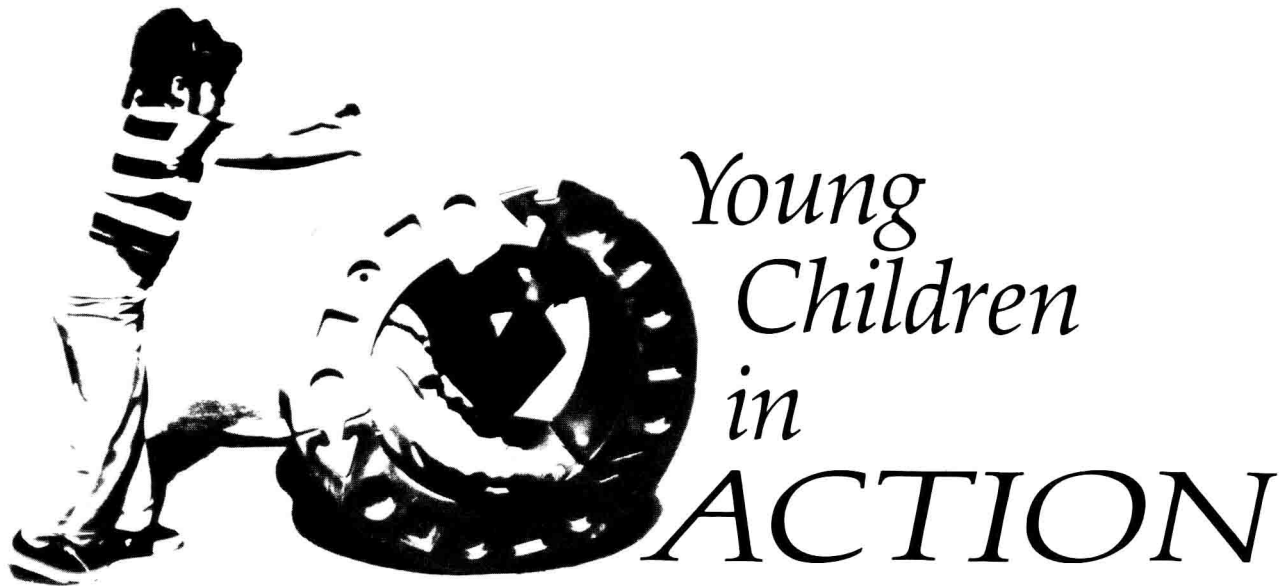




*Young
Children
in*
ACTION

by Mary Hohmann, Bernard Banet & David P. Weikart



*Young
Children
in*
ACTION

*A Manual for
Preschool Educators*

by Mary Hohmann, Bernard Banet & David P. Weikart

**THE
HIGH/SCOPE
PRESS**

Published by
THE HIGH/SCOPE PRESS
High/Scope Educational Research Foundation
600 North River Street
Ypsilanti, Michigan 48197
(313) 485-2000

Copyright © 1979 by the High/Scope Educational Research Foundation. All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, without permission in writing from the publisher.

Library of Congress Cataloging in Publication Data

Hohmann, Mary.
Young children in action.

Bibliography: p.
Includes index.

1. Education, Preschool—Handbooks, manuals, etc. I. Banet, Bernard, joint author. II. Weikart, David P., joint author. III. Title.

LB1140.2.H59 372.21 78-22013

ISBN 0-931114-05-5

Preface

Nearly a decade has gone by since the publication of *The Cognitively Oriented Curriculum—A Framework for Preschool Teachers* (ERIC-NAEYC). During that time the program described in that volume has undergone many changes, been influenced by many people, young and old, and come into its own, we believe, as an exemplar of a fruitful direction for early childhood education. We have been fortunate in being able to work with a diverse group of adults over the years, women and men representing many different backgrounds, kinds of teaching experience, concerns and talents. Each teaching team that has used the curriculum framework has interpreted it in new ways, and in so doing has contributed to our practical knowledge. One clear trend that has emerged from this variety of interpretations is the increasing use of the small-group format for children's planning and for other group activities in which close attention by adults to what children are doing and saying is likely to make a difference in their development. That is only one example of the many evolutionary changes in the program that readers of the earlier volume will note in *Young Children in Action*.

The children, from whom we have learned so much as curriculum developers, have been another marvelously diverse group. As our program became known in communities throughout the U.S., Latin America and Australia, the curriculum framework had to stretch in order to be of use to all those children and the adults who worked with and cared for them. The curriculum no longer serves only the mildly handicapped or

economically disadvantaged. In cognitively oriented preschools there are and have been gifted children, middle-class children, moderately and severely handicapped children, rural children, urban children, children of migrant field workers, children of extreme poverty in Latin America, bilingual children, Native American children, and so on. Some strategies which worked well with the original "target population" of disadvantaged children are not universally appropriate. For example, the emphasis in the original program on stimulus limitation and narrowness of instructional purpose in each activity is clearly inappropriate if applied to the full developmental spectrum of preschoolers. On the other hand, in working with developmentally delayed children, we have learned (or perhaps re-learned) that there are preschoolers still functioning at the sensorimotor level who require teaching strategies more akin to traditional infant/toddler activities than to activities designed for "preoperational" children.

As demands for behavioral objectives, accountability, basic skills and competency based teacher training were made by sources external to the classroom, we attempted to help teachers and teacher educators translate the Cognitively Oriented Curriculum into terms that could be comprehended by administrators and parents. The movement from a local demonstration project to national and international replication of the curriculum, which began in 1968, also brought home to us the necessity of describing our program in terms that would be clearer to practition-

ers. We substituted the terms "action" and "language" for "motoric level" and "verbalization", to give just one small but telling example. We also found that some of the ways of summarizing the framework were too condensed to be helpful in all cases, so we attempted to be more explicit; the diagram used throughout the earlier book led to the teaching strategies and "key experiences" that form the core of the present book.

We learned too that films, videotapes, slides and photographs often conveyed our ideas more clearly than a book could, so we developed audio-visual presentations on some of the topics that would eventually be covered in this book. In so doing we clarified our thinking, simplified concepts and produced an extensive pictorial record of young children (and adults) in action. Checklists such as the Child Observation Record and Preschool Teacher Training Profile were developed as aids to communication with the outside world as well as for use by the classroom teams. The key experiences concept was designed to convey more precisely the kind of purposefulness on the part of adults that we are after.

Over the years our interpretation of child development theory has undergone changes, often influenced by other English-speaking interpreters of Piaget such as Lawrence Kohlberg, John Flavell, Burton White, David Elkind, J. McV. Hunt, Hans Furth and Irving Sigel. We hope that the spirit in which we have used developmental theory and research comes through as respectful but not reverent. We feel that the theory base from which educators can work is far too inadequate for deductively derived educational practices to be of much use. We present the reader, then, with a framework derived from both theory and practice. This framework, in keeping with Piagetian assumptions, stresses the importance of the child's initiative, of active

learning; both teacher and child have important roles in defining learning experiences. We urge that this not be viewed as a narrowly Piagetian curriculum but rather as a general framework for an approach to education that stresses problem-solving and decision-making by both child and adult.

The program, of course, is not complete; it can never be, because the society in which our children grow is constantly changing and education must respond to change, and because each "cognitively oriented" teacher is in effect applying the general principles of the curriculum to a set of circumstances that for all practical purposes are unique. This is of the essence: the curriculum is not a package developed by an elite corps of "experts" and applied mechanically by a mass of pedagogical technicians; it is composed, rather, of ideas and attitudes that all who are seriously involved in it use as the basis for their own thinking and development. It is not easy to put into practice. Every adult who works within it must spend several years developing the right combination of personal style and "cognitive" style, making it his or her own through use and study. Such an undertaking represents a major commitment to improve the future of children. The work involved is great, but the stakes are high.

Many individuals have made important specific contributions to the development and production of this book. Charles Silverman had the major responsibility for overall editorial supervision. His contribution to the consistency and flow of the volume is a vital one. Assisting him over the years were Ellen Ilfeld, Nancy Altman and Paul Phillips. Gwen Coppersmith had a major role in the creation of the draft edition from which this volume has evolved. Marilyn Adams, working from materials outlined by

Chavela Flores and Dennis Vigil, has contributed the statement on bilingual/bicultural applications. Chavela Flores is largely responsible for the chapter on working with parents.

High/Scope field consultants and teachers have had an important role in the development of the curriculum, especially Carole Thomson, Patricia Nederveld, Betsy McIntosh, Linda Rogers, Susan Shipstead, Joanna Phinney, Sara Jane Adler, Bettye McDonald, Ruth Grochowski, Thelma Valenstein, Donna McClelland, Sharon Bixby, William Fabricius, Sheila Mainwaring and Alice Hudson.

Jan Diamondstone, our instructional systems specialist, has had a key role in developing the total training system, of which this book is one part. Many of her audiovisual productions and those coordinated by Dennis Ackley predated these chapters and were extremely helpful in writing this edition.

Research Associates Robert Matz, Jean Ispa and James (Terry) Bond contributed their expertise in instrument design to the creation of the assessment tools contained in this book, in addition to adding importantly to the ongoing discussion of the applications of developmental theory to educational practice.

Gary Easter documented our classrooms on film for many years and produced the photographs that grace these pages. Patrick Mullaly, our graphic designer, spent many long and thoughtful hours turning all the words and photographs into a lively and attractive book. Typing of the manuscript was coordinated by Nancy Brussolo and carried out through its several stages by Carolyn Ofiara, Sarah Prueter, Sylvia Jenkins, Sheryl Vigmostad and Susan Miller.

We cannot list all of the teachers, curriculum assistants, scholars, Head Start directors, edu-

cation coordinators, federal and local project officers, teacher preparation instructors, inservice trainers, consultants, school and daycare administrators, parents and children who have aided High/Scope staff in developing this approach to preschool education. We would like, however, to explicitly acknowledge those individuals not directly associated with High/Scope who took the trouble to give us specific suggestions after reviewing the field draft of this book. Of course, they do not bear any responsibility for the book's defects. These reviewers are Courtney B. Cazden, Leonard Sealey, Judith Ramirez, Angelo Angelocci, Leah Adams, Judith Williston, Samuel Meisels, Gerald R. Levin, Josue Cruz, Jane Teleki, Zina Steinberg and Shirley Willard. Useful in-house suggestions were received from Dolores Lambie and Lawrence Schweinhart.

We wish also to thank those organizations and agencies that have given us the financial resources with which to accomplish some of the work of curriculum documentation, manuscript preparation and project evaluation: The Bureau of Education for the Handicapped, the Office of Child Development, the Lilly Endowment, the Spencer Foundation and the Carnegie Corporation of New York.

And finally we wish to acknowledge the help and support of our families: Lucy Norton, an understanding mother and grandmother who spent many hours with Susanna and Tommy Hohmann while their mother wrote; Charles Hohmann, who along with his unremitting support gave his wife many personal guided tours through the labyrinthian writings of Piaget; Barbara Banet, who contributed substantively as well as affectively from her experience as a preschool teacher and author; Phyllis Weikart, who was encouraging in all her capacities as

wife, High/Scope Board member, educator,
author and friend; and most especially our own
children—Susanna and Tommy Hohmann,
Jeffrey Banet and Cindy, Cathy, Jenny and
Gretchen Weikart—whose growth and develop-
ment have been and continue to be our greatest
treasure and inspiration.

Ypsilanti, Michigan
December 1978

M.H.
B.B.
D.P.W.

Foreword

In the late 1950s a rapid expansion of special education services was undertaken in the State of Michigan in response to a growing awareness of the need for the public schools to provide more services to children traditionally served poorly or only in specialized institutions. Classes for the handicapped were encouraged through liberal state financing. Citizens could initiate special tax levies to support additional services in special education. In addition to classroom programs, specialists in school social work, school psychology and speech therapy, and professionals in the various disciplines specializing in education for the handicapped, were consulted. The Ypsilanti, Michigan school district, correctly identifying a massive need within the district for additional services to children, rapidly expanded special services from two full-time staff members in 1957 to more than 40 in 1962. Expansion of special services occurred throughout the state, making Michigan a national leader in programs for handicapped children.

By 1960 it had become apparent to the special services staff in Ypsilanti that the lower-socio-economic groups within the district were almost categorically eligible for special services. This was pointed up in the finding that 50 percent of the children in one working-class school had been retained in grade by fourth grade while only 8 percent in a middle-class school had been retained. The majority of the so-called mentally retarded students, discipline cases and referrals

to outside agencies were from the lower-socio-economic population of the community, both black and southern white. When these patterns of service needs became obvious and predictable, various proposals were generated to effect some changes in the outlook of the school system toward these groups, an outlook shaped by the desire to "adjust" the children to the demands of the educational system.

Recommendations to adjust the educational system to the needs of the children were not well received. It was in this context that our focus on preschool education evolved. The special services staff and several principals from the school system started a planning group to discuss possible courses of action. From these discussions it was determined that the potential of preschool intervention should be explored, not because anything was known about the effects of such efforts, but, first, because preschool could be offered before entry into the regular schools and was therefore outside the normal channels of educational control, and second, because it was felt that disadvantaged young children could be taught how to wrest an education from the school system as middle-class children did. Our long-range prediction, actually our hope, was that through preschool education we could reduce retention in grade and related symptoms of alienation such as juvenile delinquency. Thus the Ypsilanti Perry Preschool Project was born, a project which is still in long-term follow-up. The Cognitively Oriented Curriculum, however, was

still in the wings, for we had little idea of what should constitute an educational preschool program for disadvantaged children.*

Two issues shaped our initial thinking about curriculum. First, we were determined that it should not be a "manners and morals" approach. We visited a nearby metropolitan school district where a principal had established an after-school preschool project for the brothers and sisters of children who attended the school. The class was run by an elementary teacher with firm ideas of discipline and correct behavior. The program included a snack time during which each child was required to say "excuse me" after he had finished and before he could leave the table. Each child complied, some in voices so soft that the teacher requested a repeat in a louder tone. Things went relatively well until the last child was required to intone the proper response before leaving the now empty table. Looking around at the empty chairs, he steadfastly refused to comply. The teacher finally relented, after a prolonged period of demanding compliance with the "rule." So much for the manners and morals approach; it did not offer the type of student development we envisioned.

The second issue that shaped our thinking was whether to accept the prevalent notion that a preschool program ought to be limited to general social-emotional support for the child. This was a more difficult decision. From a review of the literature it appeared to us that typical preschool

programs did in fact pay little attention to intellectual development in young children, which seemed to us a serious lack given the prognosis for the children we were to serve. Those few programs that concentrated on intellectual development tended to restrict themselves to training in specific skills, focusing on rote learning and memorization; this seemed to us both short-sighted and inappropriate. We chose, finally, to focus on the general cognitive growth of the child, more from a reaction against the alternatives than from a sound knowledge of what the curriculum should be. The major early commitment was to a teacher-planned program that avoided rigid structure while helping children acquire the intellectual strengths they would need in school.

At this early stage there was also a strong (though ambivalent) commitment to a group process, wherein teachers and researchers worked together to build the curriculum. This ethical bias toward a collaborative effort narrowed the range of forms the curriculum could assume. It would have been impossible for such a group to produce either a direct-instruction model or a free-play model. Thus the preferred operating style of the staff helped shape the style of the program, just as the scholastic needs of the children contributed a sense of realism regarding the proper focus of the educational content.

It is difficult in the 1970s to imagine the dearth of information about preschool curriculum that the Perry Project faced. In 1960, when the first planning for the project began, there were few clear guidelines on how to operate a nursery school. A review of the literature turned up philosophical treatments of curriculum but little else. The university laboratory schools had their master teachers and "open" programs, and

*At this early stage the program was directed toward disadvantaged children only. While the staff wished to include a wider socio-economic grouping, this was not possible, because the only funding available was for children with special needs from low-income families. Use of the Cognitively Oriented Curriculum for all socio-economic groups and all ability levels did not occur until after 1970.

the cooperative nursery schools flourished in free play. Published discussions of curriculum that the staff turned up stressed group dynamics and physical, social and emotional development, but programs specifically aimed at school success and/or cognitive development were not accessible to us if they were in fact available.

The preschool program was launched, then, without benefit of much information about preschool programming. Drawing from their formal teaching experience, the classroom staff decided to have daily plans and to outline long-term goals for the program to guide the short-term planning. They organized themselves into a teaching team, with each staff member assuming responsibility for six or seven students—a responsibility that included weekly educational home visits. Regular meetings with the research and administrative staffs provided points of reference for content discussions, and consultants who could advise us in specific areas were identified.

Though there was much excitement and good spirit among the staff at this time, a certain ambivalence about collaboration was clearly evident in the early planning meetings. All staff agreed on the need to provide adequate “content”—number activities, reading readiness and other identifiable school subjects. When the teaching staff met to carry out these decisions, however, there were major problems. The four teachers had taken to playing Scrabble during their planning meetings, hardly a device to focus attention on the children but certainly a means to reduce the burden of interaction on the issues. One teacher would suggest a particular activity or strategy and another would shrug a shoulder or lift an eyebrow. The whole process seemed to be a reflection of a tacit agreement that each teacher would “do her own thing,” with no central planning. There seemed to be no way to get

the creative interaction necessary to produce a truly effective program. They seemed to be saying to their inexperienced project director, “You have your ideas and we have ours, and we’re simply not going to be pushed into anything.” The situation appeared to have the makings of an ironic melodrama, with the teachers re-enacting the roles that had blocked change in the public schools and led to the new project in the first place.

We had forgotten the children, and they in turn provided the solution, or at least the motivation for a solution. About six rather frustrating weeks into the project a four-year-old boy threw a folding chair across the classroom in defiance and boredom. A hurried telephone call brought the project director, and a planning conference was convened. Out of this grew a serious and truly cooperative plan by the teaching staff, with genuine support from the research staff. The project was underway at last, with everyone fully committed. Of course there were other incidents and other issues, but from here on in it was all done professionally. Teachers, researchers and support staff learned to function together and resolve differences.

During that first year the program was distinctly directive without being specifically didactic, more the flavor of an organized kindergarten than a free-play co-op nursery. The teacher had specific goals drawn from a fairly traditional view of curriculum content. When not engaged in a specific teaching task, she had general goals, such as “to surround the child with language” (later called “verbal bombardment”) and “to guide activities.” In spite of our rejection of the idea that general social and emotional goals should be the major focus of a preschool program, these goals were also very much present in the thinking and planning of the staff.

The theoretical position of the staff was one of acceptance of developmental goals but on a rather limited basis. For example, while there was an understanding that children learn through discovery, there was also a commitment to highly organized and sequenced teaching; the teaching task was defined as preparing the children for school, and that required teaching specific information and skills.

In the fall of 1963, *Contemporary Psychology*, a journal of book reviews published by the American Psychological Association, carried a review of J. McVicker Hunt's major new book, *Intelligence and Experience*. This book cracked the myth of fixed intelligence and opened the door to debate regarding the role of education in helping all children develop their true potential. While it was the old nature-nurture controversy unleashed at gale strength, Hunt placed the issues within a broad intellectual framework that caught the imagination of many educators and psychologists. The reviewer commented that Hunt presented a good description of the work of a little known Swiss psychologist, Jean Piaget. Some of us on the Perry Project staff read Hunt's book, and it was immediately clear to us that Piaget's theories were concerned with the very same issues of cognitive development that were coming up in our own staff discussions. We had to find out more.

The next step was to establish a seminar for the staff in Piagetian theory so that we could see whether the theory could be translated into operational principles for the curriculum. Six two-hour seminars were arranged to introduce the work of Piaget to the staff, most of whom had not heard of Piaget before. The staff then began the slow, difficult, but ultimately rewarding process of organizing the classroom program around

Piagetian developmental theory and learning to work within and around the limits of the theory.

Another event of major importance in the development of the curriculum was a day of consultation provided by Sara Smilansky, an Israeli psychologist who was studying the socio-dramatic play behavior of Israeli disadvantaged youngsters. This took place in the fall of 1964. Smilansky showed us how to integrate our new ways of working with children with some of the best in traditional early childhood education which we, perhaps rather smugly, had overlooked.

The full statement of the curriculum of this period appears in the book, *The Cognitively Oriented Curriculum*, by Weikart, Rogers, Adcock, and McClelland, published in 1971. Piagetian theory was important in determining the content of this program. The format of the day and the general method of teacher-child interaction, however, were rooted in the suggestions of Smilansky and traditional nursery-school programming. Smilansky's three-part sequence of planning, working and evaluating by children became the organizing principle for the daily routine, and has remained so—with some modifications—to the present time.

The Piagetian influence led to some important changes in the curriculum during the period 1964-69. The emphasis on pre-academic activities was replaced by an emphasis on the strengths of each child, viewed from the perspective of the child's developmental level. This was a decisive reorientation—away from a preoccupation with deficits and toward a focus on the child's assets. And the idea of representation, so critical in Piagetian theory, served as a basis for building the links to traditional academic exercises in reading and mathematics.

The most significant change, however, was

yet to come: the devolution of responsibility for initiating learning experiences from the teacher alone to the child and teacher together. The transition to this position of increased initiative for the child, precipitated by the new emphasis on children's planning, took years to complete—for at this stage the teaching staff still looked upon the child as one who is chiefly on the receiving end of the teaching-learning continuum.

During this period the teachers were “teaching” specific Piagetian tasks related to developmental stages. Given what we know now, teaching developmentally based tasks is hardly a realistic educational goal, for both theoretical and practical reasons. But as Bernard Banet has pointed out, all Piagetian programs seem to have gone through this stage of direct teaching, either to accelerate children's development or to strengthen particular abilities that would help in school. Some programs have even gone so far as to create kits to “teach” classification, etc., or to diagnose children by means of Piagetian developmental tests so that remedial teaching could be undertaken. The Cognitively Oriented Curriculum, partly because of its tie to traditional nursery education, didn't stumble into that blind alley. However, the staff did aspire to “teach” basic Piagetian skills, and it wasn't until the next phase of curriculum development that the role of the child as “constructor” of knowledge became paramount.

The early 1970s saw a major step forward in the development of the Cognitively Oriented Curriculum with the organization of the classroom program around a set of key experiences derived from developmental theory and the practical knowledge gained by the staff during a decade of work with young children. With these key experiences at their disposal, the teachers stopped asking questions of the children to which

they (the teachers) knew the answers and began asking children to talk about what they were doing, thinking, intending. The purpose was to explore the dimensions of the child's thinking instead of asking “test” questions for a predetermined list of goals. The conversations became real. Gone was the “verbal bombardment” of the early period where the teacher “surrounds the child with language.” The new focus was on helping children use the preschool and home environment for their own activities and goals. The teacher fit his or her developmental knowledge to the purposes of the child. In a sense the program became less overtly Piagetian by becoming more committed to the fundamental theme of Piaget. As Banet has written, “The point of Piaget's epistemology is that children abstract underlying truths through active encounters with reality, not through active encounters with genetic epistemologists.”

By way of a summary of the complex process that led to the preschool program described in these pages, we should like now to portray the essential features of the adult's role at each stage in the development of the program.

In stage 1, the teacher instructs the children in a fairly relaxed but organized manner in those skills he or she deems important in respect to preparation for school. The teacher uses “verbal bombardment” to surround the children with language and plans sequential experiences in pre-math, pre-science, pre-reading, etc., encouraging graduated learning by each child. The child *receives* education through adult instruction.

In stage 2, the teacher accepts the idea that children are at different developmental stages and attempts to teach children the skills that typify their stage so they can “progress” to the

next stage. While Piagetian terminology is employed and the class is organized around developmental goals, the teacher still instructs primarily by asking questions to which the answer is already known; she constantly tests the children with her questions. The child is more free to interact with the environment than before but is not granted the time or the latitude to truly take the initiative, or more properly, *share* the initiative, in the learning process.

In stage 3, the teacher helps the children consolidate their abilities in developmentally appropriate ways, through direct and representational experience, without trying to accelerate their development or push them along to the next level. The teacher asks questions of the children about their plans, intentions, experiences and observations. When the teacher "tests" the children, the purpose is to gather information, so that the children will have maximum support for independent learning. Each child is recognized as an individual who builds his or her own knowledge through initiatives shared with supportive adults. Which is to say, each child is *active*. And so we arrive at the present volume, *Young Children in Action*.

Contents

Introduction: A curriculum framework	1
Adaptations of the curriculum	11
An approach to bilingual/bicultural preschool education	11
A developmental approach for preschool children with special needs	15
Working with parents	20

Part one: The classroom, the day, the staff

1/ Arranging & equipping the classroom	35
2/ Establishing a daily routine	58
3/ Teaching in a team	100
4/ Planning in a team	104

Part two: Key experiences for cognitive development

5/ Active learning	129
6/ Language	147
7/ Experiencing & representing	170
8/ Classification	191
9/ Seriation	217
10/ Number	228
11/ Spatial relations	238
12/ Time	266

Research support for the curriculum	283
-------------------------------------	-----

Appendixes

1. Summary of teaching methods	291
2. Curriculum checklists	294
3. Preschool activity books: a select bibliography	315
4. Films available from the High/Scope Foundation	316
5. The High/Scope Child Observation Record	326
6. Parent Interview & Assessment Schedule	328

Subject Index	330
---------------	-----

Introduction: *A curriculum framework*

The overarching goal of our work at the High/Scope Foundation is to produce a framework for *developmentally valid education*. The concept of developmental validity makes the assumption that human beings develop capacities in predictable sequences throughout the life span. At each developmental stage new capabilities emerge. Good environments for learning exercise and challenge the developing potentials. Poor environments for learning do not permit newly developing skills to be used, or demand that these skills be employed at a level of competence too far beyond the learner's reach.

Despite the predictability of developmental sequences, human development of course does not produce uniform, predictable outcomes. All people have individual characteristics from birth which progressively differentiate into unique personalities. Learning always occurs in the context of the learner's unique characteristics. Educational procedures which ignore or attempt to eliminate these characteristics obviously do so with unfortunate consequences.

If there is predictability in the process of growth and change from infancy through old age, that is, if there are developmental stages, then it is likely that there are times during the life cycle when certain kinds of things are learned best or most efficiently, and that there are pedagogical methods that are more appropriate at certain times in the developmental sequence than at others.

Given that developmental change is a basic fact of human existence, but that each person is also developmentally unique, and that there are optimal times for particular kinds of learning, developmentally valid education can be defined by way of three criteria: An educational experience, procedure or method is developmentally valid if it 1) exercises and challenges the capacities of the learner that are emerging at a given developmental stage; 2) encourages and helps the learner to develop his or her unique pattern of interests, talents and long-term goals; and 3) presents the learning experience when the learner is developmentally best able to master, generalize and retain that which is learned and relate it to previous experiences and future expectations.

High/Scope's Cognitively Oriented Preschool Curriculum represents an attempt to construct a developmentally valid educational framework for children who are functioning in what Piaget calls the "preoperational" period of development.

We have utilized developmental theory and research to identify the nature of the developmental changes occurring during the preschool years—the characteristics of the young child, his emerging abilities and developmental limitations. We have also reviewed the developmental-psychological literature in order to better understand the processes that account for developmental change.

A word about social and emotional development

Many adults, noting the term "cognitively oriented," have assumed that there is little concern in this program for the social and emotional development of young children. They fear that the program may be insensitive to critical problems and landmarks of children's growth. In fact, the program is highly sensitive to these issues but deals with them through indirect means. The reasoning, based on much experience, is that it's easier and more productive to focus directly on, say, children's planning than on group dynamics, on classifying objects and events than on interpreting fantasies—the one is concrete and intelligible, the other abstract and esoteric. The following are some of those "indirect means" by which social and emotional growth are promoted in a cognitively oriented program:

One of the chief concerns of the curriculum is that adults accept children (and their parents) as they are—linguistically, culturally and developmentally. Such acceptance means that adults do not try to maneuver children into pre-conceived roles ordained by the methods or objectives of the program but view them instead as participants, contributing members, so to speak, who help to create the program. This results

almost invariably in a positive and supportive relationship between teachers and children, which of course is crucial to social and emotional growth.

Children in this program have control over what happens to them. The emphasis on planning, working and evaluating establishes personal responsibility in the child. The adult is asked to risk allowing the child to be in charge of his or her own activities; the reward, when adults are wise enough to know how to guide the process, is that children's sense of self-worth and of independence are strengthened—a sure sign of social and emotional growth.

Because the curriculum is attuned to the cognitive development of the individual child, children have ample opportunity to explore and experiment at their own level of knowledge. Children's activities are both interesting and satisfying to them because adults are aware of their need for challenge and success, for the right developmental fit and for room to grow. Full involvement in and satisfaction from one's work is of course of prime importance for social and emotional growth.

Developmental theory: useful but incomplete

Scientific knowledge of the processes of development is still primitive, and on many points there is no agreement among researchers and theorists. Given this state of affairs we have chosen to take the following path: 1) utilize the most complete and coherent theory available: that of Jean Piaget; 2) base curriculum strategies and goals on the most widely accepted principles in Piaget's work rather than on the esoteric, controversial fine-points.

Piaget has called attention to the importance of changes in the underlying structure of the thought processes for an understanding of human development. We accept as a useful starting point Piaget's assumption that developmental change is based both on biological processes of maturation and on the experiences of an active subject who gains knowledge by acting upon the world and by utilizing feedback from his actions to construct increasingly useful hypotheses about reality. New experiences are interpreted by the subject in light of the hypotheses, assumptions and theories—the cognitive “structures”—that constitute his intellect at a given moment in his development; at the same time, these experiences serve to change the cognitive structures and thus to effect a further development. Our “map” of developing systems within a child has been profoundly affected by the theories of Piaget and the investigations of researchers working within the Piagetian frame of reference. The set of psychological systems of interest to developmental psychologists at the present time includes sensorimotor processes, perception, memory, nonverbal representation, language, cognitive structures and operations

(systems of mental transformations) and affective processes. These systems are seen as interacting with each other, and as being influenced by the biological systems that define the human organism's characteristics, including those that determine growth, maturation and aging. Of course psychological systems are also influenced by a person's experiences with the environment; one of Piaget's contributions has been to help us see that experience is initiated by an active subject and thus that learning and development are more than the conditioning of reflexes.

How these psychological systems interact has become one of the central issues in contemporary psychology. It would be convenient for curriculum developers if issues such as the relation between language and logical operations or between sensorimotor processes, mental images and memory systems were resolved. But this is not the case. Even more frustrating for the curriculum developer is the absence of a clear theoretical picture, let alone supporting data, concerning the relation between experience or specific maturational processes on the one hand and any of these developing systems on the other. We have better ways of *describing* development, thanks to the work of such scholars as Piaget, Bruner and Chomsky, but remarkably little information on the specific determinants of developmental change of the sort that can be translated into educational practice. This becomes painfully evident when teachers interact with children who are not making “normal” developmental progress. What we can do at best is to take a theory such as Piaget's and use it to generate hypotheses about the kinds of experiences that would be most relevant to the goal of supporting the rapidly growing cognitive systems of the normal child (and infer from these how a handicapped child might best be helped).

Implications of Piaget's theory for early childhood education

Piaget has been most interested in the development of the logic implicit in a child's thought and actions. He has shown that logical truths, such as the principle of transitivity (if A is greater than B and B is greater than C, then A must be greater than C), are comprehended without formal teaching, but neither is their comprehension something innate; logical-mathematical knowledge is constructed by the child out of many specific actions and experiences. Logical insights such as number conservation, transitivity, the class-inclusion relation and the conservation of physical properties despite apparent transformations (transformations of mass, weight, volume, etc.) emerge in predictable developmental sequences that resist acceleration through adult intervention.

For educators it should be stressed that logical-mathematical knowledge is the least "teachable" kind of knowledge there is. This knowledge is *inevitably* mastered by organically intact human beings, at least through the "concrete operations" level. Acceleration of development through didactic teaching does not seem to be a developmentally valid course since children construct their *own* models of reality, which develop over time in response to new experiences and exposure to other viewpoints.

To us, the overriding implication of Piaget's work for educators is that *the teacher is a supporter of development*, and as such his or her prime goal is to promote *active learning* on the part of the child. Active learning—the direct and immediate experiencing of objects, people and events—is a necessary condition for cognitive

restructuring and hence for development; put simply, young children learn concepts through self-initiated activity. Such activity, carried on in a social context in which an alert and sensitive teacher is a participant-observer, makes it possible for the child to be involved in experiences which produce the optimal degree of cognitive disequilibrium and hence the impetus for cognitive restructuring. The interests and talents of the child are most readily enlisted when learning is conceived as an interplay of physical and mental action initiated by the learner.

Learning is decisive and lasting to the degree that it is active and direct, because active and direct experiences engage the senses and the motoric system; they provide the child with the core understandings around which new knowledge can be built through less direct means when the child is developmentally more mature.

It could be said that Piaget is not alone in this view, that this philosophy is wholly consistent with Dewey or Montessori or Socrates. We agree, enthusiastically, and feel that this consensus among philosophers of education represents a firm base from which to proceed.

Characteristics of the preschool child

Let us make *active learning* the central assumption of the "process" side of our curriculum framework. What of the *content* of a child's development? What is it about preschoolers that differentiates them developmentally from infants on the one hand and school-age children on the other? What are the most important developing systems to support in three- and four-year-olds?

After a couple of years of hard work as an infant and toddler, the developmentally normal

Key experiences in active learning

- Exploring actively with all the senses.
- Discovering relations through direct experience.
- Manipulating, transforming and combining materials.
- Choosing materials, activities, purposes.
- Acquiring skills with tools and equipment.
- Using the large muscles.
- Taking care of one's own needs.

Key experiences in using language

- Talking with others about personally meaningful experiences.
- Describing objects, events and relations.
- Expressing feelings in words.
- Having one's own spoken language written down by an adult and read back.
- Having fun with language: rhyming, making up stories, listening to poems and stories.

Key experiences in representing experiences and ideas

- Recognizing objects by sound, touch, taste, and smell.
- Imitating actions.
- Relating pictures, photographs, and models to real places and things.
- Role playing, pretending.