementation systematically in each classroom and thereby identify needs. Appropriate training materials and procedures are then utilized by the CA where needs have been identified.

A third workshop held at the High/Scope TDC has as its objective the development of the CA's (1) knowledge of and ability to identify child behaviors corresponding to the development of the child's conception of Logical, Spatial and Temporal Relations, and (2) capacity to employ training materials and procedures for teacher training. Films<sup>5</sup> and written curriculum guides<sup>6</sup> provide an introduction to key concepts. At the TDC, CA's then check their ability to identify and follow up child activities related to curriculum goals under the supervision of High/Scope staff. They then practice these training techniques with High/Scope staff at the TDC.

A fourth workshop held in Ypsilanti develops the application of cognitive relationships to the systematic development of mathematical, scientific and social concepts and skills. As there is a vast amount of material, this workshop develops competence in only a segment of all the possible concepts. Curriculum guides in mathematics, science, social studies, music and movement provide resources for these applications.

During site visits High/Scope field consultants work with the CA in the use of training materials and procedures. Consultants also evaluate the CA's competence in training matters and provide additional training when appropriate. It is essential that the field consultant not take over the role of the CA, but rather develop the strength of the CA.

In June a summer practicum is held during which CA's practice their several functions in classroom settings under the supervision of High/Scope staff.

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<sup>4</sup>*The Cognitively Oriented Curriculum in the Early Elementary Grades*, High/Scope Foundation, 1972.

<sup>5</sup>*A Sequence of Exercises in Classification and A Sequence of Exercises in Space*, High/Scope Foundation, 1972.

<sup>6</sup>*A Sequence of Exercises in Classification and A Sequence of Exercises in Space*, High/Scope Foundation, 1972.

Table 3  
**Training Sequence for CA's**

1. Pre-service Workshop—Overview of Cognitive Curriculum
2. Instructional Model—Methods and materials for implementation of Room Arrangement, Daily Routine. Practice in training procedures
3. Procedures for helping teachers to plan and evaluate as a team
4. Language development
  - a. Content
  - b. Methods of implementation
5. The *Classroom Implementation Matrix*—Evaluation of implementation and identification of needs
6. Relationship Areas
  - a. Content
  - b. Methods of implementation and procedures for training
7. Academic Content Areas
  - a. Content
  - b. Vehicles for training in content
  - c. Methods for implementation and procedures for training

*Other Training Activities.* Preliminary information for home teaching personnel is provided in High/Scope curriculum guides and the *Parent Resource Manual*<sup>7</sup>. Home visitors receive training in curriculum principles and practices during the fall pre-service workshops. In addition, home coordinators attend two Ypsilanti workshops. The first of these is a three-day workshop held in December. The objective of this workshop is to develop the home coordinators' knowledge of curriculum principles and development of appropriate home teaching activities. A second workshop of a week's duration in May has similar objectives.

In addition to training for teachers, CA's and home coordinators, High/Scope conducts a three-day workshop during December for project directors and school administrators. The specific content of these meetings varies with specific concerns that have been identified. Current concerns are identified and discussed, directions are resolved and documented, selected curriculum materials are examined, and the operation of the curriculum is observed at the High/Scope TDC.

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<sup>7</sup>*Parent Resource Manual*, High/Scope Foundation, 1972.

Project directors also attend a week-long May workshop with CA's and home coordinators during which they study curriculum principles, establish administrative and feedback procedures, and review the year's operations.

### **Monitoring Procedures**

Aspects of site operations which affect the implementation of the High/Scope program are (1) implementation in individual classrooms, (2) CA's functions, (3) project directors' functions, and (4) home teaching and parent involvement. Monitoring of each of these is carried out by the High/Scope Foundation in the interest of achieving the short-term and long-term objectives for staff and children.

In order to determine the level of program implementation in individual classrooms, each classroom is rated on the Classroom Implementation Matrix (see appendix). Ratings of all classrooms using this matrix are conducted by CA's at several points during the year. Some classrooms are rated simultaneously but independently by the CA and the High/Scope field consultant, and the ratings are compared. It is on the basis of classroom ratings that CA's and High/Scope staff determine appropriate training strategies for individual teaching teams. Field service coordinators also use the Classroom Implementation Matrix to check levels of implementation, the reliability of field consultant ratings and the effectiveness of training strategies.

During site visits the field service coordinator observes the operations of project director, CA, and parent activities, and reports his observations to the project director. Each field consultant also submits a report of his activities, observations and recommendations to the project director and field service coordinator after each field visit. The project director evaluates the field consultant's work and reports observations and recommendations in writing to the field service coordinator.

8  
Sponsor Evaluation

What follows is a description of the evaluation conducted by the High/Scope Foundation of its own Follow Through elementary program. There are a variety of factors that can indicate the degree of success attained by an educational program; the evaluation activities attempt to cover a wide range of these factors. The basic design of these evaluation activities is described first, followed by descriptions of the instruments used in the evaluations, the relation of the High/Scope Foundation's evaluation to testing done at the local level, and finally, the procedures for providing feedback to the ten High/Scope Follow Through projects currently in operation.

**Basic Design**

The evaluation procedures fall into two categories—outcome and process. Outcome or product variables are those effects that can be interpreted as outcomes of the educational program. Process measures assess variables that are operating to make the program work—processes within the classroom as well as those which describe the broader context in which programs operate. The design for the evaluation of outcome variables is described first.

The basic design for the outcome evaluation calls for annual testing of children in each center as they progress through the Follow Through grades, and a comparison of their performance at the completion of third grade with that of third-grade control children. In addition to being able to compare Follow Through and non-Follow Through children at the third grade level, it is important to know the performance level of the children at the time they enter the program. An estimate of fall entering performance was obtained by testing the first group (or "wave") of children that entered each center.

This basic design is illustrated below for a hypothetical center that began operations in the Fall of 1970 and continued for four years. The dates indicate the times at which the Follow Through and non-Follow Through classes would be tested.

**Schedule for Collecting Outcome Measures**

Group		Entering First Grade		Second Grade	Third Grade
Follow Through	Wave 1	Fall, 1970	Spring, 1971	Spring, 1972	Spring, 1973
	Wave 2		Spring, 1972	Spring, 1973	Spring, 1974
	Wave 3		Spring, 1973	Spring, 1974	Spring, 1975
Non-Follow Through					Spring, 1971

During the first year of High/Scope Foundation sponsorship in Follow Through (1968-69), centers began operating in three locations, and only entering-grade children (either kindergarten or first grade) were included in the programs. Because of the relatively small size of the project it was possible to administer the major evaluation instruments to all Follow Through children in both the fall and the spring. In addition, a control group of non-Follow Through children in kindergarten or first grade could be tested. In the second year of operation, with the addition of two new sites, it became more difficult to identify adequate control classes and to support a proportionately larger data collection and processing effort. At that time the decision was made to test small but carefully selected random samples of children from each grade level. This procedure, used every year since 1969-70, selects approximately 45 children at each level in each center, with every classroom being represented in the sample. In the 1972-73 evaluation period a total of 152 classrooms were surveyed in the ten centers sponsored by the High/Scope Foundation.

In order to compare the progress of Follow Through children with children who do not receive Follow Through, it is necessary to find a control group that resembles Follow Through in every way except that they do not participate in the program. There are two main factors that make a valid comparison group difficult to obtain. On the one hand, if control children were selected from other school systems, it is highly likely that they would be different from the Follow Through children in some important characteristics such as income level. On the other hand, if controls were selected from the same schools in which Follow Through is operating, it is possible that the performance of control children could be influenced by the dispersion of ideas, procedures or materials from Follow Through teachers to teachers in non-Follow Through classrooms. The problem was resolved by adopting a "retroactive" control design. By this procedure, non-Follow Through third graders from the same schools where Follow Through is implemented are tested *before* Follow Through children reach the third grade. This testing has been done during the first year of a program's operation, except at the three centers that were already operating at the time this design was adopted (there the third grade controls were tested during the second year of operation). Although the Follow Through control testing is done at different times, it is believed that, for the reasons mentioned, this procedure selects children who are most similar to the Follow Through children.

The design for the collection of process measures differs from the outcome evaluation design. In process evaluation the focus is on describing procedures occurring at a particular time and in comparing these descriptions with those obtained at a later time. The process measures that are used are still in the developmental stages, so for this reason as well, testing over a period of years has not been possible.

There are three procedures for assessing process (see the next section for descriptions of them). Classroom observations give information on specific interactions within classrooms. Observers record these interactions by visiting classrooms in the fall and again in the spring. The activity patterns of children and teachers in different classrooms can be compared, and the observations from the fall are compared with those obtained in the spring. Ratings of the extent to which a classroom matches the ideal of a well-implemented model classroom are made by curriculum assistants (CA's); this is also done twice during the year to obtain information on the changes that occur in the implementation process. To look at process in a more global sense, program case studies are written to describe the broader context in which each program is operating. The information for the case studies is gathered when it is

available, and one case study is written that describes the operation of the center for the year and provides some historical information to place the year's work in perspective.

## Instrumentation

*Outcome Measures.* A variety of outcome measures were tried during the initial phase of the Foundation's Follow Through evaluation. By 1971-72, however, the data collection procedures had narrowed down to four instruments that had proved useful. The mainstay of the evaluation, a test used every year since the first Follow Through children entered the program in 1968-69, is the *Stanford-Binet*. The Stanford-Binet, which is considered to be a measure of general thinking ability, is interpreted by the High/Scope Foundation as a barometer of program success. Although scores from this test have been the subject of considerable misuse when used to classify individual children, group averages have been found to reliably differentiate programs that work from those that don't; for this reason it is being used in High/Scope's evaluation.

Achievement of a more academic nature is assessed at the end of the child's Follow Through experience (May or June of the third grade). The instrument selected for this assessment is the *Comprehensive Tests of Basic Skills*. Since the total test takes several hours of school time, only the most relevant subtests have been selected for use. The scales that are administered evaluate the child's reading vocabulary, reading comprehension, arithmetic concepts, arithmetic applications and study skills.

Two rating scales are used to assess aspects of the child's social behavior. The *Pupil Observation Checklist* was instituted in 1969-70 after several other rating scales had been tried out. There are 25 items dealing with social behavior such as cooperativeness, self-confidence and sociability. The psychologist who administers the Stanford-Binet to the child rates him on each of these dimensions. The resulting scores serve not only to provide an indication of social growth in the child, but can also be used to interpret the test scores (for example, a low Stanford-Binet score might be more understandable if it is known that the child is extremely shy with the examiner). The other rating scale is filled out by the child's teacher. The *Classroom Behavior Checklist* contains 15 items which assess four factors of classroom behavior—academic, social, disruptive, and dependency behavior. Unfortunately these ratings take up a great deal of the teachers' time so it is administered on a more limited scale than the other measures.

*Process Measures.* Three instruments are in use to assess differing aspects of the Follow Through process—classroom observations, ratings of program implementation, and program case studies. The *classroom observation procedure* is concerned with specific and detailed information on the interactions of children and adults within classrooms. The information is obtained by an observer who spends several days in a classroom recording the interactions of children with teachers and aides, with other children, and with materials. The results obtained by this procedure indicate such things as the size of the group the teacher works with, what the child is doing at different times of the day, the kinds of questions the teacher asks the children, the proportion of time children spend in the active, constructive manipulation of materials, the frequency of negative and positive control by the teacher, and so on. The occurrence of various patterns of these interactions is then used to compare classrooms and to evaluate the quality of the educational experience that a child in a

particular classroom receives.

The *ratings of program implementation* assess, at a more global level, the classroom operations in relation to the ideal of a well-implemented classroom. The instrument in this case is a classroom implementation matrix which describes four levels of implementation for each of 15 variables. The variables refer to such classroom processes as the arrangement of learning centers within the classroom, the child's opportunity for planning and evaluating his work, and the nature of the learning experiences provided by the teacher. A sponsor field consultant or local CA rates the classroom on each variable, with a low rating indicating inadequate implementation of the instructional model and a rating at the highest level meaning that the classroom is a perfect or near-perfect example of the model.

The *program case studies* draw together information from local program personnel, school records, school personnel and parents. The information gathered for these case studies is intended to present the broader context in which Follow Through implementation occurs. Some of the variables on which information is obtained are the program components (e.g., health and nutritional services), aspects of the educational program (e.g., attendance figures, records of discipline problems, school-administered achievement tests), community relations, and the involvement of parents. When completed, each case study provides an analysis of the modifications that occur when the High/Scope program is implemented in a variety of situations.

Although the measures used for program evaluation have been categorized as applicable to either process or product evaluation, it should be recognized that there is not always a clear distinction between the two types of evaluation. Wherever it seems relevant, information obtained by the process measures is interpreted as outcome effects. With the classroom observations, for example, knowledge that a child is writing stories or manipulating objects in a constructive manner serves as an indication of the *effect* of the program as well as a description of the classroom process. One concern underlying the sponsor's evaluation is that the different types of assessment procedures complement each other and provide information on a wide range of program products and processes.

### Relation of Sponsor Testing to Local Testing

The sponsor evaluation activities described above do not proceed in a vacuum. In every school system where the Cognitively Oriented Follow Through model is being implemented, other testing and record-keeping occurs, usually under the direction of a school psychologist or director of educational research. The assessments carried out by the High/Scope Foundation are in addition to local testing, but the data collected at the local level provide information that is useful in evaluating Follow Through. Information that is collected by site personnel is sent to the High/Scope Foundation research department for use in finding out more about the effects of Follow Through in that site. The information includes such data as pre-Follow Through test results, comparison data of Follow Through and non-Follow Through children (grades K through 3), and longitudinal follow-up data on fourth and fifth graders who have been through Follow Through. Data related to other factors that might shed light on the impact of the program, such as attendance figures, teacher absences, and parent involvement in the classroom, are also collected.

## Feedback Procedures and Issues

All the process and product measures outlined above yield information that is of potential value to teachers, CA's and project directors, and in one form or another the results are channeled back to the local programs. Results from the outcome measures (especially the Stanford-Binet and the Comprehensive Tests of Basic Skills) are sent to each project director along with an explanation of their relevance and an interpretation of their statistical significance. Teachers and CA's receive feedback from the process measures so that such information can be put to immediate use. When the Implementation Matrix is completed by CA's, the sponsor field consultant for that site analyzes the CA's ratings and uses these ratings as a basis for planning a course of action related to specific classrooms. The classroom observation instrument yields a complex set of information, but information that might be of interest to the individual teachers whose classes were observed is returned to them. The case studies are returned to the project director, not only so that he or she can see what the program looks like from the perspective of the sponsor, but so that the director has an opportunity to correct any misinformation. In all respects it is hoped that the evaluation activities of the sponsor can also be of value to the programs which were the sources of the data.

Feedback of evaluation data, of course, is in addition to feedback that local program personnel receive from the sponsor's staff as a part of the normal service delivery. Field service reports are sent to the project director of a center following each field visit by Foundation staff. Recommendations for further implementation as well as administrative suggestions are provided. The report also serves as a document of work done during the service week. Local staff provide the Foundation with a similar feedback report which analyzes services and suggests areas where changes in services might be made.

Classroom Implementation of the Cognitively Oriented Curriculum: Matrix

VARIABLE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		A		T*		B		T*		C		T*		D		
1	ROOM ARRANGEMENT	Teaching stations but no learning centers	Teaching stations plus 1 or 2 learning centers without a specific focus	Teaching stations but no learning centers	Teaching stations plus 1 or 2 learning centers without a specific focus	Teaching stations but no learning centers	Teaching stations plus 1 or 2 learning centers without a specific focus	Teaching stations but no learning centers	Teaching stations plus 1 or 2 learning centers without a specific focus	Teaching stations but no learning centers	Teaching stations plus 1 or 2 learning centers without a specific focus	Teaching stations and learning centers stimulating but unrelated to each other	Teaching stations and learning centers so that they become one and the same	Integration of teaching stations and learning centers so that they become one and the same	Integration of teaching stations and learning centers so that they become one and the same	Integration of teaching stations and learning centers so that they become one and the same
2	DAILY ROUTINE	Children rotate among teaching stations	Children rotate among teaching stations and 1 or 2 learning centers (usually used for free play or busy work)	Children rotate among teaching stations and 1 or 2 learning centers (usually used for free play or busy work)	Children rotate among teaching stations and 1 or 2 learning centers (usually used for free play or busy work)	Children rotate among teaching stations and 1 or 2 learning centers (usually used for free play or busy work)	Children rotate among teaching stations and 1 or 2 learning centers (usually used for free play or busy work)	Children rotate among teaching stations and 1 or 2 learning centers (usually used for free play or busy work)	One-half day teacher initiated (group time); one-half day pupil initiated (work time)	One-half day teacher initiated (group time); one-half day pupil initiated (work time)	Integration of entire day. Individualized and small group instruction is related to child's activity at learning centers	Integration of entire day. Individualized and small group instruction is related to child's activity at learning centers	Integration of entire day. Individualized and small group instruction is related to child's activity at learning centers			
3	CHILD PROCESS <i>Plan</i>	No opportunity for planning	Children assigned to center by adult or may choose but are required to get to all centers	Children assigned to center by adult or may choose but are required to get to all centers	Children assigned to center by adult or may choose but are required to get to all centers	Children assigned to center by adult or may choose but are required to get to all centers	Children assigned to center by adult or may choose but are required to get to all centers	Children assigned to center by adult or may choose but are required to get to all centers	Child chooses center but makes no specific plan for activity	Child chooses center but makes no specific plan for activity	Child makes choice of center and discusses plan with teacher	Child makes choice of center and discusses plan with teacher	Child makes choice of center and discusses plan with teacher			
4	<i>Work</i>	No work time	No work time	No work time	No work time	Adult assigns activity to be done at center	Adult assigns activity to be done at center	Adult assigns activity to be done at center	Adult assigns activity to be done at center	Adult assigns activity to be done at center	Adult assigns activity to be done at center	Work undertaken varies with passing interest	Work undertaken varies with passing interest	Child completes plan	Child completes plan	Child completes plan
5	<i>Represent</i>	No opportunity for representation	No representation, or representation directed by teacher	Superficial representation at child's discretion	Superficial representation at child's discretion	Child represents experience in his way	Child represents experience in his way	Child represents experience in his way								
6	<i>Evaluate</i>	No opportunity for evaluation	No evaluation, or simple reporting of presence at a center	No evaluation, or simple reporting of presence at a center	No evaluation, or simple reporting of presence at a center	No evaluation, or simple reporting of presence at a center	No evaluation, or simple reporting of presence at a center	No evaluation, or simple reporting of presence at a center	Voluntary show and tell or mandatory reporting	Voluntary show and tell or mandatory reporting	Child evaluates plan and uses evaluation to make new plans, to extend or modify previous plans	Child evaluates plan and uses evaluation to make new plans, to extend or modify previous plans	Child evaluates plan and uses evaluation to make new plans, to extend or modify previous plans			
7	DAILY PLANNING & EVALUATION <i>Process</i>	No daily planning occurs or head teacher does planning	No daily planning occurs or head teacher does planning	No daily planning occurs or head teacher does planning	No daily planning occurs or head teacher does planning	Team plans together but each member for his own area	Team plans together but each member for his own area	Team plans together but each member for his own area	Team plans together but each member for his own area	Team plans together but each member for his own area	Team plans together but each member for his own area	Team integrates plans. No development evaluation of individual children	Team integrates plans. No development evaluation of individual children	Planning and evaluation are a result of group process	Planning and evaluation are a result of group process	Planning and evaluation are a result of group process
8	<i>Outcome</i>	Same lessons and activities for all groups. Child involvement determined entirely by teacher	Same lessons and activities for all groups. Child involvement determined entirely by teacher	Same lessons and activities for all groups. Child involvement determined entirely by teacher	Same lessons and activities for all groups. Child involvement determined entirely by teacher	Activities planned for different groups. Children grouped in some arbitrary way. Child involvement determined largely by teacher with some child-initiated activity	Activities planned for different groups. Children grouped in some arbitrary way. Child involvement determined largely by teacher with some child-initiated activity	Activities planned for different groups. Children grouped in some arbitrary way. Child involvement determined largely by teacher with some child-initiated activity	Activities planned for different groups. Children grouped in some arbitrary way. Child involvement determined largely by teacher with some child-initiated activity	Activities planned for different groups. Children grouped in some arbitrary way. Child involvement determined largely by teacher with some child-initiated activity	Activities planned for different groups. Children grouped in some arbitrary way. Child involvement determined largely by teacher with some child-initiated activity	Activities and grouping are a direct outcome of team evaluation of <i>activities</i> rather than child evaluation. Child involvement is self-initiated but unrelated to teacher's evaluation	Activities and grouping are a direct outcome of team evaluation of <i>activities</i> rather than child evaluation. Child involvement is self-initiated but unrelated to teacher's evaluation	Planning for individual children is a result of ongoing team evaluation. Child involvement is self-initiated but related to teacher's evaluation	Planning for individual children is a result of ongoing team evaluation. Child involvement is self-initiated but related to teacher's evaluation	Planning for individual children is a result of ongoing team evaluation. Child involvement is self-initiated but related to teacher's evaluation

	Basis	Concern for skill development and grade level expectation	Concern for skill development and grade level expectation but allows for some diverse activities based upon individual differences	Awareness of the importance of real experiences and the application of levels of representation and cognitive structures	Integration of levels of representation, cognitive structures and skill development
10	TEACHER DIRECTION	Teacher domination and control of content and process	Teacher direction with opportunities for children to choose among restricted alternatives	Teacher provides little direction but allows for peer interaction and interaction with materials	Teacher directs by structuring the environment so that children can initiate activities and work independently; teachers serves as a resource
11	CHILD-TEACHER INTERACTION <i>Teacher-Initiated Instruction</i>	No opportunities for child-initiated activities	Few opportunities for child to initiate activities but within planned activity there is room for divergent responses	Strong evidence of divergent responses during individualized and small group instruction	Divergent responses used as a basis for further individualized and small group instruction
12	<i>Work Time</i>	No work time	Children's alternatives and behavior mostly structured by teacher	Most activities initiated by child; little teacher interaction	Child chooses activity. Teacher interacts with child
13	LEARNING EXPERIENCES <i>Skills</i>	Dominated by skill development and grade level expectations	Dominated by skill development and grade level expectation but allows for some differences in ability	Skill development incidental; follows no particular sequence	Skill development integrated with other activities as a result of individual child's needs
14	<i>Cognitive Development</i>	Experiences determined by grade level expectations	Experiences determined by grade level expectations but allows for some differences in ability	Experiences determined by child interest; some teacher awareness of child's cognitive development	Experiences determined by teacher's recognition and understanding of child's level of cognitive functioning and interest
15	<i>Commercial Materials</i>	Commercial materials not used or used inappropriately	Commercial materials predominate; followed like a cookbook	Commercial materials used as a resource	Commercial materials complement each other and support other classroom experiences

T\* = transition between levels

## Section 2

### FIELD ISSUES AND TRAINING IN THE HIGH/SCOPE MODEL

## FIELD ISSUES

### An Assessment

Project Follow Through began at a time when compensatory education was viewed as a culminating effort of the War on Poverty. At this time, conditions for the commencement of an ambitious long-range research and development project were as optimal as could be expected. While the concept of compensatory education was not yet the source of great controversy that it was to become, educational and societal issues of a broad nature were gaining momentum, and the socio-political landscape was in upheaval. Racial confrontations and the great urban riots left deep wounds but no solutions to the problems of ghetto America. Minority groups not only took on the "establishment" but jockeyed hard for any spoils that might be forthcoming. Issues such as desegregation and the related busing controversy were debated along with the values and goals for education. Many citizens felt education and indeed schools themselves were irrelevant and even damaging to children and society, while opposing forces worked for a return to the 3 R's. Big business was moving into education, buying publishing houses and pushing technocratic gimmicks while communities fought for control of the schools, teachers' unions fought for large increases in salaries and benefits and universities cranked out certified teachers without regard for any criteria but their own. Yet despite the increasing fragmentation of American society, Follow Through has been a unifying force in many communities, directing a coherent effort toward the realization of goals held alike by parents and educators.

The progression of new educational programs from initial optimism to final disillusionment is a story that has been repeated many times. Many education schemes, particularly those that involve expensive technological "advances" designed to produce immediate gains, suffer the inevitable--first, the program falls victim to the need to produce a "good show" rather than a long-range benefit; second, educational honesty suffers another setback in the campaign to emerge as the modus operandi. Then there is the public shock at the dishonesty and shallow nature of the program (e.g., teachers are found to be teaching directly for the

tests). Finally the program is rejected.

One of the things we learned in the past decade is that we don't know very much. We don't know much about kids, about learning, or about motivation. One of the more fundamental assumptions of ten years ago was that curriculum planners sitting in some university, a foundation, or a central office could invent programs (for teachers and students) and thereby engineer pedagogical success. What we discovered is that most of the time it couldn't be done, which may well be a good thing. (Peter Schrag, "End of the Impossible Dream," Saturday Review, September 19, 1970, p. 94)

While Follow Through has suffered from aspects of this optimism-disillusionment cycle, there has been sufficient flexibility among stakeholders to allow the projects to consolidate gains while developing more sophisticated techniques and approaches to solve new problems. Moreover, Follow Through has not suffered to a great degree under the traditional method of school operation--fitting the child to the school rather than the school to the child. Stakeholders have operated under the positive assumption that "reversibility" of a child's disadvantages is not only possible but probable, an attitude that has helped steer the Project toward success.

The school year 1973-74 will be Follow Through's sixth year of operation, a testimony to its future potential and past success. The Project has demonstrated, through strong support from parents and communities, that it has the flexibility to adapt to local conditions and still achieve most of its goals.

### The Planned Variation Concept

Despite a gloomy outlook toward the future of education shared by many in the decade of the '60's, Elliot Richardson, while Secretary of H.E.W. in 1972, found that "in Follow Through--there is reason to hope." Much of that same optimism prevailed in 1968, in part because Follow Through,

unlike most Title I and other similar programs, was structured on the planned variation concept.

At the second national conference of Follow Through sponsors in October 1972, sponsors reaffirmed the necessity of planned variation. Educational changes, it was stated, "are more probable with planned variation" because:

- a) Planned variation emphasizes modifications of the educational system to meet educational goals. The programs emphasize continual development and renewal, not maintenance of present systems.
- b) The outside national change agents (sponsors) are relatively free of local political pressures.
- c) Existing educational systems tend to be oriented toward the delivery of services, but sponsors are charged with developing programs by putting a wide range of educational theories into practice.
- d) As a design, planned variation allows for the identification of a variety of conditions which contribute to effective program implementation and operation.

Sponsors voiced the opinion that planned variation not only promotes educational change but, equally important, the concept addresses itself to the realities of a pluralistic society. Planned variation:

- a) provides for the developmental needs of children from different ethnic and cultural groups,
- b) allows parents and others a variety of choices for selecting how (process) and toward what goals (outcomes) children are educated,
- c) provides for parent involvement and participation in a variety of ways and in a variety of educational programs,
- d) provides an educational system that is self-renewing and self-monitoring. (Proceedings of the Second Working Conference on

Evaluation of Follow Through Objectives,  
Ypsilanti: High/Scope Educational Research  
Foundation, October 1972, p. 15)

### Federal Operational Issues

Control of funds. While the national Follow Through office has exercised little control over the daily destinies of projects, the political structure of Washington continues to invite conflicts affecting the quality of implementation. Long-range research and development programs are, like all programs, caught in the continuing struggle for funds, an ongoing reassessment of national and regional priorities, and ultimate control of program operation.

Congressional funding aims for the biggest bang from the smallest buck, with minimum recognition and understanding that educational change comes slowly. Consequently, central to the operation of every federal program is the desire for immediate results, and given the fact that Follow Through has been generously funded, the Project is closely watched.

Perhaps more important than Congressional scrutiny is the struggle within the Office of Education for control of funds and programs. Because Follow Through is a compensatory program and at various times "compensatory" is a dirtier word than at others, the Project lives under the ever-present threat of phase-out. The game at the local level then becomes one of using federal dollars to obtain as much equipment as possible before the funds evaporate.

Reversals and frustrations. There have been threats of major directional as well as funding shifts, in part due to the funding structure and struggle for control of funds. In the Spring of 1972, the decision was made in the Office of Education to defund 30 Follow Through projects. The reasons given, based on a two-day federal review, generally did not reflect the realities of the projects; the real motive for defunding was considered by projects to be pure politics. The federal reviews were nothing short of absurd, which added to the ill-will between projects and the national office. Only certain projects were reviewed, leading local staff to the conclusion that their evaluation and subsequent defunding had been predetermined. Moreover, it is virtually

impossible to do a decent review of an extremely complicated program in two days.

The reputation of the National Follow Through Office suffered because projects, originally funded because the communities had problems and needed help, now were defunded when the problems had become visible and consequently would make the national evaluation look bad. The reaction from sponsors and communities was strong enough to force refunding of nearly all the projects, but the damage had been done.

Major reversal which has added to the credibility gap between the national office and Follow Through stakeholders was "proliferation," the design by which Follow Through would expand from an experimental research and development effort to a fully operational federally sponsored program of school reform; "Five Year Plan" for proliferation called for the expansion of Follow Through in all 50 states. The plan was, in the words of the National Follow Through Director, "set in concrete." The mixture, however, turned out to be only sand; proliferation did not happen, and the states that had selected project sites and in some cases model sponsors were forced to inform communities that their hopes for a Follow Through program were gone.

Communication. Another great frustration to all Follow Through stakeholders has been the failure of the SRI Evaluation to yield useful information. This has meant another false start, which has required the reworking of the data-analysis contract. False starts and major changes in funding create community problems. Few understand or know the current publicly stated rationale for funding changes. This is particularly true of parents, who are at the heart of Follow Through. Many have little knowledge of the political process and of course judge policies on the basis of the direct relationship of the policies to their situation. Parents are often at the end of the communications network, which tends to increase the probability of inaccuracies in the information they receive.

Inevitably, communication has been a problem for Follow Through. What is needed is a network by which information comes swiftly and directly to projects and sponsors. As the grapevine now functions, federal project officers, general consultants, sponsors, regional contract officers and

in some cases state officials and city coordinators of federal programs all pass along information to projects in varying degrees of accuracy. Since projects and sponsors have the most direct and sustained contact, the latter have been called upon by projects to furnish information necessary for the operation of the program and often to intervene with the national office when the appropriate federal staff "are not at their desks right now."

The recently formed National Parent Advisory Committee has taken steps to create a communications network that will not only keep parents apprised of Follow Through developments but inform project personnel and sponsors of their position on issues. Recommendations for strengthening and expanding the program will be distributed for analysis.

Federal guidelines, which have functioned as the Follow Through "constitution," have offered the necessary flexibility to operate within local conditions. The guidelines were created primarily from the Follow Through perspective. Thus other federal programs were to revolve around it even though many carefully thought out procedures were considered for involving other federal agencies. The key issues which have forced local agreement but also promoted conflict have been the inconsistencies in guidelines between Title I and Follow Through. The latter requires, of course, a percentage contribution from the former. What is unclear, however, is the monitoring, evaluating, and reporting on the use of Title I funds within Follow Through. Lack of clarity thus invites a question of control which has to be resolved.

Field monitoring. Communication problems and the need for operational knowledge to facilitate effective administration at every level creates a continued need for field monitoring by federal project officers. In the early years of Follow Through, project officers were active in their assistance to projects. As the national leadership changed in 1971, so did the field methods. Much of the monitoring was turned over to general consultants ("technical assistance" personnel) whose role in the total operation of the program remains confused.

At High/Scope's annual Winter Workshop in December 1970, a session was held on the role of the general consultant, and although three of these technical assistance personnel

were present, no one could define the role. Project personnel were confused because general consultants were coming to their projects without having been invited; consequently, their expertise was not well utilized.

A different role eventually evolved for each consultant based on the needs of projects and the individual expertise of consultants. A determinant of that role has been the relationship between general consultants and the national office. Some consultants are given considerably more autonomy in the field and more power over project budgets than others. Thus, when project personnel as a group attempt to define the role of the general consultant, a consensus based on experience is not possible.

A lack of consensus has created problems particularly between general consultant and sponsor. As consultants are generally professional educators and Follow Through is a research and development effort, many have gravitated toward involvement with curriculum implementation. Unfortunately, they receive relatively little training in the sponsor's curriculum model, and therefore their judgments are based on scant knowledge of the model's goals. This has resulted in lack of support for the model from some general consultants, or more accurately, in uninformed attacks on the model based only on a consultant's biases. In one case, the suggestion was made by a consultant that the High/Scope Foundation was doing a disservice to children by not properly stressing academic skills; another consultant felt that the Foundation's "reading program" was insufficient and offered to implement a better one. One general consultant found the racial situation at a project unsatisfactory and moved quickly to separate black and white to the point where Follow Through would be run by blacks for blacks. The project responded by asking that she never return and she resigned a few months later.

We do not mean to imply by these examples that general consultants have been a major concern in the Foundation's operation of its Follow Through program. Most consultants have in fact been highly effective and have made major contributions to the projects, particularly with regard to parent involvement. In two instances, consultants were able to save projects from near collapse and defunding.

Recommendations regarding general consultants. General consultants have become, over a period of years, the primary arm of the National Follow Through Office in the field. It therefore seems reasonable to suggest areas of their relationship to the Project where improvements could be made in the interests of all stakeholders.

Both Volt and PTTAC have been slow to process reports from general consultants. Occasionally plans have been executed on the next visit by a consultant prior to receipt of the previous report by the sponsor. As plans have in several cases been in conflict with the sponsor's model and training sequences, faster reporting service would be of benefit.

Project officers from National Follow Through should dramatically increase their efforts to conduct field visits of an assistance-oriented nature. This will, of course, increase the effectiveness of general consultants as their recommendations and positions will be more meaningful to the national office and the general needs of projects will be felt first-hand rather than only through reports.

The High/Scope Foundation should establish a national training workshop for its general consultants, with the backing of the national office to insure that the workshop is attended. This will facilitate understanding of the High/Scope program and promote greater implementation.

National Follow Through should reassess its utilization of graduate students as general consultants. Too often their interests conflict with program needs, and service needed by the project is not rendered.

A memo from the national office to projects and sponsors on the role of general consultants should be drafted and critiqued by all stakeholders. From the recommendations, a position statement to supplement the national guidelines would be issued.

Initial problems and issues. At the beginning, Planned Variation Follow Through was often seen as just another federal program, which, notwithstanding the Office of Education's statements, could vanish from the scene in the next few years.

Consequently, an attitude of "get it while it's there" sometimes prevailed at the local level. In certain quarters, Follow Through was viewed as a threat to existing Title I programs. Indeed, the very idea of participating in a program in conjunction with a "foreign" sponsor was cause for anxiety in some communities.

Initially there was misunderstanding on the part of some centers regarding their role in "research and development" and curriculum implementation. The characteristics of education in general during the period of Follow Through's beginning were such that the pressure was on to produce immediate and visible results. There was (and is) a contradiction between the long-range goals of the planned variation approach and the fashionable concepts of contract performance and accountability. Often a center entered Follow Through with a background of Head Start involvement, and this eased the way; staff of these centers understood the importance of long-term training in the model and knew how to work with regular consultants and sponsors.

Urban-rural differences. Many large urban centers initially were faced with teachers' union contract stipulations that made it difficult for a new program to get off the ground. Rural centers as a rule did not have this problem.

At rural sites, classrooms are staffed almost totally by females, with the administrative posts being programmed for males. This situation is not as prevalent in the urban sites.

It is interesting to note that although the pay discrepancy between urban and rural centers is often great, this difference is not reflected in the commitment and dedication of the teachers.

The urban sites often have a more dynamic parent program; the urban parents tend to feel more strongly about the importance of teaching academic skills and are more vocal in their demands for an educational process that will increase their children's opportunities for success. Urban parents are ready to accept the Follow Through program so long as the program is not rammed down their throats. Rural parents

accept the program less easily since it is sometimes seen as a "welfare program" and the parents do not wish to be so identified.

Urban centers more often than not have a web of bureaucratic strings that has to be unraveled before decisions can either be made or acted upon. Rural centers, on the other hand, have an identifiable locus of power and tend to operate on a smoother organizational basis. However, the urban centers tend to be much more politically astute and very often set the vanguard for the other centers in confronting issues affecting their program. An example of this is New York's leadership in the establishment of the National P.A.C. This is not to negate the rural center's effectiveness in dealing with political conditions. This was shown dramatically with the fantastic grassroots mobilization by Mississippi in securing refunding by O.E. after having been dropped and left for dead by National Follow Through.

Minority groups. The problems of the minority groups have been an important influence on the functioning of the centers. Issues such as the racial or ethnic balance of the students and teaching staff, the curriculum assistant's race or ethnic background, and black or Chicano curriculum studies have become part of the overall implementation of the centers' Follow Through programs.

Conflict. As a consequence of a new Follow Through program entering a school or district, there would often be confusion and conflict over roles. The traditional territorial rights of individuals became unclear, and at times there was an ongoing struggle among persons who felt that their interests were being violated. Caught in the midst of the power plays was the sponsor, who was attempting to secure a solid footing in the community in order to implement an educational model.

The uncertainty, competition and, at times, jealousy had spin-offs into other areas. Often, there would be a polarization between Follow Through and non-Follow Through teachers. Issues dividing the teachers were the higher student-teacher ratio in the Follow Through classrooms, the

additional expenditures for Follow Through classroom materials, the time allotted for Follow Through workshops, and the personal assistance given by supervisors and consultants to the Follow Through teachers. Also within the school was the concern, from the teachers to the high levels of administration, that the children in the Follow Through program would not be able to perform according to local achievement standards.

Changes and growth. High/Scope Follow Through centers have attracted teachers who are dissatisfied with traditional approaches to education but have had no direction, method or authority with which to attempt an innovative approach. These teachers bloom when allowed to function within an "open framework" with the support of the Foundation.

Although on the whole changes in attitude on the part of teachers involved in implementing a different approach to education come about very slowly and with much difficulty, some dramatic changes have been witnessed by High/Scope field consultants. A good example of this is when a teacher of 15 or 20 years states that she could never return to her old teaching customs and especially never again would her children be made to sit quietly in straight rows of desks. This happened enough times to suggest that a real impact was being made. Also the Follow Through centers, via parents and teachers, are finding that children are responding to school in a much more favorable manner. There are fewer attendance problems, fewer behavioral problems, and the children are exhibiting greater curiosity, self-direction, verbal and non-verbal expression and creativity than had been imagined possible.

Sometimes a Follow Through center consciously or unconsciously performs a missionary role. Nearby non-Follow Through teachers or administrators come to observe and evaluate the program. Occasionally a center staff member migrates to a different area of the country and carries the program with him. In a number of instances curriculum assistants in High/Scope programs have obtained principalships and have stated their goal of using the Follow Through program in their new school.

There has also been positive feedback from the centers regarding their interaction with each other. It is in itself a learning experience for the Central Ozarks Follow Through people to discuss educational issues with the P.S. 92 Harlem people; for Seattle to compare notes with Denver, Chicago, or Mississippi. This interaction is a way of broadening horizons and gaining new perspectives and opinions with which to approach local issues. It has most certainly caused measurable growth within the centers with respect to their struggles realizing the aims and purposes of National Follow Through.

### Sponsors

The concept of sponsorship was quite vague, if not somewhat foreign, to the concerned parties at the inception of Planned Variation Follow Through. The Office of Education guidelines offered the goals and the conditions by which the national program design was to be implemented. However, it did not establish methods by which implementation would take place. This approach not only effectively left both the centers and the sponsors in the position of having to devise the structure and the methods for fulfillment of the conditions of the guidelines, but also necessitated a formulation of their respective roles, rights, duties and expectations. Essentially, then, what was said in general and idealistic terms by the federal government was hammered into specific practice by the centers and the sponsors.

Sponsor selection. The first major task in the planned variation design was to join an applicant with a program approach. This process of sponsor selection brought into focus a number of considerations and issues that confronted both the centers and the sponsors.

At the beginning, not all sponsors had functioning models in schools, and centers could not see the various approaches in operation. Thus the centers had to select the sponsors by other criteria. In some instances it appeared that those individuals who had the responsibility for sponsor selection had predetermined the approach they would choose. In effect, this narrowed the options available, since sponsors tended to cluster in groups on the

spectrum from those who were "parent and home teaching oriented, program instructors" or those who were "open education oriented." Those centers that knew which general approach they desired needed only to select the sponsor with which they felt most philosophically compatible. Another criterion that seemed to prevail was geography. Often the proximity of the sponsor to the center was an important issue since some centers wanted virtually on-site sponsor service. An aspect of the geographical consideration was the racial and ethnic make-up of the various centers. Some Southern centers indicated that they would prefer not to be involved with a Northern sponsor. This issue was heightened by the then current bitter issues of court-ordered busing and desegregation. Also, centers where the population was all or predominately black confronted sponsors with their expectation of a black language and culture studies program as part of the sponsor's model. This issue was present also in communities with a Chicano population. Ironies occasionally arose when a center would confront the sponsor with their conclusion that the sponsor's model was programmed for black children and, therefore, would have little to offer other minority or white children.

The alignment of center and sponsor occasionally was brought about by the Office of Education. Instances occurred where the initial choice of sponsor by a center could not be honored since the sponsor had already contracted with as many centers as it could handle. The center would complain to O.E. and a "shotgun marriage" would be performed by Washington between that center and a sponsor that had few centers or still had the ability to handle more centers. With hindsight, it is apparent that the selection of sponsors could have been carried out more efficiently and with less anxiety.

Problems of implementation. As sponsors sought to implement programs they were presented with a number of issues which required immediate attention.

Sponsors were often seen by centers as similar to the consultants who had visited the schools representing commercial specialists from the local school districts. These individuals were viewed as problem solvers who could provide, in a day or two, the necessary technical assistance

to resolve problems, provide new techniques, and spark new fires in the teaching staff. The temptation to treat the sponsor like the one-day consultant gave rise to the feeling that the sponsor was the "fat-cat" in the chain of stakeholders. Those who were charged with developing project budgets were aware that sponsors, in their terms, were expensive and to cut these expenses meant the ability to purchase more materials. Often, sponsors heard: "Just give us the material and we will implement the model." Thus, it became apparent that centers never saw the need for research and development. Their frame of reference was materials and services.

At the beginning, the sponsor's representative was expected to work in the classroom and provide training by being a "model teacher." What was not firmly understood was the direction and method of a training program which would bring about well trained on-site staff to train the classroom teachers. It would be a number of years before High/Scope and other sponsors solidified this concept into a program approach.

Another problem of implementation for High/Scope was the difficulty of transposing a theoretical and philosophical approach of educating children into an actual concrete system of operations. Teachers, through their own education, training, classroom practice, and reinforced by previous experience with the consultants mentioned above, were expecting concrete methods and materials to help them enact the program. They were not expecting to be placed in an arena where they would be expected to be part of an ongoing evaluation of the program; where they would be expected to examine their set attitudes and philosophies regarding teaching and learning; and where they would be expected to change and grow as individuals within the context of their professional endeavors.

The anxieties and problems produced by teachers who could not come to grips with implementing a new program approach forced the sponsor into unanticipated situations. There was an occasional surfacing of a "take it or leave it" attitude on the centers' part when the sponsor did not produce those concrete methods and materials. It was disheartening for the sponsor to work intensely for a week

with a center and to return in a month only to find a reversion to the original condition. At some centers, the sponsor plugged away for years attempting to work with openly hostile teachers. In many centers, it became apparent that the Follow Through classrooms were being used as dumping grounds for "problem children" or even "problem teachers."

Sponsors often found themselves caught in the middle of political struggles for control of funds and program direction. In many of the small communities where Follow Through was desperately needed but where federal "interference" with local issues was a general consideration, Follow Through became the center of attention. In its comprehensive nature, all general issues relating to federal involvement, community control of schools, the role of schools in loco parentis vs. the role of parents in the program, the free lunch program, whether or not paraprofessionals could "teach" became concerns which required immediate attention. As the sponsor was the most available outside force and a stakeholder in all issues which affected implementation, there was a natural gravitation toward involvement in the issues.

On numerous occasions, High/Scope found it necessary to defend the concept of impact aid and explain the rationale for not spreading the program and funds to the point where the impact was diluted. At several projects the debate has continued from the inception of the program. By necessity and design, Follow Through provided sufficient monetary support to develop, implement and research various educational approaches. Nevertheless, it was impact aid and as such created "haves" and "have-nots." The latter became almost an automatic factor of jealousy in the program. To avoid this jealousy, many within the community moved insistently to spread the impact aid as far as possible and refused to recognize the inevitable dilution of the program and services. Only the negotiation of continuation proposals stemmed various moves within many of the communities to alter the structure of the program.

These and many other obstacles had to be overcome in order to proceed with the ongoing task of implementing a program. To provide direction and consistency in

implementation, High/Scope developed a comprehensive training program--a program directed toward both the High/Scope Follow Through staff and the centers--and a field services delivery program.

The High/Scope training program. The development of an in-house training program coincided with the ongoing development of the program model. As the staff continued to confront implementation issues and problems and work out solutions, it became apparent that this effort was creating a more mature and sophisticated approach to the entire concept of implementation. Eventually, tools to assess classroom implementation by the teacher and performance by the child were developed and methods of delivering these techniques to the on-site trainers were made more effective. Media and written material were developed as important aids in the training program. A Training and Development Center was opened in Ypsilanti; it became an essential aspect of the development of the training program as well as the curriculum. Staffing became an important element in the training approach, and as the staff matured, turnover became minimal, experience provided expertise and the training program and curriculum development became more and more solid and effective.

The High/Scope field services model. The delivery of the program model in the areas of training and curriculum necessitated the development of a field services model. During its first three years as a Follow Through sponsor, High/Scope Foundation followed essentially the same operational model, although modifications were made to meet the needs of new and experienced projects and to capitalize on knowledge and experience gained as a sponsor. Field consultants made one week-long visit per month to a center to observe, assess and train project staff in the curriculum. Such a general operational model offered a variety of strengths. Foundation staff had the use of one another's expertise in Ypsilanti during the three weeks between field service visits. Each consultant felt that he knew the key issues and problems affecting implementation at his assigned center. Project personnel preferred to confide in the consultant whom they knew well through a regular working relationship.

The one center-one consultant model, however, was not without problems. Teachers at local projects showed a tendency to place more reliance upon the consultant than upon the curriculum assistant; thus, the person to whom increasing responsibility for implementation should fall was often bypassed. Also, consultants were unable to gain a general perspective on implementation issues since they did not visit other projects. The need to develop a field service system whereby a broader perspective could be obtained was acknowledged by all staff.

A new delivery system was designed to move the program implementation forward at three points: the theory, which was to be developed by curriculum developers; the instructional model, to be analyzed and dealt with by field consultants; and the curriculum areas, to be developed and implemented by program specialists. Each program specialist was assigned two curriculum areas; for example, one program specialist was assigned to communications and social reality while another handled mathematics and science. Field consultants worked on issues such as team teaching, daily routines, schedules, and other implementation issues related to the instructional model. Curriculum developers provided substantial resources for special skills needed by both consultants and center staff.

It was hoped that changes in field service would yield a more effective method of consultation. To accomplish this, prescriptive services were offered to each center. Field consultants assumed responsibility for two Follow Through centers rather than one. Under this system, field consultants spent one week at each center every other month. Field consultants also provided program implementation services and assumed greater responsibility in monitoring program needs and prescribing, along with Follow Through center staff, services needed by the program. These prescribed services were provided by program specialists and curriculum developers either in training sessions with small groups during on-site workshops or through demonstrations.

Each center was provided 60 days field service during the year in addition to the services of three or four High/Scope staff during the week-long fall workshop. The types of services and the staff who provided them were

determined on the basis of requests from project directors, coordinated assessment of needs and priorities by center staff and High/Scope personnel, and the availability of consulting staff at any particular time. Project directors were asked to meet with their staffs and draw up submission requests and alternative choices for services of field consultants, program specialists, curriculum developers, or coordinators, who generally assisted with administrative issues. Each center had the option of two service weeks in September, October and November if staff requested were available. This would provide service days early in the school year when the need was greatest at some centers.

Most project directors initiated service requests promptly. Their choices were tabulated and coordinated so that scheduling conflicts could be resolved. High/Scope staff then set about to determine center priorities of those who had asked for the same service or individual at the same time. All centers received either their first or second choice, and provisions were made for fulfilling their other requests later in the year.

Conclusion. Time and experience have been the two major attributes which have aided sponsors in their efforts to accomplish the goals of Planned Variation Follow Through. It is a credit to the planners of the program that they were able to perceive the necessity for a long-range time-span of involvement. A most important ramification of this has been the continuing development of the sponsors, so that today it can be said that the sponsors have evolved to a vanguard position relative to compensatory education in the United States. They have often become the leaders and trend-setters in such areas as training, research, documentation, program development and parental involvement. The sponsors have succeeded in being one of the most significant catalysts in society's struggle toward the goal of quality education.

#### A Research/Dissemination Plan

Given the complexity of Follow Through and the comprehensive nature of its design, a valuable lesson has been the identification of a tooling up period prior to implementation. Sponsorship was new, projects were new, staff

in both projects and sponsors were new, yet time to set the groundwork was not provided by the Office of Education. Had there been a "tooling up" period of six months for key staff, the cost effectiveness of implementation would have been met. A long-range plan for the implementation of a national intervention project, recommended by High/Scope Foundation, follows:

The High/Scope Foundation has developed a five-stage research/dissemination procedure to guide the development and implementation of effective education programs. The model is presented in Figure 1.

Phase 1. This stage must be a tightly controlled research study guided by as close adherence to a true experimental design as possible. This adherence means random assignment of sample, clearly stated objectives, carefully documented procedures, formative evaluation with special emphasis on non-quantitative information, basic summative or outcome evaluation if such instruments exist to effectively assess the program goals. While the program should provide high quality service to the participants, the purpose is frankly experimental and the specific outcomes of the work are truly unknown.

Phase 2. This stage is for the development of training materials and methods which will serve as the basis for program implementation in Phase 3. Based on the needs identified in the experimental study, a wide range of training materials and methods are evolved. These methods may include film, videotape, manuals, handbooks, reading lists, and suggested practical systems of gaining actual experience rapidly. These materials will be used in both pre-service and inservice training, and they will be directed toward assisting trainees to achieve competency based criterion. They are critical to Phase 3, but the development of training materials will be ongoing throughout the remaining phases, as this work must be constantly adjusted to meet the needs of different staff and situations. Instrument development based on the data collected in the experimental phase continues. The essential characteristic of this phase then is the preparation of the materials that will provide the basis for the development of the program implementation staff in Phase 3.

Phase 3. This stage is the demonstration of the developed educational program in a natural setting approximating conditions of regular field operation. While still "at home" and not in distal sites, the characteristics of personnel operating the project are as close as possible to those expected to operate such a project in the field. For example, paraprofessionals are used, if that is intended in the final operational model. The basic purpose of the phase is to complete the development of five essential components for effective field operations so they will be ready for Phase 4. These are the curriculum to be delivered, the system to deliver that curriculum, the training procedures that must be employed to obtain successful program implementation, the staff model to be utilized, the quality control methods to accompany the field implementation to insure program success. A wide range of "adaptations" and "improvements" are made within the essential framework of the original research project to introduce the "qualitative" observations of the original project and to meet with practical, political and other demands. However, the central focus of the project is retained, and these additions can be seen as "practical" and "responsive" rather than alterations in the basic design. This phase is perhaps the most critical because the translation of the intent of the original "at home" project to the pressures of the more open demonstration project representation of the field is most difficult. Research is directed to special questions, validation of training systems, further instrument development, and replication of original findings. Formative evaluation is maximized to serve as a basis for quality control recommendations and to link specific project procedures with desired outcomes.

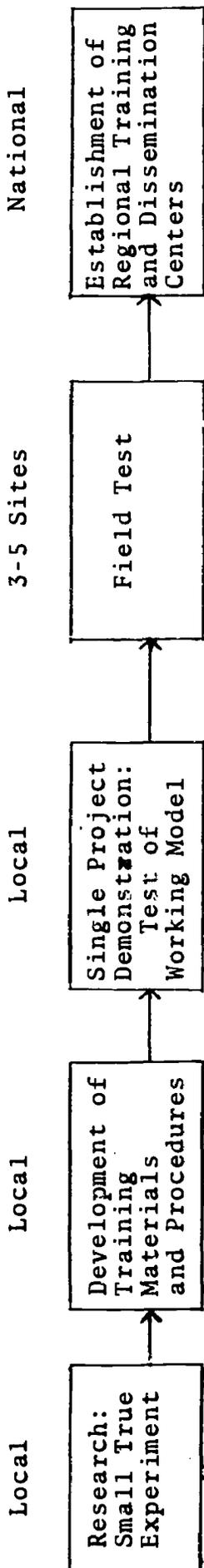
Phase 4. This stage represents a limited field test under natural circumstances. The number of sites cannot be so great that good control is lost. The training methods and materials are ready for field use; the five components listed in Phase 3 are ready for implementation. The research revolves around large policy issues such as impact upon populations to be served, etc. The quality control procedures are primarily formative to produce quality control monitoring information and they indicate comparability with original study and demonstration project. Through this stage the original sponsor is usually active.

Phase 5. The educational program is ready for dissemination to many sites. The curriculum, training program, delivery system, staff model and quality control procedures are clearly known and available. Continued research on the effect upon differing populations and under differing circumstances may be continued, but the basic program is well documented and can obtain the results intended. At this stage sponsorship is disseminated as well as program operation.

Of course, there may be many ways to develop effective educational curriculum. The course outlined above is a 12-year sequence which certainly does not lend itself to rapid information for policy decisions. Nevertheless it has as its goal the effective delivery of an educational program with ability to consistently obtain the desired results.

## High/Scope Research/Dissemination Phase

### STAGES IN THE DEVELOPMENT OF AN INTERVENTION PROJECT



Training of Staff--Development of Materials--Variable Costs

Continuing Longitudinal Follow-up--Variable Costs

2 Years	2 Years	3 Years	3-4 Years	Indefinite
\$250,000	\$300,000	\$1,200,000	\$4,000,000	\$300,000/Year/Center

## THE HIGH/SCOPE TRAINING AND DEVELOPMENT CENTER (TDC)

### Overview

From the beginning of the High/Scope Foundation's involvement in national Follow Through in 1968, the need for our own educational facility has been clear. Before 1971, public school classrooms in the Ypsilanti area were utilized by High/Scope staff members, but this arrangement presented numerous difficulties from an administrative standpoint and never satisfactorily provided the "workbench" we needed to hammer out training and development issues. The first High/Scope TDC opened in September 1971 in the basement of a local church. Space was divided between one class of first- and second-graders and one class of preschoolers and kindergarteners. We moved into our present facility in September of 1972, at which time the educational program was extended through fifth grade.

Since 1945, when it was built, the present TDC building in Ypsilanti had served as an auto dealership, warehouse, gas station and car wash. High/Scope staff designed and helped build the new facility. It has over 4500 square feet of usable floor space; the largest open space houses the elementary program, and in a room approximately one third this size is the preschool. During the past year, thirty-seven children, ranging in age from five to eleven, participated in the elementary program. There were 16 boys and 21 girls, 20 black children and 17 white, 17 who paid tuition (\$250-500) and 20 who received scholarships from the Foundation.

The elementary staff consisted of one teacher and one aide. Also involved in the ongoing program were three research-and-development interns who divided 75 percent of their time between the elementary and preschool groups. All Follow Through field consultants and program staff participated regularly through the development of curriculum and training materials and the planning and provision of workshops.

Program planning and evaluation took place daily among all persons directly involved in the school operation. In

addition to this, extended planning sessions including the entire elementary department staff took place weekly to deal with broad goals and objectives, curriculum development and training.

The expansion from three Follow Through field sites in 1968 to ten in 1970 had created a pressing need for more trained staff. The prospect of Follow Through proliferation in 1973 demanded that we take steps to create a pool of teachers and supervisors trained in the Cognitive model. The result was the development of the intern program (discussed in detail in Appendix A).

The core of Follow Through training for 1972-73 was provided through the TDC. In September, 10 centers sent a total of 25 persons to Ypsilanti for training in techniques of classroom implementation. In November, 13 curriculum assistants dealt actively with the problem of translating theory into classroom practice. During the December conference, 46 project directors, home program coordinators, PAC representatives and school administrators visited the TDC. The optional February workshop on mathematics in the Cognitive Curriculum involved 18 participants. As part of the spring workshop in May, nine teachers undertook a week's training. The June practicum included 13 more.

The Foundation's national conference in May also involved extensive use of the facility, both as an educational laboratory and as an example of our approach to the development of "found space" to meet educational needs. In addition, well over 100 visits to the TDC were made from this country and abroad. Notable among these visitors were Larry Wyatt, Chief of Program Management for national Follow Through, and Congressman Marvin Esch.

The TDC classrooms were the setting for the production of audio-visual presentations used for training and information dissemination. Productions completed in the past year are listed below.

#### TDC Audio-Visual Productions

The Preschool Department produced the following:

Helping Children to Plan--How We Do It (slide-tape, 15 minutes). A guide to procedures and teaching techniques used in the Cognitive Curriculum which help children begin to learn to make and carry out plans.

Experiencing and Representing (slide-tape). Part I, "A Way to Learn" (25 minutes), discusses the role of concrete experience and representational play in a preschool classroom. Part II, "A Way to Teach" (20 minutes), describes the role of the teacher in planning experiences for children from the concrete to the abstract, and in interacting with children in ways that encourage them to represent their experiences.

Observing Role Play (videotape, 15 minutes). An introduction to the observation of children's role play illustrated by classroom examples.

Videotaped "stimulus materials," produced for the Child Development Associate Consortium, Inc. as part of assessment procedures for evaluating teaching competencies of the Child Development Associate, included:

Storytelling--two contrasting storytelling sessions.

Times for Decisions--segments of children's play in which a teacher's intervention might significantly alter the learning that occurs.

Joey--typical experiences in the day of a preschooler.

Moments in Dramatic Play--segments of children's role play designed to assess the CDA candidate's ability to suggest appropriate teaching strategies.

Media productions by the Early Elementary Department were:

Classification--A Sequence of Exercises (slide-tape, 25 minutes). A series of goals for teachers suggested by the Cognitive Curriculum designed to develop classification processes in young children. Each goal is illustrated with classroom examples.

Spatial Relations--A Sequence of Exercises (slide-tape, 40 minutes). A series of goals for teachers suggested by the Cognitive Curriculum designed to develop concepts of spatial relations in young children. Each goal is illustrated with classroom examples.

Temporal Relations--A Sequence of Exercises (slide-tape, 50 minutes). A series of goals for teachers suggested by the Cognitive Curriculum designed to develop concepts of temporal relations in young children. Each goal is illustrated with classroom examples.

A Comparison of Programmed Instruction and an Open Framework Approach (videotape, 40 minutes). A discussion of the effects--both for the teacher and for the child--of two different philosophical approaches to education. Contains classroom illustrations, discussion among teachers and program developers, and a presentation by David Weikart.

Materials were produced on videotape illustrating a number of curriculum areas (math, music, etc.) and meeting a variety of training and workshop needs.

A production on videotape was written and produced entirely by the children at the TDC describing their classroom daily routine.

### TDC Training

Follow Through projects have been the primary beneficiaries of the TDC training. Project staff who have attended workshops at the center have to a greater degree than ever before been able to implement the High/Scope model.

High/Scope field services coordinators and field consultants have made a specific attempt to observe the impact of TDC training on classroom teaching and supervision. While our judgments might be influenced by a variety of circumstances at each project, we view the responses and greatly increased demand for training at the TDC as a reasonably objective evaluation of the worth of each workshop.

As 1972-73 was the first year of operation in the new

facility, the precise operational techniques and training strategies were revised several times in the initial stages. Project staff assisted with the evaluation of each workshop and suggestions for refinements. As the year evolved, the TDC experiences became more highly valued by curriculum assistants (CA's), not only for themselves, but for their teachers whose progress they enthusiastically endorsed.

One project transferred funds in order to have two CA's remain in Ypsilanti to work at the TDC during the week following the Spring Workshop.

The Summer Practicum offers a stark contrast to that offered the previous year. In 1971-72, the Practicum was offered in both Riverton and Ypsilanti. Participants for a variety of reasons elected Riverton unanimously. In 1972-73, the Practicum was optional and scheduled only for Ypsilanti as no projects under High/Scope sponsorship offered a summer school. Requests to attend were so heavy that the Foundation found it necessary to limit the number of participants in order not to have adults outnumber children and to maximize the training efforts.

A variety of alterations in field service as a result of the TDC's success have been suggested. They include week-long internships for selected staff, sometimes independently, other times in lieu of other service such as High/Scope staff on-site for the Fall Workshop. Some project directors have recommended that non-Follow Through teachers and those teachers who will inherit Follow Through graduates spend an internship period in Ypsilanti. Still others have suggested that it might be profitable to conserve the money spent on fall workshops and use it for expenses incurred in "project to Ypsilanti travel."

Because the TDC has proved to be a most effective setting for training, changes in field service for 1973-74 are anticipated. The goals of these changes will be the intensification and individualization of training. To achieve this, projects will be asked to send CA's and selected teachers to the TDC for week-long internships at various times during the year rather than sending all to the two presently scheduled regional workshops.

## Assessment of the TDC

High/Scope staff have, of course, shared the enthusiasm for the TDC. It seems to be a continual source of wonder how development, documentation, research, evaluation, and training proceeded without it. Even those staff not affiliated directly with early elementary work spend time observing and contributing to the overall operation.

The potential for the TDC both as an institution and a training concept is staggering. Denver Follow Through has offered to coordinate the operation of a mini-TDC within several of its classrooms. Other projects have expressed similar goals. In addition, the concept has enormous potential should an expansion of Follow Through similar to that envisioned in "proliferation" take place. Representatives from the various states initially selected for proliferation found the TDC a substantial asset in evaluating the model they might be adopting; equally important, they felt that the TDC was the type of training resource necessary to accomplish the goals of an expanded national Follow Through.

The following is a representative sample of feedback received by the Foundation about the TDC.

"... This total experience reinforces what is suggested by your model--the environment can be structured in a way to create an atmosphere which facilitates learning. This attitude is prevalent everywhere. Having had the experience at the TDC was superb. The opportunity to observe and work with the kids makes it all REAL. Being human, it is easy to say--'It all looks good on paper but it'll never work!' or to compromise, which isn't entirely bad, until you realize how good it can be if you really understand it and go about it wholeheartedly. As a result of my interaction at the center many things came into focus--particularly teacher planning."

"If less participants were involved in the workshop at a particular time then there would be more time to be involved in the TDC, more time to discuss intensely the implementation of the model and theory. Perhaps every morning and one afternoon in the TDC, leaving 4 afternoons to evaluate and discuss."

"Through actual work with the children, with specific goal sequences in mind, ... it became much clearer to me how many opportunities arise in a classroom situation where the tools can be extended."

"It was really rewarding to see how the center actually functioned. All week, since my return, we have been trying to follow more closely your ideas. It means so much more to see and do--than to just hear about how things should be!"

"Thanks very much for all the time you spent with us during our visit this week to the Training and Development Center. It changed the aimless wandering which passes for observation in some preschool programs into a rich and meaningful experience."

"Of course, faculty and students alike were stimulated by the exciting program in progress at the Training and Development Center. The Center is a joy and delight to observe and we were only sorry we couldn't go with you to see the implementation of the model in the field sites."

## APPENDICES

## Appendix A

### REPORTS OF ACTIVITIES AT THE HIGH/SCOPE TRAINING AND DEVELOPMENT CENTER

#### Intern Training

The Research and Development intern program at the TDC began in August 1972 with a two-week orientation period. The first week consisted of an overview of the cognitive curriculum using slide-tapes and videotapes prepared to introduce teachers to the curriculum model; a discussion followed each presentation. A half day at the end of the week was given to reviewing written curriculum materials and compiling a reading list. Materials presented included:

1. Slide-tapes
  - a. Overview of the Cognitive Curriculum
  - b. Theory (an overview)
  - c. Instructional Model
  - d. Room Arrangement
  - e. Routine
  - f. Communications--Parts I and II
2. Videotape--Stages of Development
3. Written Materials
  - a. The Cognitively Oriented Curriculum--A Framework for Preschool Teachers
  - b. The Cognitive Curriculum
  - c. Communications in the Primary Grades
  - d. A Guide to the Communications Program
  - e. A Cognitively Oriented Curriculum for the Primary Grades
  - f. Scripts for the Slide-Tapes

The second week of training was spent putting into practice some of the ideas developed the previous week. Working with the master teacher and the paraprofessional at the TDC, the interns began planning a daily routine and classroom arrangement in preparation for the beginning of school. They also made home visits with the teachers to meet the children, see birth certificates and have school forms signed by parents. At staff meetings during the orientation period, a year-long schedule for meetings was set up for: 1) curriculum planning with Follow Through curriculum development staff and field consultants; 2) ongoing training workshops

in specific areas of curriculum such as math, science, reading and logical-physical relationships.

Since the primary focus for the intern training was on developing knowledge of and skill in implementation of the cognitive curriculum, 75 percent of the interns' time was spent working with the children in the TDC.

The interns began to develop special areas of interest and wished to extend their training outside the classroom with release time provided to do this. Each intern was asked to develop a plan for his or her supplementary training to meet his or her special interests and long-range goals. One intern, who entered the training program as an experienced curriculum assistant from the Greeley Follow Through program sponsored by High/Scope Foundation, was eager to have field experience as a consultant; he attended the November regional workshop in Denver and then made a field visit as a consultant to the Riverton, Wyoming center. Two other interns expressed a desire to develop a cognitive music and movement curriculum borrowing some content ideas from the Orff method. They visited schools using the Orff method and did research on other music programs as they developed music and movement activities at the TDC with the children. All interns were active in the planning, development and evaluation of the November, December, and February Ypsilanti Follow Through workshops, participating in the workshops as supportive staff. In February, two interns made field visits as consultants to the Florida center with the consultant assigned to that site, and another intern served as a field consultant in Harlem with the regular consultant. By May all were sufficiently experienced in the cognitive program to take full responsibility for planning and presenting a section of the May Ypsilanti Follow Through Workshop and the May Conference sponsored by the Foundation. The workshop presentations were followed by field visits by the interns with full responsibility as field consultants to the Florida, Harlem and Seattle sites. Immediately following the May conference, a practicum was held at the TDC for teachers from the Follow Through centers. An intern assumed the major responsibility for planning and executing this practicum in which the other interns participated along with other Follow Through staff.

The intern training also included exposure to home

teaching and developing rapport with parents. Periodically during the school year the interns composed a letter to the parents explaining the ongoing classroom activities and offering suggestions to help parents extend the activities in the home. Twice during the year each intern was responsible for writing progress reports for seven children. A home visit was made to each family to discuss the report. These visits were followed up with a series of three home teaching sessions with the mother. The home teaching experience gave the interns opportunity to discuss the curriculum ideas with parents as well as some insight into the home situation of the children.

The intern training program culminated in the employment of the interns by the High/Scope Foundation as full-time program consultants with the Early Elementary Department. To broaden their experience even more, they are participating in a research project, collecting data and writing case studies for the ten Follow Through centers sponsored by the High/Scope Foundation.

### Room Arrangement at the TDC

When the TDC was nearing completion, materials and supplies were moved in and the planning for a room arrangement was begun. The planning was done by the five staff members who would be spending the most time at the school for the 1972-73 school year.

This planning revolved around the following principles:

1. Young children's minds grow through direct, active experiences with real objects, real people and real places.
2. Social interaction is important to mental development.
3. Learning is self-regulated.

These principles required us to establish an environment where materials are abundant and accessible; materials from different areas in the room can be used for single activities; child sharing of materials and space can be promoted; group projects and activities are encouraged; exploration and verbal interaction are encouraged; materials and areas provide opportunities for creative thinking; children make and carry out their own plans.

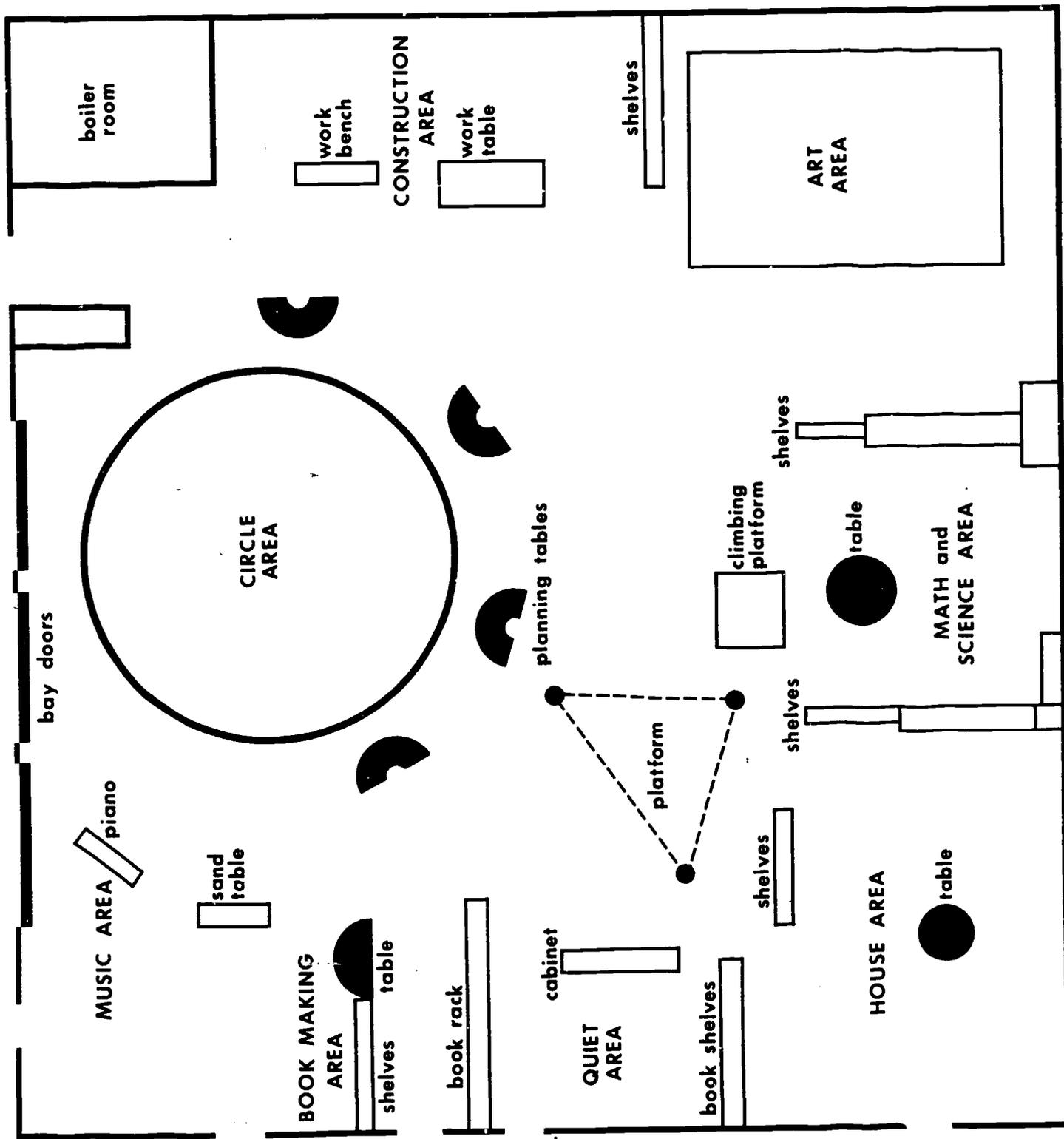
To meet the needs established by these principles and to take complete advantage of the facility's design, the classrooms were divided into learning areas--the construction area, the art area, the math and science area, the house area, the quiet area, and the listening area. The locations for these areas were determined by the principles as well as by their expected use. For example, the house area was near a sink so running water would be available. This provided the children with an opportunity to "interact" with the water, dishes and each other as suggested by the first principle.

Materials were located throughout the room in shelves which divided the areas. The division of the areas was done to help establish, for the child, a frame of reference for planning and for easy location of specific materials. The division in no way limited the children's desires and abilities to share, interact and integrate activities and materials from different areas.

The variety of materials stocked in the areas was structured so that the name of the area reflected what was located there. For example, in the house area there were dishes, silverware, pots, pans, dress-up clothes and furniture. This equipment, however, was used by the children for activities other than house play. The area served the child by providing materials which promoted creative thinking as it became a restaurant, a grocery store, and a doctor's office; thus it did not limit the child to specific work planned or anticipated by the teacher.

As the children's abilities to plan and work grew, needs for different areas became apparent. Soon the bookmaking area, music area, the circle area, and the reading area were added. An example of a child-initiated area came about through the use of cardboard boxes. The boxes, which came with new materials in them, became walls and furnishings for the house area. Eventually, the house area grew crowded and difficult for some children to work in. Their solution came as a request for a box area. Their planning for this area included location, materials, and limitations for its use. Still other children wanted boxes and cardboard in the house area. To help meet this need the available boxes were grouped by size and large-box and small-box areas developed. The small-box area became an extension of the house area.

# ELEMENTARY ROOM ARRANGEMENT



Careful consideration was given to incorporating the outdoor area as another learning area. Provisions were made to make the use of the bay doors easy for the children.

The children's reactions to the room varied from individual to individual. Some of the children were overwhelmed in the beginning, but this feeling rapidly disappeared as the first few weeks of school proceeded. Others were extremely excited and needed some assistance to control their enthusiasm. Still others were from the outset very comfortable in the environment and interested in its use.

The environment seemed to produce some problems which the children could solve, and very much wanted to solve. These problems included establishing limitations for the use of the wide open space in the room, location and relocation of areas, and use of the outside area. One example of the kind of thought process needed to solve a problem created by the environment involved a third-grade girl. She had completed a project and wished to write a book about her work. When time was available for this type of work, she moved to a table to begin, but because she had selected large paper to work on, there wasn't enough room at the table. Without any discussion, she moved to the floor only to discover that the carpet was too soft and her crayons poked holes in the paper. Again without discussion, she moved to a tiled area and began to work. She worked there for a short time, but soon realized she had estranged herself from the other children; she moved to the construction area and found a large piece of particle board which she placed on the floor near the table. This served her needs for the next few days as she continued to use the board as a hard surface, large enough for her papers, and close to her classmates.

Although the lack of desks removed the restrictions usually existing in more traditional rooms, a place was still needed for the children's personal belongings. This problem was solved with a very small investment in one rectangular plastic dishpan for each child. These were placed on centrally located shelves, labeled and used by each child for papers, projects and other personal belongings.

Thus, the room arrangement at the TDC changed as needed to help the children create and complete their plans. It

provided a flexible framework for use by the children and an environment in which they could grow and develop according to their own abilities and interests.

### Daily Routine

With the room and equipment organized in the newly opened classroom, it was necessary to give careful thought and planning to the ways in which the daily routine could be used to maximize use of the time available. The teaching team decided to use the plan-work-represent-evaluate sequence two times each day, once before lunch and once after lunch.

Following is a brief description of the routine at the point to which it had evolved in the Spring of 1973.

#### 8:45-9:15 Morning Planning Time

The children were actively involved in the making of a weekly planning book, and the recording of a plan for work time, on Monday mornings. On Tuesdays through Fridays this time was used to record a plan for work time and active involvement in a short teacher-initiated activity which was based on the framework established by the weekly goals. This time was spent in small groups of seven to eight children.

As the children constructed their planning books, the teachers interacted by questioning, discussing and writing in the books as appropriate. The teacher-initiated activities required the teachers to supply materials and necessary instructions to provoke thought and action in the children. The teachers also took dictation of plans from the children who did not write, read and discussed plans, helped the children consider issues which might arise because of plans, and helped extend thoughts and plans when necessary.

#### 9:15-10:30 Morning Work Time

During morning work time the children were actively involved in the learning areas in the room and with activities they had planned.

At this time the teachers interacted with the children in the learning centers. Questions, discussions and activities were explored from the framework provided by weekly goals, which were established by the teaching team and Follow Through staff. Teachers were either stationed in one or two areas, or moved about the room.

#### 10:30-10:45 Clean-Up

It was important that the children learn that the room and its contents are important to their work. It became their responsibility to see that the materials and equipment, as well as their own products, were returned to their proper places.

Although cleaning up was the responsibility of the children, it required support and an occasional "push" from the teachers.

#### 10:45-11:20 Morning Representation

At this time the children became involved in the representation of the experiences and activities they were involved in during work time. Their representations came in many forms, e.g., written stories, pictures, dictation, cartoons, cutouts, models, clay figures and tape recordings.

As the children's abilities to represent their experiences changed, the teachers' roles changed. Representation by the children required the teacher to take dictation, aid with spelling, work with phonetic skills, encourage independence, question sequences from a temporal viewpoint and discuss the mechanical aspects of writing (including punctuation, grammar, paragraphing, neatness, word fluency, and vocabulary). In some cases it was necessary to provide the children with ideas for other means of representation.

#### 11:20-11:40 Evaluation

The stories, pictures and products were shared in small groups. Evaluation of products, work time activities in writing (manuscript), completion of plans, and other individual items were done at this time.

While the children shared their stories and representations with the others in the small group, the teacher's role was one of questioning and focusing in on the representation for validity, sequencing and other perspectives as defined by the weekly goals or daily plans. Positive reinforcement helped build self-confidence, self-respect and motivation for each child.

11:40-11:45 Planning for Outside Time (after lunch)

Although this particular activity falls beyond the plan-work-represent-evaluate sequence, it did provide the children with an opportunity to think about what they were going to do outside and to plan accordingly.

11:45-12:30 Lunch and Outside Activity

The children finished their lunch and went outside where they could enact their plans. When the weather wouldn't allow outside play, plans were made by the children for inside activities.

12:30-1:00 Large-Group Time

This time was used to hold meetings, discuss issues involving behavior, sing, play games, have birthday celebrations, etc.

1:00-1:10 Afternoon Planning

This brief small-group planning time was used for the recording of plans in the planning books by the children.

The afternoon planning time called upon the teacher to review, record, and help create plans, as well as urge and occasionally require expansion and continuation of activities and projects previously begun but not yet completed. Children chose the area in which they wanted to work and went to the corresponding table to record their plans.

1:10-1:40 Afternoon Work Time

Short version of morning work time.

1:40-1:45 Afternoon Clean-Up

Same as morning clean-up.

1:45-2:05 Representation and Evaluation

In small groups, the children usually drew or wrote a brief description of the activities they were involved in during afternoon work time. These drawings or stories were either shared with the group or the teacher.

2:05-2:15 Story or Large-Group Presentation

If time permitted, the teacher or a child would read to small groups. Occasionally a child or a group of children would share, with the whole group, a product, play or "show."

The daily routine was the product of careful planning and continuing evaluation. Often the time periods were adjusted to allow for special activities, but one significant factor remained constant throughout the year. This was the plan-work-represent-evaluate sequence, the core of the daily routine and the method by which the children's active experiences in an open environment was assured.

### Representation

The representations of children are the by-product of their actions and experiences. To be able to represent, a child first must think about what he has done. The daily routine described in the foregoing section provides opportunities for children's planning and evaluating--for thinking about what to do and how it was done--as well as time for representing experiences through writing and art. The child represents both by talking with others and by making "products" that symbolize his experience. The learning areas described in the section on Room Arrangement provide the setting for developing concepts through activity and for representing those concepts in various ways.

The representations of the children in the TDC took many forms, from drawings, paintings, mobiles and clay figures

to musical instruments, costumes for play and stories (told, dictated and written). They made their own musical "compositions" and invented their own dance steps. They also represented actions by means of role play and pantomime, and tape-recorded their observations and stories.

At the beginning of the year, the youngest children, who lacked the ability to make pictorial representations, were apt to trace around objects. Many had progressed beyond that by the end of the year. This was true also for writing--many children were using far more detail in their writing by the end of the year than they had at the beginning, and even more significant, they felt less inhibited about writing down their plans and writing stories about their activities.

### Language and Writing-Reading

It was during representation time, primarily, that the children's language skills were explicitly emphasized. Reading skills in particular were emphasized during evaluation time when the child was encouraged to read aloud what he had represented in his writing.

Every opportunity was exploited to encourage children's spoken language during the entire school day. This was especially evident at the beginning of the year when we would ask all the children to talk about the objects in the learning areas, not only to familiarize them with the set-up of the room but also to encourage communication of discoveries and interests.

Through questions, discussions and planned activities, the teaching team and the Follow Through staff were able to enhance children's understanding of word usage for concepts in the relationship areas; for example, children were encouraged to talk in terms of "before" and "after" (temporal relations) when reviewing the events of the day. Depending on the relationship area being emphasized in the weekly goals, the teachers were able to build in vocabulary orally or in written form to help children learn concepts and represent them in various ways.

Specific times were scheduled in the daily routine for

oral planning and reviewing. During planning, the children were encouraged first to tell and then describe in writing what they were going to do during work time. This process was reinforced in adult-child interaction during work time and carried over to group evaluation time when all children were given the opportunity to talk about what they had done in the learning centers.

The children loved circle time when they could perform music, present plays or puppet shows, and share their creative productions with the whole group. The children became quite skilled in phrasing their questions in order to clarify some of the thoughts generated by what they had seen and heard. For example, Clinton observed that Rhonda's and Maria's structures had different types of roof, and he asked them why. The girls explained that the barn roof was different from the peaked roof and also gave reasons why roofs are not normally flat.

Daily efforts at reading and writing also contributed to the children's language development. The older children wrote experience stories and did creative writing and writing-reading in problem-solving situations. Their fantasy stories written at the end of the year showed considerable language growth not only in the mechanics of writing skill but also in the choice of words. They learned to use the dictionary, made their own dictionaries, and kept records of their reading. They also wrote letters, made library cards, wrote instructions on how to use the tape-recorder, kept journals on their projects, copied songs, and made scripts for shows.

The older children helped the younger ones to spell words or write their stories; reinforced their own language skills and in turn increased their feeling of competency.

Most of the younger children began their writing-reading-language experience by dictating stories to a teacher. Next, they were involved in tracing over the letters that were alike or tracing over words in their story. Later, as they began to understand that letters formed words and writing was spoken words written down, most of them became interested in copying parts or all of their stories. After this, they attempted to write their own stories in two or three sentences with or without help.

The group process of writing and sharing ideas served to motivate and extend learning among the children. Although at the beginning, the younger children would "read" their stories from memory, the desire to share their stories in small groups motivated many to learn to read in a hurry. Consequently, their sight vocabulary grew out of reading, writing and identifying words used frequently in their stories. These and other new words were entered in the child's dictionary for future reference. Time was also provided for phonics lessons to help children sound out the letters of the words they were writing.

### Classification

Classification serves a useful purpose in helping children accustom themselves to a new environment. In the initial setting up of the room, this was taken into consideration as opportunities for the children to classify were provided. All the paper, pencils, crayons, etc. were grouped and labeled on the shelves. Other articles were grouped and displayed according to use, color, area or other systems. Containers and sorting trays were available in all areas. It became the central theme of the classroom.

A set of classification goals was prepared by the curriculum development staff and was used as the basis for planning by the teaching team. This was a great improvement over the previous year when various activities had been tried without clear direction.

Since the teachers were unfamiliar with many of the children at the beginning of the year, they began by observing what the children were actually doing with the objects in the environment. Observations during work time were recorded, and the following is an example:

Listening--House and Quiet--Sept. 25, A.M.

Maria worked with the Vertigo. She had all kinds of combinations balanced. They were matched on both sides. She has not yet figured a way to combine different sizes and weights. Gordy and Brian "read" books to each other. They discussed the pictures at length. Jeffery and Junior recorded some stories. Both picked

very simple books. Jeffery did the usual amount of goofing off. Christy, Barb, Willa, Angie and later Rhonda and Karen played house. After I was the Avon lady Angie took over my role. They used buttons to represent money and Tinkertoys for the cosmetics. Verlyncia had difficulty working with Rhonda. Verlyncia has not yet found anyone to relate to. Brian made designs with the attributes game. In constructing the octagon he matched 2 thin ones to match the thicker ones.

When it was expedient for teachers to take a more active role in the learning process, the staff decided to take one classification goal at a time, present an appropriate activity, and observe the individual responses. A brief time before the children's planning time was chosen for this. The teaching staff discussed the children's responses during their own planning time; from this they were able to determine where a child was functioning and at what level to interact with him during work time.

The children were found to be at every possible level, and this was not always consistent with their ages. Almost without exception the younger children grouped objects by color and had great difficulty using other criteria. Initially, even some of the older children reverted to this.

The teachers waited patiently for the children to begin to classify spontaneously in solving their own problems during work time. With the exception of clean-up, this was rare. The children would classify only when teachers suggested it to them. It was not until Halloween that the children began to classify spontaneously--the candy had to be organized for distribution.

The children showed an increasing ability to use classification in responding to divergent questions. Here is an example from a teacher's log:

#### Construction Area

Drilled wheels for Jeffery, Angelette and Eddie. We talked about what was happening with the drill and the holes. They knew the print the drill had made and what part made what hole. When asked how many they

needed Angelette said 4 and Jeffery 6, at that Angelette changed her mind to six too. Angelette knew all combinations of six. I asked Jeffery various grouping questions. He was able to respond to how many groups of 2 but couldn't change the grouping to 3's. Angelette anticipated all questions and was dying to answer. Eddie at first nailed his wheels on with bent nails. These wouldn't work so he drew out all nails and re-nailed them. Angelette at first nailed the wheels level with axel so car wouldn't roll. She was unable to tell what was wrong until we observed a car parked outside the school. She then used nails that were too small and they came off.

Angelette decided she needed larger nails and went at the job completing it and trying out the car. Cut some wheels for Christy. She knew how many she needed and was able to respond to questions of how many more. Angelette helped her in the wheel placement. Johnny decided to make a bed. We talked about parts needed and she selected the wood pieces for the project. She chose a huge spike and had trouble nailing it. William thought this funny. Clinton started a pair of stilts in A.M. They were too long and skinny to walk on so he started a shorter pair. Design was well thought out. Angelette wants to make a pair of roller skates tomorrow.

Next year, in addition to discussing child responses and recording observations of children, permanent records or checklists will be kept on each child and used in conjunction with the classification goals for planning by teachers.

### Seriation

Like all the other outlines of goals in the relationship areas, seriation goals were used as a means of ascertaining the developmental levels of the children.

Planning of group-time seriation activities was a joint effort between the TDC staff and the curriculum coordinator. Since seriation exercises lend themselves well to tactile and taste experience, it was agreed to use this approach. Opportunities were provided for children to feel, touch, handle, taste, make judgments, and then verbalize their

rationale for the ordered differences between objects they sorted.

The first seriation activity involved pre-operational experience with ordered differences between objects. The children were first asked to order a limited number of items. After that, they seriated many items. Later on, the children were asked to insert additional items in an ordered series already formed.

Experiences provided through the tactile approach included feeling of texture, temperature and moisture. Other experiences consisted of food tasting to determine the ordered differences of sweet-sour, salted-not salted, hot-cold, bitter-not bitter, bitter-sweet, etc. For the next activity, children were exposed to the ordering of the weights of objects. For the younger children, this seriation activity was confined to gross comparison of weights using hands to identify heavy-light between objects. The older children were encouraged to use balance scales to seriate the weight of objects. The methods employed by the children varied from weighing two objects at one time and then sorting them on the basis of ordered differences to balancing the objects singly with an arbitrary unit of measure (e.g., inch cubes) and ordering them accordingly. For example, one child was found weighing two guinea pigs with blocks as the unit of measure, and she compared the weights by ordering. The purpose of this activity was to direct children to carry out the seriation of many items in a systematic way.

To reinforce seriation, teachers planned activities for the various periods of the daily routine. During planning time, for example, children made planning books by seriating six sheets of paper cut out in various widths, starting with the narrowest for Monday and the widest for Friday.

During representation time, children were encouraged to represent objects they had used or made during work time according to size, number, weight and texture.

At evaluation time, children sitting at the same table were asked to make a seriated order for reading their stories by turns, for example, on the basis of the weight or height of each child, or the length of each story.

At music time, children worked in four small groups with a teacher. The children were grouped according to their developmental level. All four groups started by seriating volume in ordered differences of loud and soft using percussion instruments or the voice. Then they did loud, medium and soft. This activity was represented in various forms: representation of gross discrimination of ordered volume of sound produced by beating on drums; pictures of a train representing volume of sound when the train is far away, near and closest; and the graphing of lines along a continuum to show the ordered volume of the sounds.

All groups also worked on seriation of pitch. Kindergarteners and first-graders could do pitch seriation with real objects but not without. But the majority of the children tended to equate low with soft and high with loud. One child ordered a series of sounds with water glasses from the lowest to the highest pitch; when asked how she knew it was the highest sound, she said: "Because it is loudest." Some children represented the different pitches of familiar songs like this:



(first line of "Shady Grove").

In general, ordering items through tactile experience was well received by all the children. Most of the children could seriate items in three different degrees with or without the third object visually present. However, this ability was more clearly indicated by the older children than the kindergarteners and first-graders. At all times, children were encouraged to give their own criteria for the series of ordered objects. For example, those children who could seriate the degree of the bitterness of the chocolate used the words "nasty" and "awful" in addition to "bitter" in describing the bitter taste of the chocolate. Each child at group time was given the opportunity to compare his ordered series of items with another child's and to discuss them. When told to seriate a number of spoons by weight, one child ordered them by length and another by size, and this was brought up by a third child in discussion.

The ability to sort and order a series of items was reflected in the children's representations. Children would draw objects they had used during work time for seriating

largest to smallest. Some younger ones who had difficulty making pictorial representations were inclined to represent differences in size with only three objects. One child was able to represent variations in color in a long series.

Children had to be encouraged to use appropriate vocabulary in their stories or verbal discussion for ordered series of objects or items. Generally, children at the pre-operational level can describe three degrees of ordered differences in gross comparison like loud, medium, soft, but not according to a more refined difference such as sweet, sweeter, sweetest. They also had difficulty indicating that this item was "more" or "less" heavy than the others when an additional item was inserted in an ordered series already formed.

### Spatial Relations

Classification and seriation are terms derived from the theory of Jean Piaget. They refer to the logical operations by which we come to understand the world.

Operation refers to the process of thinking and not to the content of the thought.

Classification and seriation are operations which can be applied to anything--objects, people, ideas, feelings, institutions, almost any aspect of our lives. They can also be applied to time and space.

When applied to space, they play a crucial role in our understanding of the physical world.

As we approached the idea of developing a set of training materials concerning spatial concepts, we turned to the previously established set of goals and objectives which helped us apply the divisions, or kinds of space, in our interactions with children.

These goals or objectives provided us with a framework from which we could ask questions and observe children as they interacted with real objects, material and people.

These goals were reworded and re-phrased to make them more pragmatic as classroom tools.

In October these new goals were presented to the Follow Through and TDC staff. As they were read and discussed, people began to understand more completely their meaning and their importance. To make them even more understandable and usable for training, they were placed on a matrix which defined them by their type (preoperational, topological, projective and Euclidean) and the corresponding operations involved (simple addition of elements, or classification; addition of asymmetric relations, or seriation; addition of symmetric relations; and multiplication of elements and relations, or multiple seriation and classification.

This sixteen-section matrix was fitted with reading references from the following:

The Child's Conception of Space, Jean Piaget and Barbel Inhelder. The Norton Library, W.W. Norton & Co., Inc., New York, 1967.

The Child's Conception of Movement and Speed, Jean Piaget. New York: Ballantine Book, Inc., 1971.

The Early Growth of Logic in the Child, Barbel Inhelder and Jean Piaget. New York: The Norton Library, W.W. Norton & Co., Inc., 1969.

After study and reading, the TDC staff began to develop activities which would help show the levels of thinking children were using in their work with those activities and the individual child's understanding of himself in space. Goals were established as focal points to be used when observing and interacting with children during work time.

The results of these activities and goals were documented in daily lesson plans such as:

Wednesday, November 1, 1972 A.M.

Evaluation: ...Brian built a multi-story house, but did not recognize that the rooms were in vertical intervals rather than horizontal intervals.

This documentation and the results of planning meetings led to a set of activities which could be done to demonstrate, for the purpose of training, the various ways in which children

think about objects, materials and themselves in space.

These activities were photographed and recorded. This set of slides and audio tapes produced a valuable set of training materials.

In addition, the experience of developing, observing, and initiating questions and activities enhanced the staff's ability to recognize and use spatial relations as a vehicle which produces thought for problem-solving in children.

### Temporal Relations

The focus was on temporal relations in January and February. Preliminary work with the "Sequence of Temporal Relations Exercises" was done in preparation for a training slide-tape. This slide-tape was the third in a series on relationship areas. It was completed in April for the May workshop. In preparation for media production, the staff focused on temporal relations at various times during the daily routine:

Pre-planning time. Children represented the routine of the day. What was first, last? Which time of the day was the longest? What do we do before work time, before clean-up? Children's initial responses were interesting. Older children ordered six or more parts of the routine in minute detail. Several children thought the 15-20 minute planning time was definitely the longest part of the day. Children also drew sequence "cartoons" of what they had done before coming to school--some children found it easier to think back from a specific time.

Planning time. Children planned what they would do first, second, third. They were asked to plan what they would spend a long time doing, a short time doing. They were asked to compare the lengths of morning and afternoon work times and plan accordingly. Children 5-8 years old had difficulty grasping the relationship between the length of work time and the amount of work they could plan to do. Many older children became aware that the morning time was much longer than afternoon; they divided their daily planning page into two unequal sections to represent the time difference.

Work time. In reviewing a project or work time experience, the staff asked the children to describe what they had done "before they put the roof on, or before they made the garage, or before they made the furniture."

If children worked in two or more areas, they were often asked to compare the time period spent in one area to the time spent in another. Usually the most recent experience seemed longer and more productive than previous experiences.

Jump rope and relay activities provided experience in the relationship between speed of movement and duration, i.e., whichever team passed the ball fastest, finished first--and won. "Hot peppers" in jump rope games signaled increased speed in turning and jumping and more jumps in a person's two-minute turn.

Representation time. Children drew detailed pictures of the sequence of events during work time. Younger children often listed things, but were unsure of the order. Their last event in work time was often more clear to them and seemed to last longer than any previous event.

Older children drew simultaneous cartoons. They represented what they did in order on one time line, and what a friend did in order on a corresponding time line. Several experiences were required before they felt work time was really the same length of time for any two people.

As children became aware of temporal sequence, they enjoyed describing the events of the morning from the time they planned, through work time, clean-up, returning to the table, getting pencils, paper and writing stories. They were pleased to see how many things they had done and how long their stories were when every event was included.

Evaluation time. Minute timers and hour glasses made from two pop bottles were often used to time the reading of stories. Discussion followed concerning long stories and short stories, and the lengths of the stories compared to the time it took to read them or to write them.

Lunch. Timers were used again by children and staff. For example, whoever wasn't done eating when the timer rang

had to wipe off the table, push in the chairs, etc.

Outside. Tag and relays, jump rope games and games invented by the children offered social and informal experiences with speed, output and duration.

Circle time. In music children were asked to clap rhythmic patterns of songs; the children became adept at recognizing familiar songs by identifying the temporal patterns.

Children sang two-part rounds. They were asked, "Who started first?" "We did." "Who started last?" "They did." "Who finished first?" "We did." "Who finished after you?" "They did." "Who sang the longest?" "They did. We did. No, they did!"

Several answers were given to questions of duration, especially when the starting and stopping points were not the same. After some discussion, Jessica or Joanne or Jenny would answer, "We sang the same amount 'cause they started first and we started second, but we both sang the song just two times, so it's the same amount!" The six and seven year olds weren't convinced, but Jessica was.

Children were asked to find timing devices and set durations for calisthenics. Clinton (8 yrs.) suggested 20 minutes as the time for doing "jumping jacks." His suggestion was met with disapproval by Junior (10 yrs.). Clinton's friends talked him down to five minutes worth of "jumping jacks." The group agreed and managed to make it for five minutes. After a few similar five-minute experiences with "push-ups," "riding bicycles," etc., only one or half minute times were suggested.

In general the staff found that temporal relationships weren't discovered by the children as easily or spontaneously as classification, seriation or spatial relations. Discussions of who was faster or what happened first, etc., occurred frequently among children, but comparisons of speed and output or output and duration were usually initiated by a teacher. Questions had to be phrased carefully in order to prompt temporal consideration. For example, Becky, William and Aurora, all five years old, had held several boat races, using blocks and pushing them along three masking tape rivers.

Several races were staged before the three of them agreed that Aurora had actually won a race fairly. Reasons given for her winning were: "My block went on the side" or "She started before I did" or "William knocked his over", etc. The winner, Aurora, eventually said she won because she went faster and Becky was second because she went "medium." The children considered the race from their own very personal point of view; comparisons of speed and the distance traveled did not deal with why Aurora had won.

Older children were more able to deal with temporal relationships, especially when some form of representation was included in the activity. Comparisons of work time outputs, comparisons of speeds of different cars on field trips, comparisons of the number of words per beat in familiar songs were kinds of relationships discussed by children 8, 9, and 10 years old.

Classroom examples of the use of temporal relationships were recorded and filmed in April and presented at the May Follow Through workshop. The slide-tape with film segments is presently being transferred to 16mm film. The third in the relationship area training sequence, it employs the use of recorded conversation with children, narration, and colorful pictures and film segments from classroom activity.

## Music

Music has been used in several ways throughout the past school year. In September it was used during transitions: as the signal for clean-up time, as an activity for the close of the day. Occasionally songs were used as a transition between outside time and planning for the afternoon. Children responded with enthusiasm to the guitar and percussion instruments that were used then. Available instruments were put in the listening area with the tape recorder and record players. Children began planning to work with the instruments at work time and often accompanied group singing. Interest grew in playing songs on the metal xylophones, the piano, the tambourine, playing to records and tape recording the results.

In October, a committee of children and staff planned to buy more instruments and set up an area. The instruments

chosen by the children were bongos, guiro (Latin American calypso instrument), claves, and tambourine. The children had \$15.00 to spend. Considerations of sound quality, loudness of sound, and uniqueness of instrument were factors in the group choice.

Setting up the listening center. The new instruments were taken back to school and stored in a box in the listening area when not in use. This proved unsatisfactory, as the instruments were not readily available to the children. The storage room was cleaned out and shelves put in. A listening and music area was established. The children classified and labeled the instruments, labeled the shelves and took pride in writing H/S on each of their instruments.

Work time projects involved playing instruments, making instruments, singing songs, "picking out" melodies to familiar songs, making up songs, tape recording, playing and singing with records, and planning and practicing for a "show," a musical performance for the whole group.

Music at circle time. Children continued to work in the listening and music area. The interest was high and gradually the time before afternoon planning was extended into a large group time. This half hour was planned for by the teaching team and contributed to by children. Songs, games, dances were used that extended the current TDC weekly goals. Children were included in the planning of music activities, often teaching songs, dances, or performing music they had worked on at work time.

Some children 8, 9, and 10 years old were using concepts still unexplored by younger children. In January and February, the total group was occasionally divided into two or three smaller groups to allow for activities suitable to developmental levels. In a small group, the older children were given an opportunity to use their skills to represent music at the symbol level--children invented sounds, sequences and their symbols. The pieces were often performed by the group. Other activities included more sophisticated folk dances, pantomime sequences, rhythmic patterns, new rounds and folk songs. Throughout the sessions, emphasis was on representation, using temporal relationships and expressions of relationships through number.

Younger children were given an opportunity to explore musical elements one at a time--i.e., loudness of sound, or fastness and slowness, or regular rhythmic patterns, or highness and lowness of pitch. Staff planned to work at the concrete level with the younger children. When volume seriation was explored, the children were asked to think of things that started quietly and got louder or vice versa. Their ideas included rocket ships, trains, sirens, people calling "hello," trucks shifting gears. These activities were acted out by the children. The gradual change of sound from quiet to loud became personally exciting and enjoyable for the group.

The small groups continued occasionally throughout the winter, though most sessions were led by one or two staff for the total group of children. As music became a more familiar and usable resource at the TDC, curriculum development continued; music was used as a vehicle for exploring relationships and extending number and pre-number goals. In order to test and refine the use of music in the cognitive curriculum, input from all staff with or without music background was necessary. In May and June small groups of 8 to 10 children and one adult formed music "clubs" that met for 20 to 30 minutes daily. The activities were geared to the developmental levels of the children, and allowed for planning by the group for the following day or week. The small groups also allowed for more active manipulation and representation of various musical elements--volume, pitch, rhythm, and form. Occasionally the small groups performed for each other--and very specific and exacting questions were raised; each person was a listener and a performer.

Music at circle time serves these functions:

- 1) Musical material is provided for individual work time.
- 2) Performance, listening, representation, and evaluation experience is provided in a supportive environment.
- 3) Social interaction of children K-5 is facilitated through music and movement activities.

Musicales. About twice a month the circle time was used for a musicale, or informal concert of music, poems,

dances and pantomime. Most musicales included performances by both children, staff and invited guests from the community. Children often performed in groups--the boys using bongo, tambourines, drums, guitars, improvising within a general form the band had agreed on. Girls and mixed groups chose songs they knew and invented their own arrangements, or wrote words and melodies for their own songs. Invited guests included students, teachers, and performers from the area: French hornist, guitarist. The children responded with apt interest and many questions to performers by both classmates and adults. They questioned extensively the organization and performance of their classmates' music. Typical questions and comments were:

Becky (5): "What are those marks?" (referring to the invented notation)

Karen (7): "Why didn't Jeffery come in when John did?" (referring to chart of entries)

Tonio (5): "They was softer."

Angelette: "They was out of beat."

Clinton: "No, they was out of note."

Teacher: "Which was it, Angelette, out of beat or out of note?"

Angelette: "Out of note."

Comments and questions after a performance of a violin, viola, piano trio by J.C. Bach:

Roger: "You know what? The music made me go to sleep."

Teacher: "Why did it make Roger go to sleep?"

John (9): "'Cause it was soft and slow."

Joanne: "You played a lot of notes on the piano that went da-da-da."

Angelette: "The piano kept playin' and they stopped." (violin and viola)

Angelette: "Play it backwards."

John: "Play it again."

Musicales provided opportunity for children to listen intently to analyze, criticize, praise, assess and take in new ideas they can use in their own projects.

### Movement

Movement has been developed parallel to music and as part of most music activities. In January, Rich Lalli, an Oberlin College junior, worked at the TDC exploring with the staff additional possibilities of movement in the cognitive curriculum. In January, movement was explored in terms of:

1. Isolated and combined body parts (body awareness and fine motor control): the location, size, shape of movements possible, and characteristics of weight, color, texture.
2. Coordination skills (with isolated and combined body parts, fine motor control, gross motor control).
3. Means of locomotion: spatial awareness, temporal awareness, order of events, body parts involved.

The children were involved at circle time in activities based on the weekly goals and explored through movement. The children gradually became more conscious of what their bodies could do and became less self-conscious about using them. Activities included echo clapping, echo walking, corresponding sounds to movements, imitation of isolated body part, moving isolated parts to the beat of a song, responding to improvised music, and creating movements and simple dances. The children were asked these kinds of questions based on relationship area exercises:

Classification. What part is moving? What other part of your body can you move like that? What part is most unlike that?

Seriation. Who can move a small, then bigger, then

bigger part? Who can move slowly, faster, and faster yet?

Spatial relations. Who can move part of your body that is farthest from your head? How can you move your hand so that it stays in front of your body?

Temporal relations. Which part did we move first, our hands or arms? Can you jump fast? Slow? What's the difference? Which part of the dance is first? After that? After that?

In February, physical movement activities were explored by a Foundation staff member. Research was done on existing physical movement education literature. A curriculum guide was produced at the TDC which explored through movement activities the four relationship areas--classification, seriation, temporal and spatial relations. Movement was explored in terms of body awareness, gross motor and fine motor activity.

The children responded to music/movement and physical movement activities with enthusiasm. They became more aware of their bodies and more conscious of expressive qualities of movement--what looked funny, what looked jerky, what felt slow and smooth, what felt big and bouncy. When asked to find ways to move an arm or a hand, there were many inventive suggestions.

Work with music/movement and physical movement will continue next year. Movement in socio-dramatic play will also be developed for incorporation into the model.

### Incorporation of Music and Movement in the Model

Music and movement exists in the child's world. He can manipulate sound; he expresses actions and feelings with his body. He expresses a musical and aesthetic preference at 6 and 7 years old; he listens critically and evaluates music he makes and music he hears. He can create his own representational system, furthering his ability to create and refine the sounds he wants to use.

A music area has been incorporated into the model. A place for materials and active music making offers the

child numerous experiences in temporal relations. Large group activities offer another kind of social music/movement experience and provide a setting for performances by classmates and guests.

Preliminary work with music/movement and the relationship areas has been completed; incorporation into the model is still in progress. Musical content still has to be examined--listening and performing skills, study of a particular instrument, practice time for skill development, use of musical concepts and theory. The movement program will involve developing sequences to expand our knowledge of how children become aware of their bodies, the relationships involved in moving, and the relationships of the moving body in time and space.

### Math

The math program began by carefully observing children interacting with each other and materials during different types of activities. Since oral and written reporting was a part of the daily routine, each child's report was scrutinized for number awareness and the circumstances under which the child used numbers. The teaching team, looking for ways of expanding the child's number awareness, decided that guidelines were needed for developing number activities within the daily routine of the TDC.

A sequence of number goals was prepared for the teaching team, with consideration given to: (a) how the number concept develops in children; (b) the involvement of team members and children in the educational process at the TDC; (c) goals designed for the team members only; and (d) the ubiquitous nature of number in daily experiences.

The goals, in their final form, had two major divisions (pre-number and number) and each division had two distinct sections (pre-number--gross comparison and transitional; number--pre-arithmetical and arithmetical).

The team members, before trying to implement the goals, discussed each one and the types of activities suitable for its realization. In daily planning sessions, the team

began devising ways of interacting with children to better understand their conception of number and at the same time increase the children's use of number concepts and skills in problem-solving.

The result of each planning session was a written statement outlining overall goals that the teachers would then be concerned with in their interaction with the children.

During each session, and prior to planning for the next day, the teaching team evaluated the day's proceedings. They evaluated the goal they had set; for example:

Jessica ordered contents in containers by predicting and weighing. Beth, Joanne and Barbara used paper and ruler to measure individual gerbils and came up using terms such as tallest, shortest, skinniest, fattest, and middle in their representation. William and Tonio could differentiate right from left.

After placing emphasis on a few of the number goals at a time and expanding the domain of activities, the team began seeing the developmental nature of the goals as a whole. As a consequence, they saw how any goal could be "extended backward" or "forward" depending on each child's response. Several weeks later, this became evident in the math goal they set for themselves.

The implication of these goals for a wider range of activities also appeared in a later evaluation by the team. The following example illustrates the results of the team's interaction with the children:

Listening and music area: Joanne and Christy wrote out the number of fingers needed for each note of "Hot Cross Buns" (clarinet). Becky drew short marks for short notes, long marks for long notes as Joanne and Christy played.

Making a garden: Rhonda, Eddie and Maria made a trundle wheel to mark off garden dimensions. They counted in feet. Tomorrow they plan to graph number of feet and count off in yards.

Representation time: William counted six sides of his model house. Beth and Christy could count by 4's to 12 and add 3 to get total number of people in their picture. Kerry could only count each face (counting by one's).

Clearly, the differences in how the team dealt with the same goals at different times were the result of direct and continued involvement in the experiences with children as well as meaningful planning for implementation.

The most important aspect of any educational program is the adaptability of the program to children and its subsequent effect upon them. In adapting the math program to the children, the philosophy is and has been to work with children at their level of understanding and with materials that are interesting as well as enjoyable.

The math program in the TDC is in the process of development and therefore is constantly being evaluated and modified. The effectiveness of the math program can be measured by the children's response to number and its use. Their response has been gradual but satisfying to those evaluating the program. For example, at the beginning of the school year, numbers were rarely alluded to in the children's written work. When they did appear, there were no clues as to the level of the child's understanding. As the team members began stressing numbers and their usefulness, evidence of number concepts and numbers being used increased in the children's stories. Growth in the use of number was obvious, but more important and most satisfying was a deeper awareness of the nature of number and its use in various activities.

One piece of evidence of the progress observed is a child's own story, written after working in one area of the TDC. It is unedited, copied verbatim from her paper.

Maria (8)

I was working in the Math area. and I Found out how many gerbels ther was. Me and Ed took some Blocks and I told him how many gerbel that were in the room. He took 7 Blocks. He put 3 in one pile and 3 in anther pile and 1 in anther pile. He saide how many wold ther

be if I took one block and put it in anther pile. He saide What pile has the most gerbels in it. I saide the one on the LeFt. Because that is where he put one that by it's self. One of the Piel's had 3 gerbels in it the other piel had 4 gerbel's in it. then I went too work me and Bard and Roger made a house For the gerbel's we made Five house's. then it was time too clean up mrs. Hudson saide For everybody too Come over in the Circle.

### Summary of TDC Classroom Activities

After our first year in our own building, it is clear that the very size and openness of the rooms have produced some interesting changes in the behavior and activities of the children.

We noticed early in the year that the openness suggest- ed entirely different types of activities. In the block area the structures took on greater height and covered larger areas of the floor. We had various roads winding all over the room providing the teachers with opportunities to extend children's cognitive growth.

Areas were changed, by the children, to suit their own needs: an enclosed area in which to listen to music; a large, open area for dancing and other large-motor activi- ties. They felt freer to write, produce and present drama- tic shows. There was also a tremendous increase in the de- sire of the children to show their work and observe the work of others.

Before the start of school, we were concerned about the noise level, but the noise has been rather pleasing be- cause it is the sort that indicates children are busy and intensely occupied with what they are doing. While noise and talking are important parts of the program, the openness also allowed space for quiet, less active pursuits.

The increase in space also contributed to the notice- able lack of "behavior problems." In the other building we had suffered through endless confrontations. With the increase in space, the children could all find a space of

their own and interact at a much higher level without people interfering or disrupting their activity. It was rare that anyone came to blows this year, which most certainly was not the case last year.

Multi-age grouping was used this year as a means of dealing with children of different ages while maintaining the openness of the room itself. The result of this mixing of ages was that it was never rare to see an older child helping a younger child in our classroom, and it was also not rare to hear a younger child spelling a word for an older child or even for an older child to be the recipient of some item of information.

In starting the school year, it most certainly made a difference having a nucleus of children familiar with the program. The new children had models to follow in making their plans and seeing them through. We found the best way to help the children see and recall their plans was to keep them in individual books, a week at a time. It helped the children to have direction and provided an excellent temporal sequence for them to observe.

Last year we started, and this year have firmed up, our language program. From the children's experiences in the classroom, they are asked to recall what they did in various ways. The youngest children dictated their experiences to an adult while the others wrote their stories according to their ability. From this our young children have learned to read and the older children have grown in their language experience and background.

We have been especially impressed with the fluency with which our children write. Their writing shows a conversational style, and most often it is in temporal sequence. The older children have grown in their use of grammar through a process of necessity followed by adult instruction.

The younger children have developed a fairly large reading and writing vocabulary based on their personal experiences. It is necessary, we found, to help the children make the transition from their own written work to the work of others in published form.

We have provided time to develop a child's sense of phonics through his actual use of sounds and words in his own writing. Several of the children have devised their own spelling systems which have been refined by their desire for others to be able to read their writing.

Most important to us as educators is that this process establishes a very functional use of language in the children. Not only did the children read and write, on their own, in the classroom, but their abilities carried over into the home where they became a natural part of their behavior.

## Appendix B

### WORKSHOPS, 1972-1973

High/Scope Foundation sponsored six major workshops held in Ypsilanti. Each was designed to meet specific needs of projects as they implemented the Cognitively Oriented Curriculum. The workshops in September, November, February, and the Summer Practicum in June all utilized the TDC and focused on certain cognitive areas or segments of the model as well as general operational issues. The annual Winter Workshop in December establishes a mid-year review and brings project directors, PAC chairpeople, and school administrators together to discuss problems and share ideas. The annual Spring Workshop in May establishes project goals and directions in implementation for the coming year.

The following section contains program schedules and evaluations and/or products from each of the six workshops.

1972 FOLLOW THROUGH SEPTEMBER WORKSHOP

WORKSHOP SCHEDULE  
September 18-22, 1972

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**SUNDAY, SEPTEMBER 17**

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<u>Time</u>	<u>Event</u>	<u>Place</u>
6:00-9:00 p.m.	Registration	Hotel Lobby
7:30-9:00 p.m.	Optional meeting for new Curriculum Assistants	Hilton Room

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**MONDAY, SEPTEMBER 18**

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8:30-9:00 a.m.	General Meeting	Room 3
9:00-10:45 a.m.	The Role of the Curriculum Assistant	
	Group R . . . . .	Room 5
	Group S . . . . .	Room 7
	Group T . . . . .	Room 3
	Group X . . . . .	Room 8
	Group Y . . . . .	Room 6
10:45-11:45 a.m.	General Meeting Relative to Role of Curriculum Assistant	Room 3
11:45-1:15 p.m.	Lunch	
1:15-2:45 p.m.	Problem/Checklist Conferences with Consultants	
	Chicago . . . . .	Infant Dept.
	Florida . . . . .	Room 8
	Greeley . . . . .	Studio
	Mississippi . . . . .	Room 3
	Missouri . . . . .	Room 6
	New York . . . . .	Room 9
	Riverton . . . . .	Room 10
	Seattle . . . . .	Room 5
	Trinidad . . . . .	Room 7
3:00-3:45 p.m.	General Meeting Relative to Problem/Checklist	Room 3

Monday (continued)

3:45-4:30 p.m.

Group Meetings Relative to  
Problem/Checklist

Group R . . . . .	Room 5
Group S . . . . .	Room 7
Group T . . . . .	Room 3
Group X . . . . .	Room 8
Group Y . . . . .	Room 6

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TUESDAY, SEPTEMBER 19

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8:30-11:45 a.m.

Group Meetings Relative to  
Classroom Matrix

Group R . . . . .	Room 5
Group S . . . . .	Room 7
Group T . . . . .	Room 3
Group X . . . . .	Room 8
Group Y . . . . .	Room 6

11:45-1:15 p.m.

Lunch

1:15-3:30 p.m.

Group Meetings Relative to  
Training Techniques

Group A . . . . .	Room 8
Group B . . . . .	Room 3
Group C . . . . .	Room 5
Group D . . . . .	Room 7
Group E . . . . .	Room 6

3:30-4:30 p.m.

General Meeting Relative to  
Training Techniques

Room 3

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WEDNESDAY, SEPTEMBER 20

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8:30-11:45 a.m.

Matrix Overlays

Group A . . . . .	Room 8
Group B . . . . .	Room 3
Group C . . . . .	Room 5
Group D . . . . .	Room 7
Group E . . . . .	Room 6

11:45-1:15 p.m.

Lunch

Wednesday (continued)

1:15-4:30 p.m. Matrix Overlays - Practicum

Group A . . . . .	Room 3
Group B . . . . .	Room 5
Group C . . . . .	Room 6
Group D . . . . .	TDC
Group E . . . . .	Room 8

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THURSDAY, SEPTEMBER 21

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8:30-11:45 a.m. Matrix Overlays - Practicum

Group A . . . . .	Room 6
Group B . . . . .	TDC
Group C . . . . .	Room 7
Group D . . . . .	Room 8
Group E . . . . .	Room 3

11:45-1:15 p.m. Lunch

1:15-4:30 p.m. Matrix Overlays - Practicum

Group A . . . . .	TDC
Group B . . . . .	Room 7
Group C . . . . .	Room 8
Group D . . . . .	Room 5
Group E . . . . .	TDC

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FRIDAY, SEPTEMBER 22

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8:30-11:45 a.m. Matrix Overlays - Practicum

Group A . . . . .	Room 5
Group B . . . . .	Room 6
Group C . . . . .	TDC
Group D . . . . .	Room 3
Group E . . . . .	Room 7

## EVALUATION OF SEPTEMBER WORKSHOP

In an effort to assess the effectiveness of the workshop, participants were asked to complete the following forms:

Form I: Functions of the C.A.

Form II: The Matrix

Form III: Training Techniques ,

Form IV: Attitudes

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

EVALUATION FORM I

Functions of the C.A.

Please check (do not write your name):

CA \_\_\_\_\_

Teacher \_\_\_\_\_

Other \_\_\_\_\_

Please indicate:

Number of years in Follow Through. \_\_\_\_\_

Number of years teaching experience. \_\_\_\_\_

Starting with the most important, number from 1 to 6 the following CA functions in order of importance.

\_\_\_\_\_ Assists in making arrangements for field trips, health and dental services and obtaining classroom supplies.

\_\_\_\_\_ Assists teaching teams in evaluating child progress and planning classroom activities to implement cognitive goals.

\_\_\_\_\_ Assists in school operation by giving school examinations, organizing playground activities and keeping records for report cards.

\_\_\_\_\_ Identifies problems of curriculum implementation.

\_\_\_\_\_ Assists in home teaching program by advising home coordinator and communicating with parents.

\_\_\_\_\_ Conducts training sessions for Follow Through teachers and aides.

## SUMMARY RESULTS OF EVALUATION FORM #1

### The Role of the C.A.

CA's, as a group, identified the following functions as the three most important:

1. Assists teaching teams in evaluating child progress and planning classroom activities to implement cognitive goals.
2. Conducts training sessions for Follow Through teachers and aides.
3. Identifies problems of curriculum implementation.

47% of the group named the first function listed above as the most important one.

22% of the group named the second function listed above as the most important one.

32% of the group named the third function listed above as the most important one.

CA's, as a group, identified the following functions as next in importance:

4. Assists in home teaching program by advising home coordinator and communicating with parents.
5. Assists in making arrangements for field trips for health and dental services and obtaining classroom supplies.
6. Assists in school operation by giving school exams, organizing playground activities and keeping records for report cards.

82% of the group named the last function as the least important.

Although rank-orderings by individuals differed within these two groupings, CA's (with two exceptions) were in agreement with High/Scope staff on the three most important and three less important functions.

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

EVALUATION FORM II

The Matrix

Please check (do not write your name):

CA \_\_\_\_\_

Teacher \_\_\_\_\_

Other \_\_\_\_\_

Please indicate:

Number of years in Follow Through. \_\_\_\_\_

Number of years teaching experience. \_\_\_\_\_

1. It is hoped that the matrix will help you implement the cognitive curriculum at your site. List at least three ways you might use the matrix for this purpose.
  - 1)
  - 2)
  - 3)
2. A teacher focuses on skill development and uses commercial materials according to grade level expectations. She does not consider the developmental level of the children.
  - A. Which variable most nearly addresses itself to the above situation?
  - B. At what level would you rate this teacher?

(Refer directly to the matrix, if you like, while responding to this question.)

3. A teacher may be at different levels of implementation on different variables.

Circle one: True False

4. A CA should strive to move the teacher directly to Level 4 regardless of what level she is currently operating on.

Circle one: True False

5. The matrix provides a way to look at classrooms with specified aspects of the curriculum in mind.

Circle one: True False

6. A knowledge of a teacher's goals is necessary before judgments of the teacher can be made on the matrix.

Circle one: True False

## SUMMARY RESULTS OF EVALUATION FORM II

### The Matrix

Upon scoring this form, it was decided to throw out questions four and six:

- #4: A CA should strive to move the teacher directly to Level 4 regardless of what level she is currently operating on.
- #6: A knowledge of a teacher's goals is necessary before judgements of the teacher can be made on the matrix.

Though the CA's displayed rudimentary knowledge of the Matrix by their responses, it was felt that the quality of their answers was often poor.

Conclusions were:

1. Consultants, as a group, should discuss how to use the Matrix since confusion over questions four and six occurred during discussion groups.
2. The CA's need to be better aware of the ways to use the Matrix.
3. On variable 7 (Learning Experiences), does one check asterisk levels or one global level for the entire variable? (Level 1 and 2 are fuzzy in regard to commercial materials.

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

EVALUATION FORM III

Training Techniques

Please check (do not write your name):

CA \_\_\_\_\_

Teacher \_\_\_\_\_

Other \_\_\_\_\_

Please indicate:

Number of years in Follow Through. \_\_\_\_\_

Number of years teaching experience. \_\_\_\_\_

1. List at least three methods of classroom intervention.

1.

2.

3.

2. List five possible combinations of people which could comprise an intervention team.

1.

2.

3.

4.

5.

3. If a CA for a training purpose has a session with her teacher in which she has engaged the services of an outside consultant, the training technique employed is:

Circle one:

- A. Demonstration Teaching
- B. Model Classroom
- C. Workshon
- D. Materials Development
- E. None of the above

4. For a workshop to be effective there should be:

Circle one:

- A. Total lecturing to the group.
- B. Participants deciding what they want to do.
- C. All participants arriving at the same conclusion.
- D. Minimal amount of lecturing with much small group work centered around tasks provided.

5. Once a workshon, as a technique, has been selected to solve a problem, the solution is guaranteed.

Circle one:      True      False

6. The purpose of using Materials Development for training is:

Circle one:

- A. To produce material to be used in classroom activities.
- B. To inform parents of school activities and classroom goals.
- C. To allow children opportunities for active involvement.
- D. To provide opportunity for a teacher to think through a curriculum concept or practice.

7. Developing materials should be used for training:

Circle one:

- A. When materials are needed.
- B. When a teacher is definitely hostile toward having children make their own plans.

- C. To reinforce a teacher's understanding of a concept once the concept has been introduced.
- D. When Workshons, Classroom Intervention, Planning and Model Classrooms have proven unsuccessful.

8. List three types of material development that may be useful for training.

1.

2.

3.

9. Who shall participate in Daily Planning?

10. What is the purpose of Daily Planning?

11. Who should participate in weekly planning?

12. What is the purpose of weekly planning?

13. The development of a Model Classroom is an end in and of itself.

Circle one:      True      False

14. What is necessary in order to make a Model Classroom a useful training tool?

15. List three purposes of a Model Classroom.

1.

2.

3.

What is the basic composition of a Model Classroom making it suitable for utilization as a training tool?

## SUMMARY RESULTS OF EVALUATION FORM III

### Training Techniques

Out of the total number of questions regarding training techniques, 88% of the participants answered at least half of them correctly. Only 22%, however, answered at least three-fourths of the questions correctly.

The questions missed most often were those of Model Classroom. Questions concerning the other four techniques were missed with equal frequency.

Reasons given by all group leaders for the low number of correct responses centered around the following issues:

1. Poor responses seemed most often to be a result of poorly phrased questions.
2. Written responses in general tended to be more poorly articulated than verbal responses.
3. Coordination of in-house effort: Group leaders were uncertain about their own specific objectives and the manner in which they hoped to convey them to the CA's.

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

EVALUATION FORM IV

Attitudes

Please check (do not write your name):

CA \_\_\_\_\_

Teacher \_\_\_\_\_

Other \_\_\_\_\_

Please indicate:

Number of years in Follow Through. \_\_\_\_\_

Number of years teaching experience. \_\_\_\_\_

Indicate the strength of your reaction to the following statements as follows:

Agree very strongly	+3	Disagree very strongly	-3
Agree strongly	+2	Disagree strongly	-2
Agree	+1	Disagree	-1

\_\_\_\_\_ 1. I have a better understanding of my function as a CA as a result of this workshop.

Comments:

\_\_\_\_\_ 2. The matrix will help me to identify problems of curriculum implementation back home.

Comments:

\_\_\_\_\_ 3. I have acquired knowledge of techniques to help solve problems of curriculum implementation back home.

Comments:

\_\_\_\_\_ 4. I feel able to apply the technique of Workshops to problems at my center.

Comments:

\_\_\_\_\_ 5. I feel able to apply the technique of Model Classroom to problems at my center.

Comments:

\_\_\_\_\_ 6. I feel able to apply the technique of Planning to problems at my center.

Comments:

\_\_\_\_\_ 7. I feel able to apply the technique of Classroom Intervention to problems at my center.

Comments:

\_\_\_\_\_ 8. I feel able to apply the technique of Materials Development to problems at my center.

Comments:

\_\_\_\_\_ 9. I feel I had adequate opportunity to actively participate in the workshop.

Comments:

\_\_\_\_\_ 10. I had sufficient opportunity to interact with participants from other centers during the workshop.

Comments:

## SUMMARY RESULTS OF EVALUATION FORM IV

### Attitudes

The median rating of participants was "Agree Strongly" for the following statements:

(See circled items.)

On two statements the median rating was "Agree":

(See non-circled items.)

Only a few participants commented on this rating. The reasons given were "will be more confident when I've had more actual experience with those particular experiences (Model Classroom) and "not enough time to get into this (Materials Development) as our group was involved in other concerns."

On the whole, the ratings were positive. The only negative ratings and comments by a few participants centered around the issues of active participation ("only verbal participation; no participation in planning and evaluation"), interaction with other participants ("interaction too much with High/Scope staff and High/Staff dominated"), and the CA Role ("CA role is too general").

- ①. I have a better understanding of my function as a CA as a result of this workshop.
- ②. The matrix will help me to identify problems of curriculum implementation back home.
- ③. I have acquired knowledge of techniques to help solve problems of curriculum implementation back home.
- ④. I feel able to apply the technique of Workshops to problems at my center.
5. I feel able to apply the technique of Model Classroom to problems at my center.
- ⑥. I feel able to apply the technique of Planning to problems at my center.
- ⑦. I feel able to apply the technique of Classroom Intervention to problems at my center.
8. I feel able to apply the technique of Materials Development to problems at my center.
- ⑨. I feel I had adequate opportunity to actively participate in the workshop.
- ⑩. I had sufficient opportunity to interact with participants from other centers during the workshop.

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

1972 November Workshon  
Planned Schedule of Activities

SUNDAY, November 5, 1972

9:00 Howard Johnson's Motel Conference Room  
Short general meeting.

MONDAY, November 6, 1972

8:30 Building 209 - Introductory meeting presenting this weeks  
goals and tasks.

Viewing of Media presentations.

Dividing of participants into two groups:  
Space group  
Classification group.

10:30 Space group to TDC for observation and to plan with  
teachers during lunch.

Classification group - 209 - meet to discuss plans and  
goals.

12:30 Space group - 209 - meet to discuss plans and goals for  
involvement at TDC on Tuesday morning.

Classification group - TDC - observation and follow up  
on morning meeting.

2:30- Both groups - TDC - planning and evaluation session  
3:30 with teachers.

3:30-  
4:00 Both groups - TDC - general review and evaluation.

TUESDAY, November 7, 1972

3:30 Space group - TDC - interacting with Math/Science,  
Listening, Quiet, House, Art, Construction, Bookmaking  
Centers. Meeting with teachers during lunchtime.

Classification group - 209 - planning on the implementation  
of goals during TDC involvement in afternoon.

12:30 Space group - 209 - evaluation and planning of this  
morning and the implementation of goals during TDC  
involvement on Wednesday morning.

Classification group - TDC - interacting with Block, Listening, Quiet, House, Math/Science Centers working from morning planning session.

2:30-

3:30 Both groups - TDC - planning and evaluation session with teachers.

3:30-

4:00 Both groups - TDC - general review and evaluation.

WEDNESDAY, November 8, 1972

8:30 Space group - TDC - interacting with Math/Science, Listening, Quiet, House, Art, Construction, Bookmaking Centers. Meeting with teachers during lunchtime.

Classification group - 209 - planning on the implementation of goal(s) during TDC involvement in afternoon.

12:30 Space group - 209 - evaluation and planning of this morning and the implementation of goal(s) during TDC involvement on Thursday morning. Additional focus: planning to include preparation for video taping on Thursday morning to prepare training session for entire group on Friday.

Classification group - TDC - interacting with Block, Listening, Quiet, House, Math/Science Centers working from morning planning session.

2:30- Both groups - TDC - planning and evaluation session  
3:30 with teachers.

3:30-

4:00 Both groups - TDC - general review and evaluation.

THURSDAY, November 9, 1972

8:30 Space group - TDC - persuance of Wednesday's planning and video taping.

Classification group - 209 - planning on the implementation of goal(s) during TDC involvement in afternoon. Additional focus: planning to include preparation for video taping on Thursday morning to prepare training session for entire group on Friday.

12:30 Space group - 209 - review of tape and general evaluation.

Classification group - TDC - persuance of Thursday morning planning and video taping.

2:30- Both groups - TDC - planning and evaluation session  
3:30 with teachers.

3:30-

4:00 Both groups - TDC - general review and evaluation.

FRIDAY, November 10, 1972

8:30 Both groups - 209 - showing of video tapes and general evaluation and discussion.

## HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

### EVALUATION OF NOVEMBER WORKSHOP

Participants viewed two videotape segments which they had filmed themselves at the end of the week. One focused on space and was filmed by the group which had concentrated their week's efforts on spatial relations exercises. The other tape focused on classification and was filmed by the group which had concentrated their week's efforts on classification exercises. Both groups had identified classification or spatial relations exercises, planned and interacted with children at the TDC, and evaluated each day's activities with teachers and High/Scope staff. The videotapes were episodes of children working as they carried out their daily plans.

The evaluation was designed to:

- compare the number of observations made by the group which worked with one set of exercises (e.g., classification) with the number of observations made by the group which worked with the other set of exercises (e.g., spatial relations)
- evaluate the appropriateness of observations made by both groups
- determine the level of participation in a task which focused on the goals of the week's workshop (i.e., CA's ability to identify and expand classification and spatial relations exercises occurring in children's work activity).

One ten-minute segment of each videotape was shown to both groups of participants simultaneously. The following procedure was followed for each videotape presentation:

- (1) The group which had not dealt with classification during the week was asked to identify observable classification exercises occurring in children's work activity.
- (2) The group which had dealt with classification was asked to expand the number of observable classification exercises which the other group had missed.
- (3) and (4) This same process was followed for the group which had not dealt with space and the group which had dealt with space.

### Results

1. In each case the group which had worked all week with a particular set of exercises (classification or space) were able to expand the list of observable exercises noted by the other group. (See Table 1)

2. Only three inappropriate responses were noted. Two of these were made by the groups which had not dealt with that particular set of exercises; one was made by a group which had dealt with the particular exercises in question.
3. Twelve of the thirteen participants were actively involved in discussion of observable exercises presented on videotape. Included in these participants were several CA's who, in the opinion of High/Scope Follow Through staff, rarely made contributions at previous workshops.
4. The CA's as a group, by the nature of their responses, demonstrated to the satisfaction of High/Scope Follow Through staff an adequate ability to identify classification and spatial relations exercises occurring in children's work activity.

### Results of the Attitude Survey

1. I feel quite clear about the meaning of the space (or classification) exercises.

60% of the participants agreed strongly  
30% of the participants agreed  
10% of the participants expressed ambivalence

2. I feel comfortable with my ability to identify child behaviors which relate to the space (or classification) exercises.

50% of the participants agreed strongly  
40% of the participants agreed  
10% of the participants expressed ambivalence

3. I have a clear plan of how I will work to implement these ideas at home.

20% of the participants agreed strongly  
50% of the participants agreed  
30% of the participants expressed ambivalence

### Additional Comments

1. Eighty per cent of the participants expressed satisfaction with the workshop's goals, manner of presentation, and perceived usefulness. Their reaction was noted in such comments as:

"Through actual work with the children, with specific goal sequences in mind, ... it became much clearer to me how many opportunities arise in a classroom situation where the goals can be extended."

"The goals as stated in the handouts is the practical information needed ... to develop cognitive skills rather than just teaching classification, seriation, etc."

2. Fifty per cent of the participants expressed the need for a more supportive role in terms of implementation at individual sites. Some of their suggestions were:
  - Extended ideas for "directed teaching" time
  - Methods of getting this approach over to teachers and parents
  - Support and recommendations of this approach from field consultants at their next site visit
  - Same exercise (videotape) with temporal and seriation sequences
  - Opportunity for project directors to view this same type of "classroom behavior and implementation expectations"
3. Recommendations for future training workshops included:
  - Some time for centers to interact around common problems
  - Pre-planning inventory sent to centers to discover the nature of these problems or needs
  - Time devoted to changing teacher attitudes
  - Grouping at workshops according to familiarity with the curriculum, i.e., multiple tracking
  - Time devoted to teacher-child planning process
  - A format of (1) spending one day familiarizing self with goals, (2) working at center, (3) bringing back results at the next workshop.

TABLE 1

Comparison of the Number of Videotape Observations  
Made by the Classification and Space Groups

Dimension Observed	No. of Appropriate Observations		Per Cent of Additional Observations
	Space Group	Classification Group	
Classification (on Classification V.T.)	13	4	31% (Classification Group)
Space (on Classification V.T.)	5	6	83% (Space Group)
Classification (on Space V.T.)	4	5	125% (Classification Group)
Space (on Space V.T.)	2	10	20% (Space Group)

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

1972 FOLLOW THROUGH WINTER WORKSHOP

PROGRAM

Date: December 6-8, 1972

Duration: Tuesday, December 5, 6 p.m. to Friday, December 8,  
12 noon

Projects:	P.S. 92, New York	Greeley, Colorado
	Okaloosa County, Florida	Denver, Colorado
	Howland-Lathrop, Chicago	Trinidad, Colorado
	Central Ozarks, Missouri	Riverton, Wyoming
	Leflore County, Mississippi	Seattle, Washington

Program Notes:

1. Task Force Groups: The goal of each task force is the production of a written position statement on the issues under discussion.
2. Luncheon Reports: Each task force and the Home Teaching Coordinators should select a recorder from among workshop participants to present a summary statement of positions at each luncheon and take responsibility for the production of a written statement which represents the majority opinion of the group. Minority reports from participants are equally welcome.
3. Written Reports and Outlines from task forces should be submitted to the Administrative Assistant, Mrs. Schoppa, prior to the beginning of the afternoon sessions. She will be in Room 507, the Foundation's staff room.
4. Film Festival: Foundation staff will present two 16mm films Wednesday evening at 8:00 p.m. Attendance is optional, but we hope you will take advantage of the opportunity to view some of the Foundation's media productions.
5. Luncheon Tickets: Luncheon tickets are color-coded to insure an accurate count at each catered meal. Please make sure that you have these tickets with you. Present them to Mrs. Schoppa at the door.
6. Return Flights: Please make sure that Project Directors fill out the information sheet with the time and airline listed.
7. Friday Check-out: Workshop participants should plan to check out of the Campus Inn at 8:00 a.m. Friday. In order to accomplish a variety of tasks in Ypsilanti Friday morning, it will be necessary for cars to leave for the Foundation offices and TDC by 8:15. If you have a late flight Friday afternoon or evening, we will try to make special provisions

for your luggage at the Campus Inn so that you can return to Ann Arbor if you choose.

8. Thursday Evening: Free for Christmas shopping and/or socializing. If you need assistance finding your way around Ann Arbor, Foundation staff will be glad to assist you.
9. Greeley Audit: All Project Directors and School Administrators should have read the Greeley Audit prior to the session Wednesday afternoon.

TUESDAY, DECEMBER 5

<u>Time</u>	<u>Place</u>	<u>Purpose and Goal</u>
6-8 p.m.	Campus Inn Lounge	Registration
8:00 p.m.	West Regency Rm.	Opening Session

WEDNESDAY, DECEMBER 6

<u>Time</u>	<u>Group</u>	<u>Place</u>	<u>Purpose and Goal</u>
8:30 a.m.	Task Force A	Room 304	Generate working statement on program evaluation and the involvement of all stakeholders in the development and analysis of evaluation instruments.
	Task Force B	Room 305	Creation of a committee to identify and analyze steps necessary for the preservation of F.T. via legislative action.
	Task Force C	Room 306	Develop a working statement on Follow Up (Grades 4-6), proliferation, and the involvement of stakeholders in the development of sponsor continuation proposals.
	Home Teaching Coordinators	TDC	Analysis of and training in the Home Education Component of the Cognitively Oriented Curriculum.
10:00 a.m.	All Groups	Campus Inn or TDC kitchen	Coffee break

WEDNESDAY (cont'd)

<u>Time</u>	<u>Group</u>	<u>Place</u>	<u>Purpose and Goal</u>
10:30 a.m.	All Groups		Resume task force meeting and training
12 p.m.	All Groups		- Break for Lunch - Recorders--prepare outline for editing & distribution
12:30 p.m.	All Groups	Ballroom	- Luncheon - Dr. Weikart: "Accountability and the Cognitively Oriented Curriculum" - Reports by Task Force recorders and Home Education Coordinators
2:30 - 4:30 p.m.	PAC	Room 304	Group Caucus: Agenda to be determined
	Project Directors, School Administrators	Room 305	Discussion and analysis of the Greeley Audit
	Home Coordinators	Room 306	Continue analysis of Home Education
8:00 p.m.	All Groups	East Regency Room	Film Festival: View and discuss "This Is the Way We Go to School" and "Planning"

THURSDAY, DECEMBER 7

<u>Time</u>	<u>Group</u>	<u>Place</u>	<u>Purpose and Goal</u>
A.M.	Note: All groups should follow the same schedule as that for Wednesday morning. Final drafts of working statements should be submitted to the Administrative Assistant by 2:30 p.m.		
12:30 p.m.	All Groups	Ballroom	- Luncheon - PAC report: "Post Denver"
2:30 - 4:30 p.m.	All Groups	West Regency Room	- Discuss the "Cognitive Curriculum as an Elementary School Model" - View training tapes on Space and Classification

Evening: Free for shopping or entertainment

FRIDAY, DECEMBER 8

Reminder: All sessions Friday morning will be held in Ypsilanti either at the TDC or the Foundation offices.

Note: It is recommended that cars park in the lot directly across from 209 or behind 125. Otherwise we suggest that you not leave luggage in cars. Space for luggage is provided as follows if you wish to bring it to the office.

Room 4 - New York, Florida  
Room 5 - Chicago, Mississippi, Missouri  
Room 6 - Trinidad, Riverton, Greeley  
Room 7 - Denver, Seattle

<u>Time</u>	<u>Group</u>	<u>Place</u>	<u>Purpose</u>
8:45 a.m.	Group 1*	TDC	Observe TDC in operation
	Group 2*	Video Studio	View and discuss "The Culturally Advantaged Chicano Child"
	Group 3*	209 Conference Room	
9:45 a.m.	Group 1	Video Studio	
	Group 2	209 Conference Room	
	Group 3	TDC	
10:45 a.m.	Group 1	209 Conference Room	
	Group 2	TDC	
	Group 3	Video Studio	

\*See attached sheet for group assignment.

Conference ends at noon. Have a pleasant journey home.

MEETING GROUPS FRIDAY MORNING

GROUP 1

Evangeline James  
James Waddy  
Algenoy Ward  
Viola Kriz  
Ethel Lindsey  
Kathleen Highfield  
Margaret Tikalsky  
Dorothy Brazeal  
Elvira Morris  
George Anderson  
Helen Testamark  
Alice Robertson  
Sister Bona  
Gertrude Beamon  
Bess Pettijohn

GROUP 2

Ronald Robinson  
Madlen Barela  
Leo Goettelman  
Opal Hoover  
James Hayes  
Laura Mae Hawkins  
Virginia Schlepp  
Norman Knight  
Daisy Hamm  
Viola Moore  
Carmen Jones  
Patricia Curvey  
Lois Palmquist  
John Smith  
Charles Lochard

GROUP 3

Louis Swanson  
Velma Thomas  
Judy Fontius  
Teresa Nuanez  
Mike Rosales  
Margaret Bice  
Amanda Elzy  
Don Dunn  
Bonnie Williams  
Jeanette Willia  
Reginald Knox  
Delene Berg  
Janet Torres  
Alma Jean Powel  
Ed Fresquez

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

1972 FOLLOW THROUGH WINTER WORKSHOP

STATEMENT ON EVALUATION (TASK FORCE A)

DECEMBER 7, 1972

The evaluation procedures employed in the national evaluation of Follow Through (FT) are inadequate in assessing the comprehensive nature of the program. The impact on the total educational environment must be determined. Academic growth alone is not a measure of the success of the program. The child's academic growth, cognitive growth, and affective development have reciprocal relationships on one another and on the improvement of his life chances. We must therefore more carefully evaluate his total educational growth rather than one narrow facet of it. The following includes some of the facets that we feel have been neglected.

SUGGESTED EVALUATION AREAS AND PROCEDURES\*

I. Auxiliary Services

A. Nutrition

1. Number receiving meals/snacks
2. Quality of meals/snacks
3. Nutritional education to teachers, parents, children
4. Evidence of malnutrition (nurse keeps medical records)
5. Record of new menus/how children are responding to acceptance of such (changing food preferences--eating more unfamiliar foods)
6. Case studies
7. Other factors to consider: environment, availability of foods, regulations, input)

B. Psychological

1. Case studies of children
2. Teachers' knowledge for identification of behavior problems
3. Number of referrals for psychological services
4. Workshops for staff to help them identify and deal with behavior problems
5. Workshop with parents on child behavior to help them understand child behavior
6. Eliminating number of children who go to special problems
7. Identification of teachers needing psychological help and follow-up

\*Please forward any additional suggestions as soon as possible to John M. Love at High/Scope.

## II. Staff Development - Career Advancement Opportunities

### A. Professionals

1. Students practice teaching in Follow Through classes personnel assume teaching positions in Follow Through rooms after graduation
2. Number and kinds of continuous inservice training:
  - a. Visits to other Follow Through classrooms and projects
  - b. Sponsor directed workshops at centers and elsewhere
  - c. Planning sessions conducted by CAs
  - d. Classroom intervention by CAs
  - e. CA directed workshops
  - f. Consultant directed workshops
    1. High/Scope
    2. Others
  - g. Micro-teaching
  - h. Mini workshops conducted by teachers
  - i. Orientation workshops for new personnel
  - j. Social worker, psychologist, nurse do lunchroom workshops with teachers
  - k. A-V training (video-taping, etc.) utilized
    1. Workshop sponsored by one center, attended by others
  - m. Administration attending workshops at home/other
3. Professional library
4. Teachers attending classes
  - a. Cultural understanding
  - b. Spanish speaking, bilingual workshops
  - c. Towards advanced degree
5. Some professionals assuming different positions
  - a. Teachers to CAs
  - b. CA to Director
  - c. CAs to teachers
  - d. Assistant Principal to Director
  - e. Director to state department position

### B. Paraprofessionals

1. Aides attend classes taught by CAs and Directors
2. Number of aides in COP (Career Opportunity Program)
3. Number of supplementary training grants utilized at centers (kinds of grants used for aide training)
4. Educational T.V. training for aides
5. Aides attending classes in A-V area, photo classes
6. Release time provided for aides/teacher to plan with CA
7. Aides on leave--attend college--possibly return as professional in program
8. Orientation workshop for new personnel
9. Paraprofessional social workers taking mental health class, pass on information to aides
10. Parent Coordinators taking candle making classes
11. GED aides obtaining work with parents

## Task Force A

### III. Instructional Component

- A. Instructional environment utilization of materials and equipment
  - 1. Comparison of materials and equipment lists of FT and non-FT classrooms
  - 2. Number of volunteers in FT vs. non-FT classes
  - 3. Use of instructional space in the school other than in the child's own classroom
  - 4. Number and content of field trips
  - 5. Frequency of use of materials or equipment by FT and non-FT teachers (e.g. signing out videotaping equipment)
  - 6. Extent of disruption in learning process due to teacher absence and the presence of substitutes
- B. Staff involvement
  - 1. Staff involvement in parent meetings or in parent sub-committees
  - 2. Staff participation in extra activities, extended days activities, after hours work or meetings
- C. Other effects on the child
  - 1. Attendance rates in FT and non-FT classes
  - 2. Drop-out rates
- D. Longitudinal Follow Up
  - 1. Achievement data, grades, etc. on fourth and fifth graders who have been through FT
  - 2. Other school records indicative of fourth grade adjustment
- E. Staffing patterns
  - 1. Number of aides employed in FT classrooms
  - 2. Pupil-teacher ratios
  - 3. Number of parent aides in FT classrooms

### IV. Parent Involvement

- A. In school
  - 1. Number of parent visits to FT classrooms (as observers or participants)
  - 2. Number of parent-initiated (as opposed to teacher-initiated) contacts or conferences with teacher and/or aides
  - 3. Amount of volunteer time and specific purpose
    - a. Attendance at PAC meetings and activities (social affairs, special workshops, etc.)
    - b. Parent-established education activities, e.g. child guidance class
    - c. Parent-initiated activities in classroom, e.g. personal hygiene instruction, bread-making, birthday parties, etc.

## Task Force A

- d. Parent-initiated activities outside of classroom, e.g. field trips, workshops, clothing fund
  - e. Other parent contributions
    1. Lunch duty, substituting, baking cookies, painting the school, providing transportation, etc
  4. Number of total FT parents involved in FT activities
- B. In Community**
1. Number of FT parents involved and the nature of involvement in:
    - a. Other non-FT school activities (membership in P.T. office-holder, committee chairmen, etc.)
    - b. Local politics (running for office, serving on civ committees, campaigning for local school board members or politicians)
    - c. Local issue-oriented groups ( e.g. petition to have local judge retained in office, letters-to-the-editor)
    - d. Other local or state civic groups
  2. Number of inquiries about FT made by non-FT parents (to project director, PAC members, principal, teachers)
  3. Public relations efforts (see Dissemination)
- C. In policy-making**
1. Number, nature of contacts, and results of contacts with:
    - a. Local school board (e.g. school name changed, school policy changed, etc.)
    - b. Other policy-making groups (P.T.A., etc.)
    - c. Local, state, and national representatives
    - d. Principal and/or Superintendent (e.g. permission to hold birthday parties for children, more classroom space provided by knocking out certain walls, meeting room for parents made available, etc.)
  2. Specific opportunities given parents to be part of decision-making process (e.g. Advisory Council, Parent Personnel Committee, etc.)
    - a. Is information shared with parents by the school and project director (budgets, educational problems, hiring policies, interviewing applicants, etc.?)
    - b. What decisions and/or recommendations resulted from parent input?
- D. In other areas (see Auxiliary Services and Spin Off)**

## Task Force A

### V. Spin-Off

- A. Influence to non-FT classes at FT grade levels
  - 1. FT-type materials used in non-FT classes.
  - 2. Attendance of non-FT teachers at FT workshops.
  - 3. Extent to which FT teachers talk to non-FT teachers.
- B. Influence to grades 4-6
  - 1. Requests from other teachers to visit FT classrooms.
  - 2. Frequency with which FT Curriculum Assistants are involved with extra workshops, consultation, etc. to non-FT staff.
  - 3. Lists of information that is distributed by the program to non-FT teachers.
  - 4. Visits by FT children to non-FT classes.
  - 5. Type of training provided to fourth grade teachers who will be receiving FT children, e.g., training workshops, visits to FT classes, information about FT, orientation sessions.
  - 6. Tutorial exchange programs between FT and non-FT children.
- C. Influence on non-FT programs, e.g.,  
  
What other programs might have changed because of FT, e.g., a Model Cities program or a Title I reading program.
- D. FT as resource to non-FT personnel, e.g.,  
  
FT staff speaking to faculty groups, conducting workshops or inservice training for others.
- E. Influence on other schools, e.g., records of outside visitors to FT classrooms
- F. Influence on the community, e.g.,
  - 1. Parents changed the name of a school in Greeley.
  - 2. PAC representative speaking at community group meetings.
  - 3. FT staff attending community meetings.
  - 4. Number of community visitors to the program.
  - 5. Responses received (e.g., letters) from community people supporting the value of FT.
- G. Influence on parents and families
  - 1. Parental reports that FT has had an influence on other siblings in the family.
  - 2. Involvement of siblings in the home teaching sessions.
  - 3. Child interviews?

## Task Force A

### VI. Dissemination

#### A. Inter-communication among FT projects

1. Model Sponsor workshops
2. Newsletters that projects exchange
3. Visits to other centers by staff
4. Sponsor acts as a clearing house for ideas (Consultants share ideas at each center)
5. Personnel exchange is another way of sharing ideas
6. Exchange of A-V materials produced by Sponsor/centers

#### B. Community Agencies

1. Representatives of community agencies who serve on PAC
2. Directors/parents speak at various service clubs
3. Parents, directors, etc. use radio, T.V. for dissemination
4. Exhibits at conventions
5. Children/CAs have demonstrations at various meetings
6. Community people invited to "Parent Day in Classroom" and other classroom functions
7. Association with firms from which materials/equipment are purchased

#### C. Non-FT Personnel/Other Projects

1. Invite other staff to workshops and classroom visits
2. Invite administration, school board members to workshops, etc.
3. Invitation of personality figures, legislators, government personnel to workshops and classrooms
4. Soliciting support from congressmen on legislative matter
5. Proliferation: administrators of other programs in the district visit FT then share these ideas with others in the system
6. Directors, CAs, teachers, parents speak at college classes
7. Reports (as per terms of grant award) to state departments of education, CAP agencies, etc.
8. Classroom observations by outside sources (foreign student working on degree/observing in classrooms as part of college work)

### VII. Sponsors

#### A. How centers can evaluate sponsors

1. Feedback report to sponsor after consultant visits
2. Close-out conferences at end of consultant visits
3. Articles of Agreement--sponsor adhering to contract obligations, number of days, etc.
4. Sponsor's ability to meet individual center needs

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

1972 FOLLOW THROUGH WINTER WORKSHOP

POSITION STATEMENT ON PRESERVATION OF FOLLOW THROUGH  
VIA LEGISLATIVE ACTION (TASK FORCE B)

December 7, 1972

The discussions of yesterday pointed up the fact that legislative action is clearly indicated. We will need:

1. A bill sponsored in the Senate, House, or both
2. Hard data to support our request for a bill
3. List of key people who can act as sponsors (Mentioned were Senators Percy, Kennedy, Stevens, Javits)

We discussed the inability to obtain data (contract by ABT with Office of Education will prohibit the obtaining of data).

Mrs. Testamark, chairman of National PAC and Community Action Committee from New York, was asked to bring us up to date on what has been done by the parents thus far. She made the following points:

1. Congress can manipulate programs about legislation if the right person is reached.
2. The persons in HEW presently in charge of Follow Through (F.T.) are not sympathetic to it, but would like to see it absorbed in Title I.
3. Cuts in programs are made not in HEW, but in the Office of Budget and Management.
4. As National Chairman of F.T. PAC, she had met with many persons in HEW.
5. The need now is for a concerted effort on the parts of all concerned--sponsors, principals, teachers, paraprofessionals, community agencies, etc.
6. Emphasis should be on the benefits derived from F.T. (other than pupil achievement) such as jobs and money brought into the community, upgrading of paraprofessionals, etc.

7. Parents are interested in having F.T. continue in grades 4-6. A three- or four-year program does not give conclusive evidence of its worth. There have been too many educational programs which have begun and suddenly dropped.
8. Another meeting has been set up for next week by National PAC with the acting head of Bureau of Compensatory Education.
9. If F.T. is to survive, it will eventually have to be locked in through permanent legislation.
10. The creation of a permanent parents lobby is necessary. Can sponsors help by pointing the way to Foundations that will give short-term funding for a project of this sort?

Dr. Billings, PTTAC Consultant, added that:

1. State Boards of Education should be pressured to include F.T. in their bargaining with the Federal Government.
2. Everyone has a responsibility--sponsors, parents, principals, et. al.
3. Consultants should be pushed by parents of local projects to help in spreading knowledge of F.T.

In summary, everyone must:

1. Spread the news of F.T.
2. Invite lawmakers to see F.T. in action.
3. Join with parents in letter writing, speaking, and money raising.

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

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# HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

1972 FOLLOW THROUGH WINTER WORKSHOP

## POSITION STATEMENT ON CONTINUATION OF FOLLOW THROUGH PROGRAM THROUGH SIXTH GRADE (TASK FORCE C)

DECEMBER 7, 1972

### Rationale

The Follow Through Program has provided quality education to children since 1967. All of the components which insure success in learning--involved parents, committed teachers, thoughtful planning and excellent supervision--are integral parts of Follow Through. Success has brought confidence and greater competence to children. We wish to expand opportunities for children to succeed. We recommend that federal funds be made available to extend the Follow Through Program to grades 4, 5, and 6.

The academic, social, physical, and psychological needs of children which are present at kindergarten have not ceased to exist at grade 4. Effective education to satisfy these needs is a continuing process. Our present educational system has not proved effective. There has been no real change in curriculum or methods in the intermediate grades. Follow Through children in traditional fourth, fifth and sixth grade classrooms will return to the very practices and procedures which have failed their older brothers and sisters. They will return to the old ways in the very years of their school lives in which most drop-outs withdraw from classroom activities. The gains which children have made in Follow Through will be threatened and very possibly stifled by curriculum and instructional methods which emphasize conformity, unthinking acceptance of ideas and "recipe" education.

Follow Through has been an attempt to change education. It has been allowed five years in which to alter instructional approaches and techniques which have existed for centuries. We must allow Follow Through more time--time to win more converts to change--time to involve more school personnel as active participants in change--time to prove what we know to be true--that Follow Through is a viable alternative to the educational system which presently exists.

### Recommendation for Program Format

The format for Follow Through in grades 4 through 6 should include components which have proved successful in kindergarten through grade 3:

- 1) Sponsors who will be responsible for advice, training and integrity of curriculum.

TASK FORCE C

- 2) Parent involvement.
- 3) Teachers who are willing to make changes in their approach to instruction.
- 4) Opportunity for careful planning on the part of teaching teams.
- 5) Supervision which is supportive of teaching teams.
- 6) Ancillary services as they now exist.
- 7) Development of curriculum and training methods to meet the interests and needs of pre-adolescent children.

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

1973 FEBRUARY WORKSHOP

The objectives of the February Workshop are four-fold:

1. To become familiar with pre-number and number goals and their applicability to classroom activities.
2. To determine what kinds of materials and activities (including those found in existing references) bring out these goals.
3. To become familiar with appropriate questions the teacher might ask to extend the child's understanding of number relationships.
4. To determine appropriate representation activities for children at different developmental levels.

# HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

## Evaluation of February Workshop

### Number Goals

A pre-test and post-test of knowledge and applicability of pre-number and number goals were given to workshop participants.

A different goal from each of the following three areas was presented:

- A. Gross comparison
- B. Development of the concept of unit
- C. Number goals

For each of the number goals given, participants were asked to respond to the following questions:

1. Describe in some detail an appropriate activity and materials that might involve the use of this goal.
2. After the child has responded, what question might the teacher ask the child which would extend this goal?
4. Depending upon the child's response, what might be an appropriate representation activity for the child?

Since one group neglected to take the pre-test on Monday, the pre- and post-results for each group are shown in separate tables. Group A took the pre-test on Monday while Group B took the pre-test on Thursday.

Responses from Group A curriculum assistants were indicative of an overall increase in knowledge of number goals by the end of the week. Appropriate responses increased for activities, materials, initiating questions, extending questions, and representation. Knowledge in the broad area of gross comparison showed the most gain, while knowledge in the area of number goals showed little or no gain.

Teachers' knowledge of appropriate materials, initiating questions, extending questions, and representation increased over the course of the workshop for Group A. However, they demonstrated difficulty in determining appropriate activities, particularly in the broad area of number goals.

Table 1 shows the percent of appropriate responses given for activities, materials, initiating questions, extending questions, and representation by Group A CAs and teachers over the course of the week.

Table 1: Percent of appropriate responses by Group A CAs and teachers on Monday and on Friday

	<u>CAs</u>		<u>Teachers</u>	
	<u>Monday</u>	<u>Friday</u>	<u>Monday</u>	<u>Friday</u>
1. Activity	74%	80%	75%	60%
2. Materials	87%	87%	75%	80%
3. Initiating Questions	54%	66%	42%	66%
4. Extending Questions	27%	60%	25%	40%
5. Representation	20%	60%	27%	47%

Table 2 shows the percent of appropriate responses in broad areas of gross comparison, development of the concept of unit, and number goals given by Group A CAs and teachers over the course of the week.

Table 2: Percent of appropriate responses by Group A CAs and teachers on Monday and on Friday

	<u>CAs</u>		<u>Teachers</u>	
	<u>Monday</u>	<u>Friday</u>	<u>Monday</u>	<u>Friday</u>
1. Gross Comparison	40%	84%	40%	76%
2. Development of the concept of unit	52%	64%	60%	84%
3. Number Goals	60%	60%	35%	16%

Appropriate responses from Group B curriculum assistants increased for activities, materials and initiating questions in all three broad areas of number goals. However, in the area of concept of the unit, more inappropriate responses were given for extending questions and representation.

Like Group A teachers, Group B teachers' knowledge of appropriate materials, initiating questions, extending questions and representation increased. However, they too demonstrated difficulty in determining appropriate activities, particularly in the broad areas of gross comparison and number goals.

Table 3 shows the percent of appropriate responses given for activities, materials, initiating questions, extending questions, and representation by Group B CAs and teachers

Table 3: Percent of appropriate responses by CAs and teachers on Thursday and Friday

	CAs		Teachers	
	<u>Thursday</u>	<u>Friday</u>	<u>Thursday</u>	<u>Friday</u>
1. Activity	50%	83%	86%	66%
2. Materials	50%	100%	66%	66%
3. Initiating Questions	50%	66%	33%	66%
4. Extending Questions	50%	33%	26%	46%
5. Representation	66%	16%	33%	53%

Table 4 shows the percent of appropriate responses in broad areas of gross comparison, development of the concept of unit, and number goals given by Group B CAs and teachers.

Table 4: Percent of appropriate responses by CAs and teachers on Thursday and Friday

	CAs		Teachers	
	<u>Thursday</u>	<u>Friday</u>	<u>Thursday</u>	<u>Friday</u>
1. Gross Comparison	40%	80%	52%	68%
2. Development of the concept of unit	60%	30%	68%	76%
3. Number Goals	60%	70%	28%	36%

The total percent of teachers and CAs who were able to give appropriate responses on Friday to questions regarding the application of pre-number and number goals in the classroom are summarized in Tables 5 and 6. Over half of the participating CAs responded appropriately to every question in all three goal areas - gross comparison, development of the concept of unit, and number goals. Participating teachers evidenced greatest weakness in the broad area of number goals. Though their knowledge of appropriate extending questions to ask the child and appropriate representation tasks increased over the course of the week, these two areas of expertise remained their weakest.

Table 5 shows the total percent of appropriate response for activities, materials, initiating questions, extending questions, and representation by Group A and Group B CAs and teachers on the last day of the workshop.

Table 5: Total percent of appropriate responses by CAs and teachers on Friday. N = 90 teachers; 7 CAs.

	<u>CAs</u>	<u>Teachers</u>
1. Activity	80%	63%
2. Materials	90%	73%
3. Initiating Questions	66%	66%
4. Extending Questions	52%	43%
5. Representation	52%	50%

Table 6 shows the total percent of appropriate responses in broad areas of gross comparison, development of the concept of unit, and number goals given by Group A and Group B CAs and teachers on the last day of the workshop.

Table 6: Percent of appropriate responses by CAs and teachers on Friday. N = 90 teachers; 7 CAs.

	<u>CAs</u>	<u>Teachers</u>
1. Gross Comparison	83%	92%
2. Development of the concept of unit	54%	80%
3. Number Goals	63%	26%

**HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION**

**1973 FOLLOW THROUGH**

**SPRING WORKSHOP**

**April 29 - May 4, 1973**

**CAMP HIGH/SCOPE  
CLINTON, MICHIGAN**

**B-48**

### Room Arrangement

Brick House	The one with the dining hall
Brick House Rec. Room	Large room downstairs with fireplace
Brick House Living Room	Upstairs with fireplace
Brick House Rec. Room Porch	Outside Brick House Rec. Room
Barn	Other building near Brick House
Barn Floor	Largest barn room
Barn Art Room	Adjacent to barn floor
Stucco House	The one without the dining hall
Stucco House Rec. Room	Large room downstairs with fireplace
Stucco House Living Room	Upstairs with fireplace
Stucco House Music Room	Adjoining Stucco House Rec. Room
Annex	Building adjacent to Stucco House

### Sunday, April 29

- 4:00 - 6:00      REGISTRATION - Beth Schoppa, Gay Garcia  
Brick House, Registration Office
- 5:00 - 6:00      HAPPY HOUR - John Nowosad, Chuck Wallgren  
Brick House Living Room
- 6:00 - 7:00      BUFFET DINNER  
Brick House, Dining Hall
- 7:30 - 8:00      INDIVIDUAL CENTER PLANNING SESSIONS  
To Be Arranged
- Center staff will meet with consultant  
to review workshop schedule and plan  
session attendance
- 8:00 - 9:00      OPENING SESSION - Charles Hohmann, Rick Chapman,  
Jerry Goebel, Roger Rugg  
Brick House, Rec. Room

Welcome  
Introductions  
Presentation - "School Isn't Dead - It's  
Just Not Feeling Well"

Monday, April 30

Selected Teachers

Home Program Coor.

Project Directors

Curriculum Assistants

8:15

BREAKFAST

9:00

OVERVIEW PRESENTATIONS

- A. Math - Stucco Music Room, Sam Hannibal
- B. Music/Movement - Barn Floor, Rick Chapman
- C. Language - Brick Living Room, Carolyn Jackson
- D. Relationship Areas - Brick Rec. Room, Charles Hohmann
- E. Media Production - Stucco Rec. Room, Don Moore

10:30

OVERVIEW PRESENTATIONS

A - E (Same as above)

12:30

LUNCH

2:00

OVERVIEW PRESENTATIONS

- A - E (Same as above)
- F. Admin. Session - Project Directors  
Brick Rec. Room Porch, Rick Chapman

3:30

OVERVIEW PRESENTATIONS

- A - E
- F. Evaluating the Implementation Process  
Dining Hall, Betty Couvares & Mary Tait

6:00

DINNER

7:30

FOLK DANCING, MUSICAL PRESENTATIONS AND REFRESHMENTS

ORIENTATION  
Barn, Art Room  
Clay Shouse

TDC Involvement  
Team Planning  
TDC, Ypsilanti  
Clay Shouse

Friday, May 1

Selected Teachers

Home Program Coor.

Project Directors

Curriculum Assistants

8:15 BREAKFAST

9:00 COURSE WORK

A. Math - Stucco Music Rm., Sam H.  
 B. Music/Movement - Barn Floor Rick C.  
 C. Language - Brick Liv. Room, Carolyn J.  
 D. Relationship Areas - Brick Rec. Room  
 Charles Hohmann

EXAMINATION OF PROGRAM PURPOSE  
 A. Follow Through  
 B. Home Component  
 Stucco Rec. Room  
 John Nowosad,  
 Donna McClelland,  
 Vic Milner

TDC Involvement  
 Child Planning  
 TDC, Ypsilanti  
 Clay Shouse

12:30 LUNCH

WORK SEMINAR ON GENERAL PROBLEM AREAS  
 Brick Rec. Room,  
 Roger Rugg &  
 Jerry Goebel

MEDIA PLANNING AND PRODUCTION  
 TDC, Ypsilanti  
 Rick Chapman  
 Dennis Vigil  
 Don Moore

DEFINING EDUCATIONAL GOALS  
 Stucco Rec. Room  
 John, Donna, Vic

TDC Involvement  
 Child Planning  
 TDC, Ypsilanti  
 Clay Shouse

6:00 DINNER

"A Close Look at Making Schools Work (or, Is the Battery Cable Loose?)"

Stucco Rec. Room  
 Dave Weikart  
 Sheila Mainwaring  
 Alice Hudson

Wednesday, May 2

Selected Teachers

Home Program Coor.

Project Directors

Curriculum Assistants

8:15

BREAKFAST

9:00

COURSE WORK CONTINUED  
A - D (Same as Tues.)

SOCIODRAMATIC INVESTIGATION OF EDUCATIONAL GOALS  
Stucco Rec. Room  
John, Donna, Vic

TDC Involvement Work Time  
TDC, Ypsilanti  
Clay Shouse

12:30

LUNCH

2:00

PLANNING FOR 1973-74 MATRIX EVALUATION RESULTS  
Brick Rec. Room  
Roger & Jerry

LETTER OF AGREEMENT AND ADMINISTRATIVE ISSUES  
Brick Liv. Room  
Rick Chapman  
Dennis Vigil  
Don Moore

TDC Observation  
John, Donna, Vic

TDC Involvement Work Time  
TDC, Ypsilanti  
Clay Shouse

6:00

DINNER

"IDEAS" - EVENING WORK SESSIONS

7:30-8:00

Individual Center Presentations - To be arranged

8:00

Multicultural Approach to Education - Stucco Rec. Room, Dennis Vigil  
Contrasting Child Responding and Child Generating Curricula - Videotape  
Brick Rec. Room, Ed Graham  
Administrative Session with Project Directors - Brick Living Room, Dave Weikart

8:15 BREAKFAST

COURSE WORK COMPLETION  
A - D (Same as Tues.)

PRODUCTION OF BOOKLET  
Stucco Rec. Room  
John, Donna, Vic

TDC Involvement Representation  
TDC, Ypsilanti  
Clay Shouse

12:30 LUNCH

PLANNING FOR 1973-74  
DESIGN OF SERVICE MODEL  
Brick Rec. Room  
Roger & Jerry

COMPLETION OF MEDIA PRODUCTION  
Brick Liv. Room  
Rick, Don, Dennis

PLANNING FOR 1973-74  
Stucco Rec. Room  
John, Donna, Vic

TDC Involvement Evaluation  
TDC, Ypsilanti  
Clay Shouse

6:00 DINNER

7:30 WORKSHOP DEMONSTRATION OF MUSIC IN THE COGNITIVE MODEL: A STEP TOWARD IMPLEMENTING MUSIC AS A MAJOR CURRICULUM COMPONENT  
Barn Floor  
Rick Chapman, Ed Graham, Lynne Seifert, Grace Hsu

Friday, May 4

8:15            BREAKFAST

9:00            PRESENTATIONS  
                 Stucco House Rec. Room

- A. Project Directors
- B. Home Program Coordinators
- C. Teachers
- D. Math
- E. Language

11:00           PLANNING  
                 To Be Arranged

                 Consultants and center staff convene to  
                 finalize plans for May visit.

12:30           CLOSING LUNCH  
                 DEPARTURES

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

1973 Follow Through Spring Workshop

Evaluation Questionnaire

Participants were asked to respond to the following questions regarding the content and process of the Spring Workshop. The questionnaire was completed the last day of the workshop and reflects reactions to the overall workshop, not any particular session. The questionnaire was completed by 23 project directors, curriculum assistants, teachers and parents.

1. In general, how do you feel about the level of interest displayed by the workshop participants?

At a very low level throughout	Somewhat below average	Above average	Well above average	At a very high level throughout
		4%	50%	46%

2. How do you feel about the organization of the workshop?

Not organized at all	Poorly organized	Fairly well organized	Well organized	Extremely well organized
		4%	69%	26%

3. How do you feel about the quality of the written materials provided?

Very poor	Poor	Average	Above average	Superior
		4%	68%	27%

4. How do you feel about the quality of the presentations and sessions?

Very poor	Poor	Average	Above average	Superior
		14%	52%	33%

1973 Spring Workshop  
Evaluation Questionnaire

5. How useful do you feel that the content of the workshop will be to you in your work?

Not useful at all	Of little use	Probably of some use 9%	Generally quite useful 27%	Extreme useful 63%
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6. Do you feel the workshop met its objectives?

Not at all	Poorly 4%	Average	Fairly well 38%	Extremely well 57%
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7. What would you say were the weaknesses of the workshop?

	<u>No.</u>
• Too many teachers at one time at the TDC . . .	2
• Everyone should have the opportunity to observe and interact at the TDC . . . . .	8
• Too much input from participants and not enough from H/S staff . . . . .	1
• Too much input from H/S staff, not enough from participants . . . . .	2
• Workshop goals unclear . . . . .	1
• Evening sessions too long. Should have one evening free . . . . .	4
• Tues.-Thurs. work sessions too long . . . . .	1
• Weather . . . . .	1
• This is the first workshop where all areas were strong. . . . .	1
• Extremely well-planned . . . . .	5
• No comment . . . . .	11

8. How would you change the workshop to make it more meaningful?

	<u>No.</u>
• Change to a three day workshop and hold fewer sessions . . . . .	1
• Opportunity for everyone to attend TDC . . . . .	8
• Opportunity for participants to get involved in 2 groups, if they desire, instead of one . . . . .	2
• Let participants follow a plan-work-represent-evaluate sequence (as discussed in CA session) with various options and alternatives . . . . .	1
• No comment . . . . .	11

1973 Spring Workshop  
Evaluation Questionnaire

Additional Comments

- This is the first workshop where all areas were strong! (administrator)
- I found the week here helpful because it gave me new insights. I was able to think and make goals for myself for the next 2 months and for next year. Presentations and materials from different centers were especially helpful. (CA)
- It is fantastic and an invaluable experience. I'm sure as the weeks go by and I have time to internalize the data it will be more and more meaningful! (teacher)
- As far as I am concerned, the experience at the TDC was the most meaningful. Questions that arose in my mind have at some point during this week been answered by observation and interaction at the TDC. (teacher)

## 1973 SUMMER PRACTICUM

The Summer Practicum stressed active involvement with the teaching team at the TDC and offered seminars in one or more of the following areas:

- 1) Child Process and Teacher Interaction
- 2) Teacher Planning
- 3) Relationship Areas
- 4) Representation

Based upon the suggestions of Project Directors at the Spring Workshop, the Practicum was planned primarily for teachers. Schedules were adjusted so that teachers could concentrate on specific areas of need and interest as well as obtain the necessary perspective crucial to advanced implementation.

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

Follow Through Summer Practicum

1973 Evaluation Form  
(Responses)

DIRECTIONS: For each of the following questions, circle the expression which most nearly expresses your feeling.

1. In general, how do you feel about the level of interest displayed by the workshop participants?

At a very low level throughout	Somewhat below average	Above average	Well above average	At a very high level throughout
0	0	5	6	1

2. How do you feel about the organization of the workshop?

Not organized at all	Poorly organized	Fairly well organized	Well organized	Extremely well organized
0	0	2	10	0

3. How do you feel about the quality of the written materials provided?

Very poor	Poor	Average	Above average	Superior
0	0	0	10	2

4. How do you feel about the quality of the sessions?

- a. In Training and Development Center

Very poor	Poor	Average	Above average	Superior
0	0	2	9	1

- b. In Office Conference Room

Very poor	Poor	Average	Above average	Superior
0	0	1	10	1

5. How useful do you feel that the content of the workshop will be to you in your work?

Not useful at all	Of little use	Probably of some use	Generally quite useful	Extremely useful
0	0	1	4	7

1973 Summer Practicum  
Evaluation Form (Responses)

6. Do you feel the workshop met its objectives?

Not at all	Poorly	Average	Fairly well	Extremely well
0	0	3	1	8

7. What would you say were the weaknesses of the workshop?

- I would say that the workshop was very meaningful in many ways, but we, as participants, should be more aware of what our role is. We should be able to observe the TDC staff and students at least two full days, both sections, before going to the TDC to work.
- The same as in all things of this sort; no matter how hard you try, you can't reach everyone.
- Too many of us. It would have been more worthwhile to be able to spend all morning every day in the TDC and perhaps the music period and then evaluate and plan and see videotapes and slides etc. in the afternoon.
- Participants should observe both sessions in TDC before they actually participate. Participants should be better informed as to expectations before coming to the workshop.
- The schedule for each day was really too long; after a certain period of the day you lose interest.
- Those were no specific weaknesses.
- It is hard for me to answer these questions, as I was not here for the full workshop. The interaction with the children and the planning and evaluation with the teachers was most stimulating.
- Working with children without having had time and opportunities to be accepted by them. I really don't know how this could be improved under the circumstances.
- The group was divided at the beginning and remained so resulting in a lack of useful interaction.
- An opportunity might have been provided for both A and B groups to interact. Ideas, perspectives, and understandings could be shared.

1973 Summer Practicum  
Evaluation Form (Responses)

8. How would you change the workshop to make it more meaningful?

- If less participants were involved in the workshop at a particular time then there would be more time to be involved in the TDC, more time to discuss intensely the implementation of the model and theory. Perhaps every morning and one afternoon in the TDC, leaving 4 afternoons to evaluate and discuss.
- Have fewer participants. Show more videotapes. Work in TDC in a.m. Plan, evaluate, see videotapes and slides in the afternoons.
- The workshop was quite meaningful. The tour of the different buildings should be included.
- Work at TDC in the morning and evaluate and discuss in the afternoon--one day at TDC in the afternoon. More discussion of cognitive questioning used by the teachers.
- I would let the teachers in the TDC take full charge of the activities and let participants observe and have question and answer sessions at the end of the day.
- It was very meaningful to me and I see how it can be better implemented in my class next year.
- More opportunities to interact and observe children. These are minor criticisms. I am very well pleased with the workshop. It has been very helpful.
- More frank discussion on application of TDC in the different centers. How? When? Why?
- Before the workshop is held, a questionnaire should be sent out asking what the teachers want covered-- what would be useful to them, so that we don't see a slide session on "plan, work, evaluate"--something even a teacher with one year in the program knows and has implemented in her classroom.
- The opportunity might have been provided for the various centers to elaborate and discuss on their operation as opposed to one another, and the model.