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ABSTRACT

This grant application describes the theoretical background and research design of a project intended to study the interaction between children's styles of functioning and the opportunities and requirements of an open classroom environment. A major assumption to be tested is that exploratory children function more effectively in open classrooms. Other information to be documented includes: (1) different patterns of functioning; (2) the changes in functioning patterns over time; and (3) teacher interaction with more and less exploratory children. Supplementary investigation will focus on sex differences and socioeconomic differences in open classroom behavior. The project is planned to extend from September 1973 through December 1975 and will involve the study of 60 first graders identified as exhibiting a high or low level of curiosity and exploratory behavior through teacher rankings and individual sessions. The majority of the data to be analyzed will be collected through intensive classroom observation. Main variables to be examined include involvement with materials and activities, teacher-student relationships and interaction patterns, peer relationships, experience of mastery, and pleasure and involvement in the classroom experience. (SDH)

DIFFERENTIAL USE OF THE OPEN CLASSROOM:

A STUDY OF MORE AND LESS EXPLORATORY CHILDREN

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DIFFERENTIAL USE OF THE OPEN CLASSROOM:

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1. Abstract

The project would study the interaction between children's styles of functioning and the environment of open classrooms. Focussing on first grade children who differ in their level of exploratory behavior, the study would compare the effectiveness of their functioning, trace their use of the classroom environment over time, and study the nature of teaching interventions with more and less exploratory children.

Open education establishes an environment with certain features: flexible programs, multiple materials, options for the learner, guiding roles for the teacher. Within this structure, it is assumed that an exploratory style -- the tendency to initiate action, seek out resources, explore possibilities, and raise questions -- is more functionally adaptive for learning than more cautious, non-exploratory patterns. The study proposes to test that assumption, and to study teaching approaches to children who differ in these ways.

Sixty children, characterized by more and less exploratory patterns of functioning, will be observed intensively in open classrooms throughout the school year. Observations will focus on involvement with materials and activities, relationships with teachers and peers, experiences of mastery and learning, attitudes toward school and self. Teacher observations will document the frequency and purposes of teaching interactions with children in the two groups, and teachers will be interviewed about their perceptions and teaching plans. A follow-up study of 20 children will be conducted in second grade.

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The study has implications for more differentiated knowledge of child functioning in open classrooms, and for the development of optimal teaching practices with different kinds of children in open educational settings.

2. Objectives and Rationale

The project proposes to study the interaction between children's styles of functioning and the opportunities and requirements of an open classroom environment. Focussing on first grade children who differ in their level of exploratory behavior, the study would compare the effectiveness of their functioning in the classroom, trace their use of the classroom environment over time, and study the nature of teacher interaction with children who differ in their functioning styles. The study has two broad purposes: to contribute to more differentiated theoretical knowledge of child functioning in open classrooms, and to advance the development of optimal individualized teaching practices that follow from such knowledge.

In recent years, it has become increasingly clear that American education is a varied rather than monolithic phenomenon. Alternative philosophies and models for the education of children exist side by side. They are institutionally acknowledged by such programs as Follow-Through, with its structure of alternative models and sponsoring institutions, or the "planned variation" approach of Head Start, and they are conceptualized and compared by educators and psychologists in the professional literature (Datta; 1969; Maccoby and Zellner, 1970; Miller et al, 1972; Minuchin, Shapiro, Biber and Zimiles, 1969; Stanford Research Institute 1971; U.S. Government, 1971; Weikart, 1969). These alternative approaches have different goals; they tend to make different assumptions about motivation, learning and development, and they implement different programs for the structure and content of classroom life. Comparative studies look

for the overall impact of these programs on children, raising questions about the ways in which different programs may systematically and differentially affect the learning and development of children.

Within any approach, however, there are equally pertinent questions to be raised about differential impact and functioning, and these are not yet well explored: What does the environment created by a particular model offer, call for, tend to reward? What kinds of children function effectively and fare well in particular kinds of environment? How do teachers respond to children who function in different ways? How is it possible to maximize the potential of different kinds of children within the structure and philosophy of a particular educational approach? Such questions are part of an ecological or interactional concept of human functioning, which assumes a constant interaction between what the environment structures and calls out and the particular propensities and response styles that the individual brings into the situation. This project proposes to approach these questions within the context of one broad educational approach, generally labeled as "open education."

The open education concept has occasioned considerable interest in recent years. It has spread rapidly in this country; there is considerable current literature and an increasing number of settings which implement this model of education (Featherstone, 1971; Hertzberg and Stone, 1971; Rathbone, 1971, 1972; Silberman, 1970; Silberman, Allender and Yanoff, 1972; Weber,1971). As a relatively recent phenomenon, it is seen as an American application of the Infant School program developed in England, with its open space classrooms, integrated day programs, etc.(Brown and Precious, 1968; Dearden, 1968; Plowden Report, 1967; Walton, 1971). Clearly, however,

it has much in common, as well, with the concepts and practices of "modern education" in this country, which stemmed from Dewey and others earlier in the century, went through a period of experimentation and high visibility as "progressive education", then continued its implementation and development more quietly in certain areas and schools (Dewey, 1938; Engstrom, 1970; Minuchin et al, 1969; Shapiro and Biber, 1972).

Proponents of this general approach share certain goals about learning and development, certain assumptions about productive motivation, and certain conceptions about the kind of environment that will facilitate the goals. They establish classroom environments, therefore, with certain essential features: Space and time are flexibly arranged; mutliple materials allow for a variety of activities and experience; the teacher functions in an individual relationship with children and is available as resource and guide; the peer group is seen as an important context for learning activities; and the learner is in a position to make choices, use the resources flexibly, act generally as the center of his or her own learning. It is hoped and theoretically expected that such a classroom environment will offer all children an optimal learning environment in which learning can be meaningful and important, and in which they can build skills and attitudes about learning, themselves and other people that transcend the specific content and that will be useful for the future.

It is clear, however, that not all children will use this environment in the same way, nor with equal effectiveness. Friedlander (1965), in his critique of open, discovery-oriented environments, has noted that such environments generally place a premium on certain modes of thinking and performance, and may generate frustration, annoyance and difficulty for students who think and function in different ways. Resnick (1972),

observing in British open classrooms, noted that teacher attention was unevenly distributed among the children, and raised the question of child characteristics that might account for this and of "the effects of informal instructional methods on children of different characteristics (p. 70)." Minuchin et al (1969), in studying fourth grade children from different kinds of schools, found general effects that distinguished children from modern and traditional environments, but also found that there was a wide range in functioning among children from the most modern or open school. Some functioned very effectively in the school's terms, while some were relatively inhibited and constricted. Much more differentiated study is required of how children make use of such environments and how teachers do and can interact with different kinds of children in order to facilitate optimal individualized functioning.

In the proposed project, the point of entry to the problem will be through the study of children whose functioning styles seem differentially adaptive to the environment of the open classroom: children characterized by a high level of curiosity and exploratory behavior, as compared with children who are less exploratory and curious. An exploratory and curious style of functioning has been previously defined as a tendency to approach new experience with anticipation and interest, to ask questions, explore materials, notice and call attention to new events (Berlyne, 1960; Maw and Maw, 1961; Minuchin, 1971). There is evidence that this orientation has some stability as a response style, and it seems possible that such a style is an advantage in the environment of an open classroom. In the structure of the open classroom, the tendency to initiate action, seek out

resources, explore possibilities and raise questions may potentialize the child's learning experiences, while a more cautious, non-exploratory approach may leave the child with less optimal use of the resources, both the materials and activities in the environment and the teacher and other students as learning facilitators. It is also possible that more and less exploratory children, in this environment, will develop different attitudes toward themselves as effective learners and toward school.

It is a major purpose of the project to test the assumption that more exploratory children function more effectively in the open classroom environment. A second, and equally basic purpose, however, is to document the nature of the functioning of more and less exploratory children in the classroom environment, describing differences and similarities in their patterns of functioning, changes over time in the course of the school year, and the nature of interaction between teachers and these children. White (1969) has pointed out that child development, as a discipline, has gathered insufficient detailed observational data about how children function in their natural environments. This is certainly true in relation to children in school, and presents a pressing problem for the understanding and optimal teaching of young children, perhaps particularly in schools that offer the children considerable open choice and attempt to build on their individualized motivation, interest and functioning styles. This project, therefore, will attempt to describe and differentiate functioning patterns in some detail, as well as testing the assumption that more exploratory children will function more effectively in the open environment. The project will study the children's use of available activities and materials; the nature and frequency of interaction

with adults and other children; involvement, participation, and attitudes toward school and the self; and evidence of mastery and learning during ongoing activities. It will also study the frequency and purposes of teaching contacts with more and less exploratory children.

The study will deal with the following questions:

1) Do exploratory children function more effectively and make more optimal use of the open classroom environment than children with less exploratory functioning styles?

2) In what ways do the functioning patterns of more and less exploratory children differ in the classroom?

3) Do the patterns of functioning change over time?

4) How do teachers interact with more and less exploratory children?

The study will also consider two supplementary questions:

5) Do children from different populations use the open classroom environment differently?

6) Do boys and girls use the open classroom differently?

As noted, the project has implications both for the theoretical understanding of individual-environmental interactions and for the practical classroom issues of optimal differentiated teaching and learning. It is designed as a field-located study, and it is expected that the data will be directly relevant to the understanding and refinement of educational processes in the open classroom.

3. Procedures

Overview

The project is planned to extend from September, 1973 through December, 1975. It will include two years of data collection and will involve the study of 60 children. During the first year, 4 first grade open classrooms will be selected as field settings. Within each classroom 10 children will be selected for intensive study, 5 identified as high in exploratory style and 5 as relatively low. The first year sample will total 40 children. Intensive data on the selected children will be collected during three rounds of observation in the classrooms during the year, and children will be seen in an individual session. Observational data will also be collected on teacher interaction with the selected children, and teachers will be interviewed about their perceptions and plans for the children.

During the second year, the sample will be extended by an additional 20 children, and the study will be extended to other open classroom settings, representing a different socio-economic population of children. Twenty children from the original group will be followed into second grade open classroom environments for further observation.

Data analysis will focus on comparison of the classroom functioning of more and less exploratory children, on changes in the behavior of each group over time, and on the nature of teacher interaction with children from the two groups. The data will also be examined for sex differences in the patterns of functioning and for different patterns of functioning in children from different socioeconomic populations.

The time schedule is as follows:

September, 1973 through August, 1974 (Year I)

Fall	January - February	March - April	May - June	July - August
Selection of settings Selection of children	Round of observations (1) (children and teachers)	Round of observations (2) (children and teachers)	Round of observations (3) (children and teachers)	Data analysis Refinement of techniques
Training of observers		Teacher interviews (1)	Teacher interviews (2) Test session (children)	

September, 1974 through August, 1975 (Year II)

Fall	January - February	March - April	May - June	July - August
Selection of settings Selection of children	Round of observations (1) (children and teachers) Follow-up (1) observations (children)	Round of observations (2) (children and teachers) Teacher interviews (1)	Round of observations (3) (children and teachers) Teacher interviews (2) Test session Follow-up (2) observation (children)	Data analysis

September, 1975 through December, 1975 (Completion)

Data analysis completion
Report

Selection of Settings and Sample

Selection of open classroom settings: Open classrooms will be selected as field settings for the study on the basis of several criteria: 1) qualifications on a checklist of essential features (e.g., flexible use of space and time; multiple activities and materials; choice and independent activity for children; teacher's concept of an open classroom; attitudes toward the child as a learner; attitudes toward a facilitating role for the teacher; 2) interest and willingness of teachers, school and community to participate; and 3) nature and range of population.

Potential settings will be visited and assessed via the list of essential features. From among those selected as effective open classrooms, a choice will be made in accord with the second and third criteria: interest in participation and range of settings. To the extent possible, open classrooms will be chosen to represent both inner cit and mixed or middle class populations of children.

Potential groups of schools include the Philadelphia Follow-Through settings associated with open approach models (the Bank Street model, and the Education Development Center model); private schools in the area which implement this approach and which serve middle class and mixed populations; and other schools from the city and nearby suburban areas. It should be noted that the applicant has contact with schools conducting relevant programs, and that the College of Education at Temple University has strong cooperative relationships with some 25 area schools, involving training, in-service programs, etc. These relationships provide an avaliable reservoir of settings for field-oriented research.

Characteristics and selection of the sample: The total two year sample will consist of 60 first grade children, half identified as relatively high and half identified as relatively low in their level of exploratory behavior. Forty children will be studied intensively the first year, twenty the second. Twenty children from the first year sample will be followed during the second year, when they are in second grade.

The high and low exploratory groups will be identified through teacher rankings and an individual session. In the early part of the year (see time schedule), the teacher in each selected open classroom will be asked to rank the children for level of curiosity and exploratory behavior, following a guideline definition that describes relevant behavior. This procedure has been used in previous work, and has proved a feasible task for teachers (Maw and Maw, 1961; Minuchin, 1971 a and b.). Children in the upper and lower thirds of these rankings will then be seen in individual sessions. Exploratory behavior in this session will be assessed through two situations: object exploration [curiosity box and/or exploration of objects, as used in previous research (Lucco, 1965; McReynolds et al, 1961; Minuchin, 1971, a and b)];and exploratory reactions to complex stimuli (Bank Street Early Childhood Discovery materials, Black and Memling, 1970) .

Those children for whom there is no available IQ data will also be tested during this session.

On the basis of combined information from teacher rankings and the individual session, 5 children characterized by a high level of exploratory functioning and 5 characterized by a relatively low level of exploratory functioning will be chosen in each class for a total of 40 study children

the first year and 20 additional study children the second year. Only children within the normal range of intelligence will be chosen. Where there are equivalent choices, some effort will be made to balance the sexes in the high and low groups. It should be noted, however, that the relationship between exploratory style and sex is in itself a research question, with contradictory information to date. High and low exploratory groups may not have equal numbers of boys and girls, as identified by these procedures, and the project will proceed to study the identified children,whatever the sex composition of the groups.

Data Collection and Analysis

Data on children's functioning: Data on the functioning of the children will be collected primarily through intensive classroom observation of each child during work and activity periods not primarily directed by the teacher. Observations will be spaced through three rounds (see schedule). Within each round, each child will be observed for three periods of one-half hour each: one period of narrative recording and two periods of observation using a pre-categorized observation schedule. Total observation time per child will be 4-1/2 hours (3 rounds of 1-1/2 observation hours).

Data collection will be geared to the following variables:

- Involvement with materials and activities (e.g., range, exploration, initiative, persistence)
- Productive relationships with teachers and peers (e.g., initiation of contact, cooperative work, question-asking, resolution of conflict)
- Experience of mastery (e.g., verbalization of thinking processes, verbalization of discovery or competence, completion of work, success after frustration or confusion)
- Pleasure and involvement in the classroom experience (e.g., positive affect, self-acceptance)

The narrative observations will record the child's behavior, verbalizations and interactions during a half-hour period. Records will subsequently be coded and rated on relevant variables.

Observation schedules will be adapted for the purposes of the study but will be based primarily on the Differentiated Child Behavior Form (DCB), an observation technique developed by Ross in connection with the Bank Street

Follow Through project (Ross, 1971). This schedule includes categories on the child's cognitive behavior, question-asking, expressive behavior, self-initiated organization and management, symbolic representational behavior. Some rating procedures and scales will also be based on material developed by Educational Testing Service (1969) in their longitudinal research on young school children.

In addition to individual observation, observers will conduct a classroom scan during a free activity period each day of observation, recording the activities, involvement, interaction and affect of each child in the sample at the moment of the observational scan.

Total observational data on each target child will consist, therefore, of nine observational records of one-half hour each, spaced through three observational rounds, and approximately thirty classroom scan recordings throughout the year.

Each child will also be seen for one individual session at the end of the year, focussed on the child's attitudes toward school.

Follow-up observations on 20 study children in second grade open classrooms will be conducted in two rounds during the second year (see schedule), with one narrative recording and one observational-schedule recording during each round.

Data on teacher interactions with children: Observations will focus on the frequency and purpose of teacher interactions with the study children during non-centralized work periods. Teachers will be observed for six one-half hour periods during each round, totalling nine hours of observation in each classroom.

Observers will record the frequency of contact with each child during the selected time periods and will also record the content and nature of the interaction. The recently reported work of Resnick (1972), observing teachers in British open classrooms at the same age level, will guide the recording of teacher behavior, since she has dealt with the particular problems of an open classroom context and a teacher role characterized by mobility and multiple interactions with different children for different purposes. Her scheme includes differentiated coding within such categories as Questions, Directions, Information, Help, Praise or Criticism, Permission, etc.

Teachers will also be interviewed twice during the year concerning their perceptions and teaching plan for each child.

Data analysis: Data analysis will compare the behavior of high and low exploratory groups on a series of variables and will compare the frequency and nature of teacher contact with children in the two groups. Data will also be analyzed for changes over time (the three observational rounds), for sex differences (boy and girl response patterns and teacher response to boys and girls), and for response patterns in different classroom settings and populations.

F and t test comparisons appropriate to the sample size and study design will be used to compare the groups. The data will also be intercorrelated to assess the relationship among aspects of classroom behavior (e.g., aspects of involvement, mastery, interaction and affect).

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