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ABSTRACT

Four basic models that are used to account for the discrepancies in educational and intellectual attainment between minority groups and the dominant culture are outlined. These are the Deficit Model, the School-as-Failure Model, the Cultural Difference Model, and the Social Structure Model. Four studies relating to the impact of preschool education on the experimental children are discussed. Research results presented tentatively indicate that some widely held beliefs about preschool education aren't true. Conclusions include: (1) Preschools operated in a forceful style can have significant impact throughout the elementary school years in areas that are directly meaningful to parents, teachers, state education officials, and the children; (2) "Educable mentally retarded" children have failed less often and are placed in special education less often than are similar children who have not had preschool; (3) For at least three years after the initiation of the preschool program, the style of curriculum does not have a differential effect on the child's intellectual or achievement development rates. (Author/CK)

EARLY CHILDHOOD SPECIAL EDUCATION FOR INTELLECTUALLY SUBNORMAL AND/OR CULTURALLY DIFFERENT CHILDREN

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Mental subnormality as a diagnostic category is alive and well, living within the walls of academic institutions and special education classes. But these seem to be the only places these days. Spokesmen for the civil rights movement and various minority groups have stated their opposition to special education for the "educable mentally retarded." As the September 20, 1971 Newsweek reports, quoting a civil-rights lawyer, "In a manner that is hard not to call cultural genocide, an inordinate number of black children are labeled 'retarded' and assigned to. . .special classes." As is well known, there is a high correlation between the diagnosis of mental subnormality and social-economic background, children from lower-class backgrounds, and especially black children, occupying a disproportionate number of seats in special education classes. This has lead to what is perhaps an inevitable conflict between practices in special education and the recognized need for general improvement of the economic, social, and educational opportunities of minority groups.

The clash occurs especially in the area of diagnostic testing, with its emphasis on the use of standardized intelligence tests to "screen" for mental retardation. Scores obtained with minority group children are held suspect. Again a quote from Newsweek strikes the popular tenor of the time: "Since the design of those tests strongly favors white, English-speaking children from middle-class homes, the black, Spanish-speaking and other minority group students consistently score significantly lower than the norms--and frequently below the point that demarcates retardation."

The outcry against the placement of minority-group children classified as mentally retarded in special education has had great impact upon the education programs of many cities and states. For example, in Michigan, new state rules and regulations require that, to be admitted to a special education class, a youngster must not obtain a score above the 70 IQ level on any intelligence test or sub-scale. Since very few youngsters from any group drop below 70 on standardized and individually administered tests, the impact upon special education classes is immediate and obvious. (One school system switched from the Stanford-Binet IQ test to the Leiter International Performance Scale in order to utilize a "culture free" instrument, which they felt would better balance the special classes. However, since lower-class preschool children tend to score about 10-15 points below their Stanford-Binet scores on the Leiter, many such youngsters did "qualify" to fill the classes, and the preponderance of lower-class children remained.)

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The problem faced by minority groups is that the educational system administers diagnostic tests to their children and generally finds them lacking. This finding suggests deprivation and calls into question the minority group's history and accomplishments and especially its general pattern of child rearing and socialization. More and more individuals are finding that assigning a status of inferiority to a disproportionate share of members of the minority groups is inadequate from the point of view of educational reform and is probably damaging to both the youngsters and their families.

In a recent article, Robert Hess *et al.* (1971) outlined four basic models that are used to account for the discrepancies in educational and intellectual attainment between minority groups and the dominant culture. (Also see Gordon, 1969 and Hess, 1969)

The Deficit Model

Those who subscribe to the deficit model tend to see the disadvantaged child as coming from an environment that limits the development of adequate mental abilities. The family life is usually described as inadequate to the task of socializing the child, and special mention is often made of language deficits resulting from delayed speech acquisition and the use of dialects instead of "standard" English.

This model was the basis for the thinking that created the War on Proverty and the earlier attempts at compensatory education. It also provides the impetus for special education programs designed for the children classed as mentally subnormal. The early preschool experiments were predicated on a deficit model. A recent article summarized the position of the Ypsilanti Preschool Project in its initial phase (1960-1962):

> Early intervention in the "learning process" of these children was seen as a means of helping them develop, during a critical period of their intellectual growth, those concepts and skills necessary for success in the public schools; in a sense, we were "reforming" the disadvantaged child, who, without such intervention, was likely to meet with failure in the institutions responsible for his education. (Silverman and Weikart, in press)

The Ypsilanti Project was not the only one with these ideas in mind. Gray and Klaus (1965) and Deutsch (1962) followed similar assumptions. The purpose of Head Start was to provide general health, social, and educational advantages to disadvantaged preschool children so that they could have a head start on middle-class children; otherwise, their learning deficits would result in their falling irrevocally behind in the primary grades.

Jensen's (1964) position on genetically determined differences in intellegence between the races has been strongly supported by people like Shockley (1971) and has been strongly attacked by many. Today, however, creeping into the literature is a suggestion of black and white differences based upon a variety of sophisticated studies. Lesser *et al.* (1965) presented a review of intellectual-skills functioning by ethnic group. Most sophisticated, however, are statements based upon intensive study of specific racial groups in carefully done research. For example:

> Differences between the Negro and white children were not found on verbal synthesis tasks, but they were found--favoring whites--on maplike and mathematical synthesis tasks. This is in line with other reports and speculations that Negro children may have a defect involving spatial or visual information processing abilities rather than a global-IQ deficiency. (Farnham-Diggory, 1970)

Less formal "folk-culture studies" have revealed the same type of finding. For example, as a University of Michigan co-ed marveled at the fantastic skill on the basketball court of Cazzie Russell, her date

explained that blacks were so good in basketball "because their muscles are attached differently." He didn't explain, of course, why this muscle attachment phenomenon didn't make blacks great swimming and skiing stars as easily as it made them basketball heroes.

The deficit model, when applied to an entire population, especially a minority or racial population, seems to limit the potential of assisting that group because it channels thinking in ways that emphasize weaknesses rather than strengths and sees differences from the norm as deficits.

The School-as-Failure Model

This model suggests that since the problem is not with the children it is with the schools and the teachers. The curriculum is not relevant, the teachers are not sensitive to the experiences that are important in the background of the children, and the methods of school operation do not reflect the needs of the children served. Hess suggests that the term used in the deficit model, the "culturally deprived child," becomes in this model the "educationally rejected child."

The focus for change in this model is the teacher, the curriculum, and the school. Sensitivity training for the teacher, student participation in decision making, relevant course work, employment of members of the community without "professional educational training", etc. are all methods of assisting in the development of appropriate school activities.

This is a perspective that appeals to liberal middle-class whites as well as to minority groups and is reflected in the current popularity of the British Infant School model, often termed the "open classroom." Such current writers as Silberman (*Crisis in the Classroom*) Liza and Casey Murrow (*Children Come First*) and Featherstone (*New Republic* articles) would like to see changes made from this orientation. Indeed, Ivan Illich, a prophet of educational revolution, would "de-school" society.

Students of educational research such as Julian Stanley (1970) have cautioned against too rapidly embracing some of the new trends and fads that have grown out of the school-as-failure orientation. For example, he feels that the development of black studies on college campuses represents a possible "watering down" of traditional courses to satisfy the needs of students, primarily black, who are ill prepared to grapple with the rigors of traditional study programs. He asks if there is such a thing as black architecture, black pre-med, and black engineering.

This model places the responsibility on the institutions to change and measure up to the needs of the students they serve. Performance contracting and the new emphasis on accountability to parents reflect this trend.

The Cultural Difference Model

This model holds that each individual grows up in a specific sub-culture that has it's own style of interpersonal relations and intellectual operations. To make value comparisons across cultures is not an effective way to proceed with the development of effective educational programs. The strengths of a culture should be emphasized, and the major goal of education in a multi-cultural environment should be to build upon the strengths of each group rather than attempt to bring the groups into conformity with an arbitrary standard of performance. Recent reviews of the literature have taken this tack in discussion of developmental problems (Horowitz and Paden, in press). This model has gained increased attention through the work of the language development specialists (Cazden, *et al.*, 1971) (Baratz and Baratz, 1970).

The goal of education in this model is not the development of a specific educational program where each group will learn to a standard, but the sharing of diverse cultures in a true pluralistic approach.

The Social Structure Model

From the viewpoint of those accepting this model, the burden of responsibility for how an individual has developed rests with the general structure of society in terms of its demands and press upon the individual, especially during the process of socialization within the family. The "social inheritence" is transmitted, Lysenko style, from one generation to another. Change in the general social structure by providing jobs, opportunities, power should receive priority policy attention. An example of this position is given in a recent review of intellectual development research:

> Our conclusion is that improvement in the social environment of groups at a marked social disadvantage can bring about substantial improvement in IQ levels and a decline in the frequency of mild mental retardation. Only radical environmental change can be expected to bring about rapid improvement. It seems likely that the greatest advantage will come from a serious attack on poverty and its concomitants in unemployment, deteriorated housing, physical environments, and poor and inappropriate schooling. (Stein and Susser, 1970)

While this model gives little attention to the schools and to school programs for children, it does support the alteration of school operation and control through major shifts in power to parents and groups seeking alternatives to the status quo in education.

Special education programs for the educable mentally retarded child at the preschool level have not escaped the conflicts and problems mentioned above. Accurate identification is difficult during the preschool years, and the full force of the social changes within the country mitigates against early programming if it is under the auspices of special education. Hodges, McCandless and Spicker (1967) at Indiana, Karnes *et al.* (1969) at Illinois, and our own Ypsilanti projects, the Ypsilanti Perry Preschool project (Weikart, Deloria, Lawser and Weigerink, 1970) and the Ypsilanti Preschool Curriculum Demonstration Project, (Weikart, 1971) are among the very few which have been attempted with an admitted special education population. Head Start and most other operational programs classify children in terms of economic status and purposely ignore the issue of intellectual diagnosis entirely. I have been called to account for categorizing my samples as "educable mentally retarded" by many concerned parents and educators. In our case, the answer has been relatively simple. If the youngsters could be "certified" to meet state requirements for special education, then the funds would be provided to support a preschool for them. It seemed to me in 1960 as it seems to me now that diagnosing three-year-olds as "functioning most like children who are primarily mentally retarded" in order to provide early support for their development was and is justified. Whether or not this was a wise decision will be demonstrated over time as we follow up the results of our work.

What I would like to do now is present information on the outcomes of our last ten years of work in the early education of youngsters diagnosed at age three as functionally retarded and in the educable mentally retarded range. It is with some apology that I find I must lean upon our own data, but there is little long-term information available in the field about the impact of early education in general and particularly on youngsters classified as educable mentally retarded.

Several good resumes about early education have recently been published. For a general overview of the field Horowitz and Paden (in press) give an excellent summary of the important current work and the general trend of research and research questions critical to the field. They especially take to task those of us who have operated from a deficit model with disadvantaged children, preferring the cultural difference model instead. A rapid look at the international field is provided by Arne Sjölund (1971). While the book is in Danish, there is an intriguingly extensive (e.g., Susan Gray's project is located in North Carolina) summary provided in English. The extensive bibliography is available, and rapidly so, upon request from the

Danish National Institute of Social Research. Although a specific review of early education and retardation is not available, it is included in an extended article by Stein and Susser (1971). Finally, many of the concerns of early education and special education are touched upon in many forceful ways in the series of articles prepared for a book on day care edited by Edith Grotberg (1971) for the Office of Economic Opportunity.

Two major issues have been the focus of our research in preschool education and curriculum development. The first issue is that of the long term impact of preschool education upon later school performance. The second is the relationship or relative impact of preschool education when differing educational procedures or theoretical models are employed. These will be discussed next.

Impact of Preschool Education

Data are available from several studies which have passed beyond the category of immediate results and into long-term follow-up status. The most complete is that by Skeels (1966), who reported 30-year follow-up results of an early preschool and adoption study by the Iowa Child Welfare Station. The social and occupational adaptation of the experimental children who eventually went into adoptive homes was impressive when compared to the almost total lack of adjustment on the part of the control children who did not participate in preschool and who remained institutionalized. This finding gives considerable strength to the notion that while immediate impact of a project may be difficult to ascertain, long-term results may be favorable when the intervention results in a basic improvement in the general environment of the child. Since the youngsters in the control group were unable to leave the state institution and did not have the opportunity to live in a normal environment, the results may be seen as evidence of a contrast between "normal" and deprived environments.

A second study is by Gray and Klaus (1968) (Also see May, 1969). The children in their experimental group attended two or three summers of preschool and had one or two years of weekly home teaching by a trained staff member from the project. In their seven-year follow-up report, they concluded that while there seemed to be definite spreading of their project's impact to other children in the community and to younger siblings, by fourth grade there were no significant achievement differences between control and experimental groups. There was, however, a significant difference in Stanford-Binet IQ scores in favor of the experimental children. It is a remarkable achievement to have sustained an impact on intellectual development through the seventh year of a study and four years after formal intervention.

Karnes (1969) conducted a curriculum comparison study. Two structured curricula (the Ameliorative curriculum, operated by Karnes, and the Direct Verbal curriculum, operated by Bereiter and Englemann) were compared, and a traditionally oriented nursery program was used for baseline data instead of a no-treatment control group. At the end of the first grade, there was no difference in Stanford-Binet scores between the children in the two experimental programs on the one hand and those in the traditional group on the other. However, the general academic progress of the children in the two experimental programs was better than that of the children in the traditional program.

The fourth longitudinal project that I wish to discuss is the Ypsilanti Perry Preschool Project (Weikart, Deloria, Lawser, Wiegerink, 1970). While the study is not complete in that follow-up is still underway with the oldest children in seventh and the youngest in third grade, enough data are available on the first five years of the project for some tentative statements.

This project was an experiment to assess the longitudinal effects of a two-year preschool program designed to compensate for functional mental retardation found in some children from disadvantaged families. The program consisted of daily cognitively oriented preschool classes accompanied by weekly home-teaching visits. The project was operated from September 1962 to June 1967. The population from which the sample was selected was black and economically disadvantaged. Children were assigned to either an experimental or a control group in an essentially ranom manner, except that the two groups were matched on socio-economic status and Standord-Binet scores. Instruments used to evaluate program impact were the Stanford-Binet, the Leiter International Performance Scale, the Peabody Picture Vocabulary Test, the Illinois Test of Psycholinguistic Abilities, the California Achievemcnt Test Battery, several parent-attitude instruments, and teacher ratings of children.

The preschool curriculum that evolved during the five years of the project was derived mainly from Piagetian theory and focused on cognitive objectives (Weikart, Rogers, Adcock, McClelland, 1971). Emphasis was placed on making the curriculum flexible enough for the teacher to gear classroom activities to each child's level of development. Verbal stimulation and interaction, sociodramatic play and the learning of concepts through activity were considered more important than social behavior and other traditional concerns of nursery schools. Weekly afternoon home-teaching visits provided each family with an opportunity for personal contact with the child's teacher. The parents were encouraged to participate in the instruction of their children, the goal being to improve their relationship with school and teachers and to involve them in the education process. The teacher's child management techniques indirectly suggested to the mother alternative ways of handling children. Group meetings were used to reinforce the changes in parents' views regarding the education of their children.

Five pairs of experimental and control groups were used in five replications of the basic experiement. This technique, referred to as small sample replication, offered two advantages which helped enhance the conclusiveness of the results: first, by using a small sample in each replication, better quality control of the classroom operations could be achieved; second, consistent results from the five independent experiments were far more convincing than a single significant result. Each of the five pairs of experimental and control groups was called a "wave," and given a number from 0 through 4. Waves 0 and 1 started preschool in the fall of 1962. Wave 4, the last wave, began in the fall of 1965 and completed the second year in June 1967. Each new wave of children began at age three and remained in the progam for two years.

The general findings from the project are:

1. The children who participated in preschool obtained significantly higher scores on the Stanford-Binet IQ test than the control group children. This superior functioning disappeared by third grade (see Table 1 and Figure 1).

2. The children who participated in preschool obtained significantly higher scores on achievement tests in elementary school than the control group children. This difference attained significance in first and third grades (see Table 2 and Figure 2).

3. The children who participated in preschool received better ratings by elementary school teachers in academic, emotional, and social development than the control group children. This difference continued through third grade.

One of the most important debates in preschool education has been about the criteria of effectiveness. Intelligence tests, achievement tests, teacher ratings, and many other devices used to obtain immediate outcome information have been held to be insensitive to the fine points that preschool contributes to the young child's development. One of the specific goals of the Ypsilanti projects has been to follow the development of the participating children long enough to study the impact of preschool upon special education placement, retention-in-grade, drop-outs, and teenage crime rates, etc. Using the most recent data from the original Ypsilanti project, Table 3 presents information on the current grade placement and special education enrollment for Waves 0 through 4, now enrolled in grades 3 through 7 (see Table 3).

The most striking finding at this point is the difference between the experimental and control children on special education and retention data. For the experimental children 83% are at the expected grade level in regular classes with 15% receiving special education classes and 2% over age in grade. For the control, 61% are at the expected grade level with 24% in special education and 15% over age in grade.

While the long-term economic value of grade level placement is difficult to compute in a group this young, and the personal benefits in terms of feelings of confidence and self worth are imossible to assess, actual cost in dollars to educate this group is not. One way of approaching this is to use local, county, and state costs for the youngsters as now classified, recognizing that both groups will show a gradual shift over the years into special education and "retained" status.

For Ypsilanti the regular child receives about $260 in support from the state and about $600 from the local district. A youngster who has been retained repeats a year and thus costs the district and the state an extra $860. This is a one-time expense and while it creates an expense differential in these data of about 1:7 in favor of the experimental children, it is not a large amount. If these figures are extended to a group of 100 children similar to those of the study, the cost ratio would be $1,720:$12,900.

Special education is costly and the differential between the two groups is great. In Ypsilanti the costs are as follows:

$ 600	Local (Regular to all children)
260	State (Regular to all children)
800	Special Education, state and county (extra)
$1,660	

This cost will occur every year of program operation. The cost is at best an estimate as both cost and reimbursements are deeply buried in the total school financing. However, these figures represent, I think, a conservative direct cost estimate.

Using a base of 100 similar children, the extra special education costs in 1970-1971 of children who had our experimental group experience was $12,000. The extra cost of the control group was $19,200. As the special education assignments appear during the third year of school, the "life time" of special education cost could be about $72,000. Add this cost to the $13,000 "½one time retention" costs and a net cost of $85,000 is reached. While this is a long way from the $200,000-$300,000 it would take to run an elaborate two year copy of our program for 100 children, it is an actual dollars savings realized by the state school system that could be assigned toward the cost of preschool education.

In summary, while preschool education for children initially seen as educable mentally retarded has attracted wide concern, and rightly so, because of some of the questionable assumptions underlying the provision of educational programs for them, there are suggestions from the Ypsilanti project that children experiencing the intervention are better able to manage later school experiences as measured by capacity to proceed through school at regular grade placement and avoid special education services or retention-in-grade. The actual financial savings directly accruing to the state recommend careful consideration of wider use of preschool education as a preventative or ameliorative procedure.

Does it Matter Which Curriculum is Employed?

The second question we have been interested in has been the relative impact of preschool education when differing educational procedures or theoretical models are employed.

Since preschool can make a difference under certain conditions, it is important to know if the wide range of early education curricula have a differential impact on children. While it is unlikely that any *particular* program with a given orientation is more effective than any other similarly styled program, it would seem reasonable to assume that general approaches differ significantly in their ability to help preschool children. This is especially important with the advent of academic skills training programs which purport to accelerate the development of the child through various training procedures. (A suggested organizational scheme for preschool curriculum models is given in the appendix.)

Programmed, Open Framework, and Child-Centered approaches differ widely on a number of important theoretical and practical issues, including curriculum supervision for staff, adaptability of the program to specific educational needs of minority and regional groups, breadth of curriculum focus, recommended procedures for child management, acceptability of the curriculum to teachers, and assumptions about how children learn. The basic question is, however, how does the particular curriculum model effect the immediate and long-term intellectual and academic performance of participating children? While there is considerable debate over the criteria to be employed, it is generally accepted that third-grade achievement scores on standardized tests are appropriate. There is less agreement about the use of intelligence tests such as the Stanford-Binet as a measure of immediate outcome at the end of the preschool experience. At the present time, however, no acceptable alternative measures are available for reliably measuring intellectual development or the more general capacities from problem-solving ability to creativity. The scores from Piaget-based measures of cognitive abilities tend to be so closely correlated with Stanford-Binet scores as to make their use questionable as a substitute assessment procedure, though they may be invaluable in the design of research projects using Open Framework curricula. In any case, there is little basic information about the relative effectiveness of particular preschool curricula.

A few years ago, a review of preschool research found that the few programs which were effective in obtaining immediate gains on intellectual measures and some indication of later academic success could be classified as *Structured* (a category covering for the most part the Programmed and Open Framework curricula). "The conclusion is that preschool projects with the disadvantaged child must provide planned teacher action according to a specific developmental theory in which the primary goals are cognitive and language development. . .The traditional nursery school methods (a category covering Child-Centered). . .are ineffective in accomplishing the basic goals of preschool intervention with the disadvantaged child." (Weikart, 1967) A more recent review of several studies of Programmed, Open Framework, and Child-Centered curricula reached the same conclusion: "Preschool programs. . .that provide highly structured experiences for disadvantaged children are more effective in producing cognitive gains than programs lacking these characteristics." (Bissell, 1970) While such reviews underscore the ineffectiveness of Child-Centered curricula with disadvantaged children, there is still the question of the relative effectiveness of Programmed and Open Framework models.

In an effort to answer this question, the Ypsilanti Preschool Curriculum Demonstration Project was established in the fall of 1967. The programs selected were a Cognitively Oriented curriculum (an Open Framework model) and a Language Training curriculum (a Programmed model). The *Cognitively Oriented curriculum* had been developed over the five years of the Ypsilanti Perry Preschool Project (Weikart, 1967, 1970). This is a carefully structured program based on methods of "verbal bombardment" of our own design, principles of socio-dramatic play as defined by Sara Smilansky, and principles derived from Piaget's theory of intellectual development. *The Language Training curriculum* was developed by Bereiter and Englemann (1966) at the University of Illinois. This is a task-oriented program employing techniques from foreign-language training; it includes the direct teaching of language, arithmetic, and reading. In order to

complete the spectrum, a third program was established that would represent the traditional approach. This program, the *Unit-Based curriculum* (a Child-Centered model) emphasized the social-emotional goals and teaching methods of the traditional nursery school.

Children in the curriculum study were functionally retarded three- and four-year-olds coming from disadvantaged families living in the Ypsilanti school district. They were stratified according to sex and race and randomly assigned to one of the three treatment groups. Two teachers were assigned to each curriculum model after they had an opportunity to express a preference. They taught class for half a day and then conducted a teaching session in the home of each of their children for 90 minutes every other week. The home teaching was executed in the same curriculum style as the classroom program the child attended. Essential to the demonstration aspect of the project was that all three programs had clearly defined weekly goals. The curriculum implementation followed a carefully planned daily program designed independently by the three teams of teachers to achieve the goals of their own curricula. This provision for teacher involvement was a crucial aspect of the overall project.

Much to our surprise, *each* of the three programs did unusually well on all criteria (Weikart, 1970), greatly exceeding improvement expected from general habituation and rapport leading to better test taking ability. More importantly, the initial findings indicated no significant differences among the three curricula on almost all of the many measures employed in program assessment: several intelligence tests (average Stanford-Binet IQ gains in the three programs by three-year-olds of 27.5, 28.0, and 30.2 points in the first year), classroom observations, observations in free play settings, ratings of children by teachers and independent examiners. These data were essentially replicated at the end of the project's second year. The basic conclusion is that the operational conditions of an experimental project are far more potent in influencing the outcome than the particular curriculum employed. The curriculum is more important for the demands it places upon the project staff in terms of operation than for what it gives the child in terms of content. Specifically, I would make two points regarding curriculum and the education of disadvantaged children.

1. *Broad curricula are equivalent*. As far as various preschool curricula are concerned, children profit intellectually and socio-emotionally from any curriculum that is based on a wide range of experiences. In almost the sense that Chomsky (1966) uses in talking about the development of linguistic competence, a child has the potential to develop cognitive skills and good educational habits if he is presented with a situation which requires their expression. Kohlberg (1968) concludes that a child needs broad general forms of active experience for adequate development of his cognitive abilities; a variety of specific types of stimulation are more or less functionally equivalent for development. In short, no specific curriculum has the corner on effective stimuli, and children are powerful enough consumers to avail themselves of what the market offers.

2. *The curriculum is for the teacher, not the child*. The primary roles of curriculum are (1) to focus the energy of the teacher on a systematic effort to help the individual child to learn, (2) to provide a rational and integrated base for deciding which activities to include and which to omit, and (3) to provide criteria for others to judge program effectiveness so that the teacher may be adequately supervised. The successful curriculum is one that permits this structuring of the *teacher* to guide her in the task of adapting the theory she is applying to the actual behaviors of the children. An unsuccessful curriculum is one that permits the teacher to give her energies to areas unrelated to her interaction with the child within the theoretical framework or fails to give her clear guidelines for using her time in planning, in interaction with children, and in availing herself of critical supervision.

The basic implication of the findings of the Curriculum Demonstration Project after two years is that a shift in focus is necessary for preschool education. The heavy emphasis on curriculum development, while important, has greatly overshadowed the need for careful attention to the other components, including what we call the "staff model;" when these components are held as constant as possible, immediate results are not affected by the curriculum model.

While the data are not complete for the Curriculum Demonstration Project, and we must await the long-term follow-up study as the children progress through elementary school, I find myself at a very different place from what I had projected back in 1966 when the project was conceptualized. I had expected to find immediate differences on most measures among the three curriculum models. Instead I found that during the time I was able to maintain equal momentum and staff commitment for the three programs, we obtained equal results on most measures, from standardized intelligence tests to classroom observations and teacher ratings. From this situation, two essential points emerge regarding the operation of effective preschools:

1. *Planning*. Detailed planning for daily operation is absolutely critical. Experienced teachers can "wing it" without plans by following routine practices which both they and the children slide into without trouble. However, the moment planning as an organized force ceases or diminishes in its central focus, program quality drops. Planning brings the adults in the program together and forces an integration of their ideas so that they respond with purpose to the children. It produces a forward momentum, a pacing to the program that creates novelty and excitement for the children as well as the staff. It serves as a clearing house for interpersonal feelings that make the difference in how the staff relate to one another and the children. It produces in teachers a clarity of perception of each child, especially when part of the process is evaluation of completed curriculum activities. It provides a forum where the ideas generated by the method or theory being followed can be expressed and discussed to give an overview and total direction. Basically, it is highly satisfying to outline the major problems children face in dealing with the world as represented by the classroom and plan ways of facilitating the resolution of these problems. However, planning is also one of the most difficult things to ask of a teaching staff.

2. *Supervision*. While planning integrates the basic content and expression of the program, supervision makes it happen. Adequate supervision forces the teachers to consider the central issues of their curriculum model. It helps the staff to recognize when they are getting off the track or marking time. The supervisor gives direct assistance in the classroom. She reviews the plans the teachers have prepared and observes their implementation in the classroom. The supervisor raises questions for the staff about program operation, planning, and general functioning. She is the "referee" for the many problems within the team, bringing difficulties into the open rather than allowing them to be smoothed over; since genuine problems with children and among staff are the basis for program improvement, to smooth them over is to avoid the opportunity for development they present. The supervisor provides inservice training based upon the knowledge she has gained from her classroom observations. This training can include demonstration teaching and video taping of key lessons or activities. On the whole, the supervisor serves as the balance wheel in the operation of the curriculum model, maintaining, through supportive services, dedication, and knowledge, the momentum that the staff has generated.

Additional Longitudinal Results

One of the main concerns is, of course, what happens when children who have attended these various programs reach elementary school. It is possible to point to the similarities of impact at the preschool level where demonstrable academic skills are not necessary and yet find great differences in performance during later schooling because of the different kinds of preparation given the children through the different curriculum models.

Tables 4, 5, and 6 present the results for Stanford-Binet follow-up data and achievement test scores. In Table 4 the data are presented for fall entering year (please note the exceptions for the transitional Wave 5), spring of entering year, and then for the last testing in June 1971. Thus Wave 5 has now completed second grade, Wave 6 first grade, and Wave 7 kindergarten. While no statistical tests are included, it is clear from inspection that although all groups have shown gains there is little difference in mean Stanford-Binet scores among the groups who participated in the three programs. The striking finding is the durability of the gains, especially with Wave 6. Using the original Ypsilanti project experimental and control groups for contrast (see Table 1), it is clear that Wave 6 and Wave 7 are performing better than the earlier experimental groups. The Wave 5 data for second grade parallel the findings of the earlier experimental waves.

Tables 5 and 6 present California Achievement Test data. Again the earlier Ypsilanti project experimental and control groups are listed for comparison. Wave 6 is clearly a superior group with achievement parallel to what is usually achieved by these children in second grade. The significant finding in Wave 6 is the failure of the language training students to sustain the pace maintained by children from either the cognitive or unit-based programs. However, they do achieve at a higher level than the original Ypsilanti project group. Wave 5 does only slightly better than the original project experimental waves but nevertheless better. Thus *in Wave 5 there are no real differences in achievement levels among the children from the three curriculum models.*

These preliminary data suggest very strongly that the magic of the programmed approaches is almost purely illusory. When a youngster leaves a programmed approach he apparently knows what he has been taught but is no better equipped to solve increasingly complex educational problems than youngsters taught by different approaches, such as open-framework or child-centered; indeed, using Wave 6 data, he is not as well prepared. The data presented here are too tentative to permit clear conclusions, but I think those of us who ask more of education than skill training can breathe a little more freely.

The question we have been dreading is: Have we sacrificed the capacity of our youngsters to do improved "skill" learning by emphasizing concept-oriented learning through developmental approaches? These data suggest that, on the contrary, there is a strong possibility that the skills-focused preschools may be sacrificing later learning potential for immediate outcomes. A hint of support for this position can be drawn from Louise Miller's (1971) progress report on her curriculum comparison project. Children taught by a programmed method who then entered regular classrooms performed at the lowest level of any group including the controls. "In short, if their Readiness scores are predictive of achievement in first grade, regular kindergarten was a disaster for Bereiter-Engelmann children." (Miller, 1971)

So while the children in our programmed curriculum were learning skills and the open-framework and the child-centered children were experiencing sequenced concepts and experimenting with materials, what was being learned? Apparently the issue now is to return to the programs themselves and start looking at the processes the children experienced during their participation. Here then is a strong case for classroom observation to see what specific changes occur.

Apparently achievement and intellectual development can be guaranteed by a strong program operated under a good staff model. What we need to know about now are how the less tangible things such as creativity, initiative, and self-direction are developed under different program models. These things cannot be measured easily; it would seem they are more likely to be developed if they are distinctly present in a program and experienced by the child.

Summary

Preschool education has come a long way. Initially the basic concept was to create a program that would ameliorate the deficits the child had as a product of growing up "disadvantaged." With the rise of the civil rights movement and black-chicano-Indian power, this concept of deficits as the product of the culture and the routine placement of minority group children in special education after being categorized as mentally subnormal were directly challenged. We simply cannot do it anymore even if we think "it's good for the child."

Research results presented in this paper tentatively indicate that some widely held beliefs about preschool education simply aren't true, and some conclusions may be stated. First, preschools operated in a forceful style can have significant impact throughout the elementary school years in areas that are directly meaningful to teachers, parents, state education officials, and of course, the children themselves. "Educable mentally retarded" children given our (open-framework) preschool experiences have failed less often and

are placed in special education less often than similar children who have not had preschool. Second, apparently both at the time of experience and for at least three years after the preschool program, the style of curriculum does not have a differential effect on the child's intellectual or achievement development rates. Indeed, it is suggested that a programmed approach may deter development. A correlary to this is the belief that different curricula may be important for different children--a hypothesis to explore, but I doubt that it will be found to be true. Third, curriculum is to help the teacher get about the business of education and has little to do with the child. Fourth, we don't know enough about how the matrix of a program affects the difficult-to-measure aspects of child development: the child's sense of wonder, his self-respect, his capacity to initiate action, reflectivity, problem solving ability, etc. But these characteristics can be studied within the context of any curriculum according to the critical ideas and values of the parents and the educational group. We are not bound to a programmed approach, for example, simply because it may give a youngster a life-long advantage in educational skills.

I began by saying that mental subnormality as a diagnostic category is alive and well, living within the walls of academic institutions and special education classes. I propose that we drop that diagnosis for children under 15, get to the task of identifying high risk youngsters as early as possible, and get to work. For once in our life here is a place we can make a difference. Preschool is alive and well. . .and looking for a sponsor.

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INTRODUCTION TO TABLES AND FIGURES 1 AND 2

There were five project replications between 1962 and 1966, with approximately twelve children per group entering each year. The declining group sizes in tables reflect the fact that groups starting in the last replications had not yet reached the higher grade levels at the time of analysis.

The date were collected at the time children entered the preschool and every Spring thereafter for most instruments. The following notation denotes collection times:

Preschool	FEY	Fall entering year
	SEY	Spring entering year
	S2Y	Spring second year
Public School	SKG	Spring kindergarten
	S1G	Spring firt grade
	S2G	Spring second grade
	S3G	Spring third grade

Empty columns in the tables indicate that data were not collected for a particular instrument at the time indicated by that column. Also, the first year's experimental and control groups contained some four-year-old children who only received one year of preschool, deflating the Spring second year group size somewhat. All other children entered at age three and had two years of preschool.

Table 1

STANFORD-BINET IQ RESULTS
Experimental *vs.* Control
Summary of Group Sizes, Group Means, and F-Ratios

	TIME OF DATA COLLECTION						
	FEY	SEY	S2Y	SKG	S1G	S2G	S3G
GROUP SIZE:							
Experimental	58	58	44	45	33	21	13
Control	65	65	49	52	37	24	15
GROUP IQ MEANS:							
Experimental	79.7	95.8	94.7	90.5	91.2	88.8	89.6
Control	79.1	83.4	82.7	85.4	83.3	86.5	88.1
F-Ratio	<1	39.78	25.36	4.58	8.26	<1	<1
Significance	N.S.	<.01	<.01	<.05	N.S.	N.S.	N.S.

Table 2

CALIFORNIA ACHIEVEMENT TEST TOTAL BATTERY RESULTS
Experimental *vs.* Control
Summary of Group Sizes, Group Means, and F-Ratios

	TIME OF DATA COLLECTION						
	FEY	SEY	S2Y	SKG	S1G	S2G	S3G
GROUP SIZE:							
Experimental					33	20	13
Control					37	23	15
GROUP RAW SCORE MEANS:							
Experimental					90.7	146.0	199.9
Control					71.5	121.2	116.5
F-Ratio					4.27	2.92	11.61
Significance					<.05	N.S.	<.05

Figure 1

GRAPH OF STANFORD-BINET GROUP MEANS
Experimental *vs.* Control

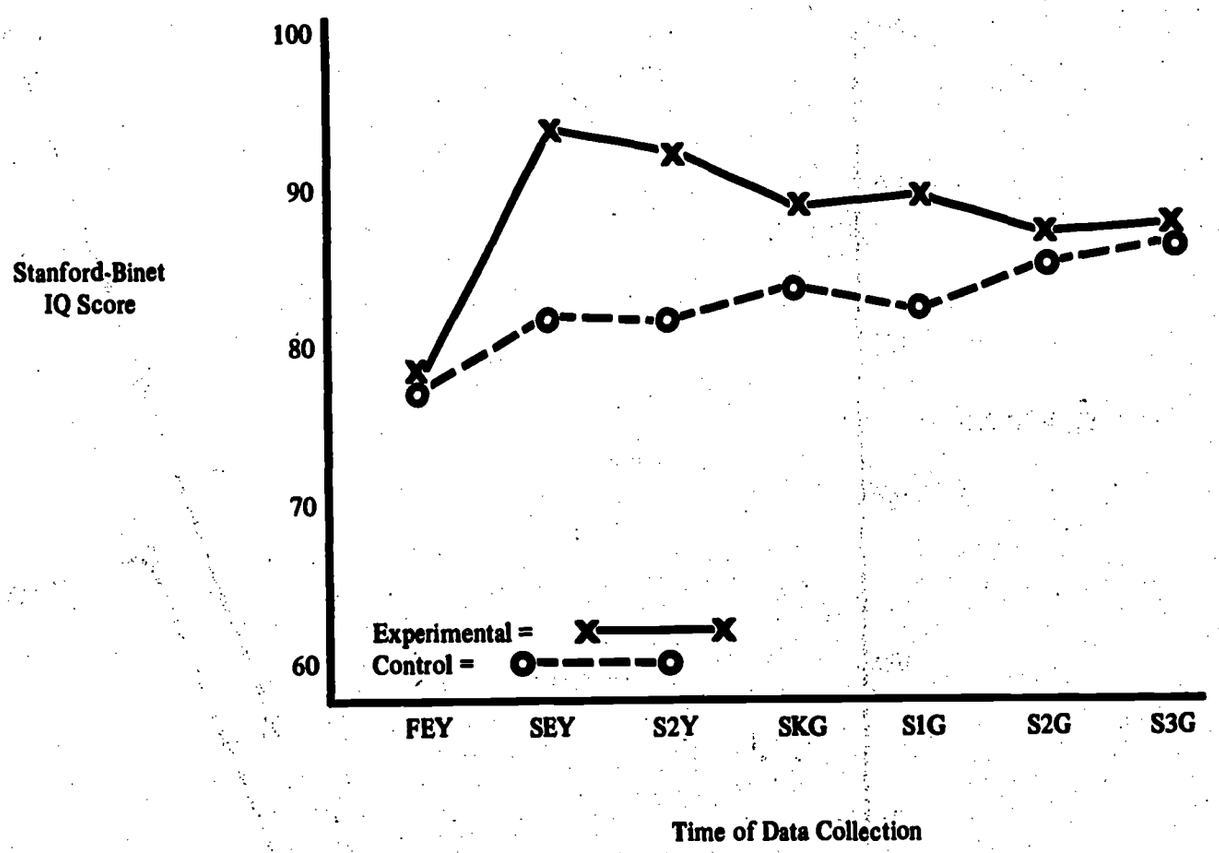

Figure 2

GRAPH OF CAT GROUP MEANS
Experimental *vs.* Control

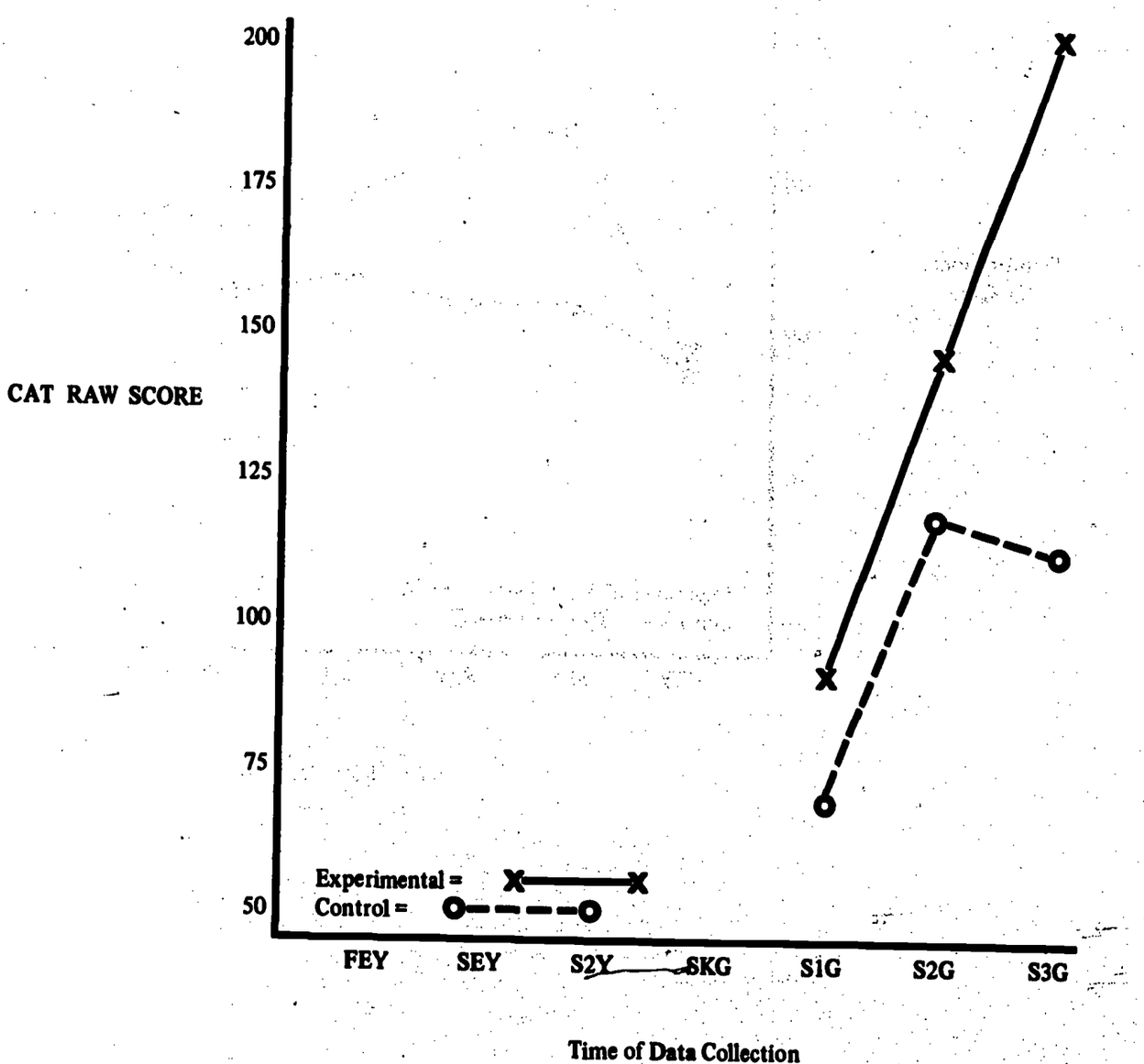

Table 3

YPSILANTI PERRY PRESCHOOL PROJECT
GRADE PLACEMENT AND SPECIAL EDUCATION ENROLLMENT

WAVE	Expected Grade Sprg. '71	Number of Child.	Child. in Expected Grade	Child. in Sp. Ed.	Child. Retained A Grade but *not* in Spec. Ed.	No. of Child.	Child. in Expected Grade	Child. in Sp. Ed.	Child. Retained A Grade but *not* in Spec. Ed.
0	7th	8*	6	2	–	13	6	5	2
1	6th	7**	3	4	–	9	6	3	–
2	5th	11	11	–	–	12	6	5	1
3	4th	13	10	2	1	15	9	1	5
4	3rd	13	13	–	–	13	11	1	1
	TOTALS	52	43	8	1	62	38	15	9
	%	100% =	83% +	15% +	2%	100% =	61% +	24% +	15%

* Grade placement information not located for two experimental children in this wave.

** Grade placement information not located for one experimental child in this wave.

Table 4

STANFORD-BINET DATA FOR CURRICULUM DEMONSTRATION PROJECT

	Fall Entering Year		Spring Entering Year						
	Mean	Standard Deviation	Mean	Standard Deviation	Difference	(N)	Mean	Standard Deviation	Difference Fall Entering Year
Wave 5[a]							Spring 2nd grade		
Cognitive (N=11)[b]	75.3	6.1	98.6	12.8	+23.3		86.8	10.4	+11.5
Language (N=8)[c]	73.9	5.3	98.2	9.4	+24.3		81.1	6.8	+ 9.2
Unit-Based (N=8)[d]	76.4	4.5	94.1	2.4	+17.7		91.1	9.1	+14.9
Wave 6							Spring 1st grade		
Cognitive (N=5)	83.2	4.8	110.8	12.3	+27.6		102.8	19.7	+19.6
Language (N=8)	84.4	3.2	114.6	6.1	+30.2		102.8	6.6	+18.4
Unit-Based (N=8)	73.6	6.9	101.1	7.1	+27.5	7	98.3	11.2	+25.0
Wave 7							Spring kindergarten year		
Cognitive (N=7)	79.9	7.3	102.3	13.8	+22.4	6	92.2	12.2	+12.3
Language (N=8)	78.3	6.0	102.3	13.9	+24.0		91.4	15.8	+13.1
Unit-Based (N=8)	84.3	3.6	101.9	7.4	+17.6	6	89.7	5.9	+ 5.4

a Wave 5 is the transition wave from the 1962–1967 Perry Project
b Attended two years of preschool as three and four years old
c Tested only as three year olds, attended Language program as four year olds
d Tested only as four year olds Fall 1967, attended Unit-Based program as four year olds

Table 5

CALIFORNIA ACHIEVEMENT TEST DATA
FOR
CURRICULUM DEMONSTRATION AND PERRY PROJECT

Grade 1

			California Achievement Tests	
		N	Raw Score	Percentile
CD Cognitive	Wave 6	5	143.6	42%
CD Language	Wave 6	6	118.8	24%
CD Unit-Based	Wave 6	6	146.8	46%
Perry Experimental	Wave 0-2	33	90.7	10%
Perry Control	Wave 0-2	37	71.5	4%

Table 6

CALIFORNIA ACHIEVEMENT TEST DATA FOR CURRICULUM DEMONSTRATION AND PERRY PROJECT

Grade 2

			California Achievement Tests	
		N	Raw Score	Percentile
CD Cognitive	Wave 5	11	151.0	Norms not Applicable
CD Language	Wave 5	8	153.4	"
CD Unit-Based	Wave 5	8	150.3	"
Perry Experimental	Wave 0-1	20	146.0	"
Perry Control	Wave 0-1	23	121.2	"

Appendix

ORGANIZATIONAL SCHEME FOR PRESCHOOL CURRICULUM MODELS

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Most preschool programs may be placed under one of four categories: Programmed, Open Framework, Child-Centered, or Custodial.*

In Figure 1, each of these program types is related to the way teachers and children in such programs participate and interact, in other words, to the teachers' and children's "roles." If the teacher's predominant role is to *initiate*, she plans lessons, organizes projects, and develops activities; she decides what will be done or directly influences what will be done; she presents materials, programs, and ideas; she guides action and directs the efforts of the children. The initiating, or active, teacher usually follows a *specific* theoretical position, developing her classroom activities from its tenets or following specific procedures prescribed for her. Indeed, an "initating teacher" can even be a programmed textbook or a spohisticated computer terminal from which a theory of instruction interpreted by a program developer may be applied through carefully controlled materials. In general, the teacher who initiates is forceful in applying her talents and skills to accomplish specific instructional objectives.

If the teacher's predominant role is to *respond*, she watches the actions of both individual children and groups of children in the classroom environment. She responds to their needs and tries to facilitate their interaction with each other and with the materials in the classroom. While she will introduce materials and activities at specific points, she does this in response to what she feels are the expressed needs of the children. To ascertain these needs, the responding teacher applies the *general* knowledge of child development she has gained through training and experience. On the whole, the teacher responds carefully through her essentially intuitive understainding of the children's behavior.

When the child *initiates*, he is engaged in direct experience with various objects through manipulation and full use of all his senses; he is involved in role play and other kinds of fantasy play; and he is active in planning his daily program, determining how he will work in the classroom environment. There is considerable physical movement by the child and a balance among teacher-child, child-child, and child-material interaction patterns. In general the impetus for learning and involvement comes from within the child.

When the child *responds*, he is attentive or receptive; he listens to the teacher and carries out her requests; and he repsponds verbally to requests and demands. The responding child tends to move about the classroom less than the initiating child since his predominant role is to wait for and attend to what is prepared and presented to him. In general this child is working within a clear framework of acceptable behavior and progressing toward a specified goal.

Each of the four preschool types--Programmed, Open Framework, Child-Centered, and Custodial--is, among other things, a particular combination of these styles of teacher-child interaction. They will be discussed next.

Programmed. This model combines *teacher initiates* and *child responds*. Several major innovative programs in the current wave of compensatory preschool projects are Programmed curricula. These curricula tend to be directed at clearly designed educational goals such as the teaching of reading, language skills and math skills. Although the program developers show little respect for traditional education at any

*Of course any system of categorization is a deliberate simplification of the real world. Categories overlap in practice; many preschool programs are eclectic, mixing parts of various general approaches. These "mixed" models are to be found mostly in situations removed from the requirements of a rigorous research design.

level, the goal of many of these programs is to equip the youngster with the skills necessary to manage the demands of such education. These curricula tend to be rigidly structured with the teacher dominating the child and with a heavy emphasis on convergent thinking--"Say it the right way"--and learning through repitition and drill. The programs tend to be oriented to specific procedures, equipment, and materials, especially in those approaches that are heavily programmed with technology ranging from simple language master and tape components to major learning systems with computers and all the trimmings.

The key to the programs in this quadrant is that the curricula are teacher proof; that is, the curricula are prepared scripts and not subject to extensive modification by the individuals presenting the instructions. As one major exponent of teacher-proof methods said, "If you use my program, 75% of everything you say will be exactly what I tell you to say!" Usually these programs are produced by a central group of program developers and then published or distributed for general use by interested school systems and parent groups. Since these programs assume that everthing can be taught by the careful control of the student response, many of them use behavior modification techniques.

The major advantage of the curricula in this quadrant is their ease of distribution to the general field of preschool education, as the performance of the child is keyed to the materials and not to the creative abilities of the teacher. This means that relatively untrained paraprofessionals as well as sophisticated and experienced professionals can effectively use these curricula with little difficulty. In addition, the teacher-proof characteristic appeals to angry parent groups who question the motives or commitment of teachers and who want full teacher accountability for the time their youngsters spend in school. These parents want their children to be taught to read and write and do arithmetic, and these programs do that job without any nonsense. Many school administrators also like these kinds of programs as they provide effective equipment and supplies in logical units.

Another advantage of Programmed curricula is the ease with which new components may be added as they become necessary or identified. For example, another innovator in the Programmed area was critized because of the failure of his methods to permit creative experiences for the children. He commented, "If you'll define what you mean by creativity, I'll develop a program to teach it." Then too, these curricla do not make a priori assumptions about the limitations of individual children. The challange for the teacher is to find out the present limits of the child's knowledge in the area of concern and begin an instructional program to bring him to a well defined point of competence.

In general, these curriucla have clearly defined educational objectives, present a carefully designed and extensive program sequence to move children toward those objectives, and give the teacher explicit instructions as to how to behave during these learning sequences. Teaching is accomplished through the application of scripted materials supplied by the program developers. Learning is seen as the acquisition of correct responses as determined by the materials; anything can be taught to almost any child if the educational goals and behavioral objectives can be specified. The principles which support these programs tend to be drawn from learning theory. Examples of this approach are Englemann-Bereiter direct instructional programs such as DISTAR, the Primary Education project of Glazer and Resnick, and language programs such as Carolyn Stern's Preschool Language project.

Open Framework. In this quadrant, representing *teacher initiates-child initiates*, are preschool programs which subscribe to specific theoretical goals but which depend upon the teacher to create the exact curriculum in which the child participates. These curricula tend to focus upon underlying processes of thinking or cognition and to emphasize that learning comes through direct experience and action by the child. They omit training in specific areas such as reading or arithmetic, treating these skills as inevitable outcomes of basic cognitive ability. These curricula accept the responsibility of developing the capacity of the child to reason and to recognize the realtionship of his own actions to what is happening about him; they tend to be skeptical of claims that solutions to problems or academic skills can be taught directly to preschoolers.

These curricula are usually based upon a theory of child development, the most popular of which is that of Piaget. Using this theory, a curriculum framework is structured so that the teacher has clear guidelines as to how the program should be organized. The curriculum theory delimits the range of preschool activities, giving criteria for judging which activities are appropriate. The framework generally includes directions for structuring the physical environment, arranging and sequencing equipment and materials and structuring the day. The theory also gives the teacher a framework for organizing her perspectives on the general development of children. It is this open framework that provides discipline to the program.

These curricula tend to be oriented toward organizing and utilizing the *people* involved rather than any special equipment. They demand that the teacher create a transaction between the child and his environment to develop his abilities. And they demand that the child learn by forming concepts through activity, not be repeating what he has been told. The curriuclum provides guidelines for establishing these conditions but does not require special materials or equipment.

One of the major advantages of the Open Framework curriucla is that while the teacher must adopt a theoretical position and work within its limits, the specific program she creates is uniquely hers, developed as an expression of her attempt to meet the needs of the children in her group. This personal involvement on the part of the teacher means she becomes deeply committed to her program, and it is highly probable that she will continue to implement her program over a long period of time. At the same time, since the curriculum is based upon a specific theory, her expression of that curriculum can be closely examined by others who know both the theory and children to provide the teacher with guidance and assistance, facilitating quality control of the program.

Another advantage of the Open Framework curricula is that since the programs focus on the development of basic cognitive processes rather than on social-emotional growth, and since the specific curriuclum is created by the teacher by carefully planned activities according to the developmental levels of individual children. they are relatively free of cultural bias and untested assumptions about children's abilities. Thus they can be used effectively with youngsters with varying abilities and from diverse ethnic and socio-economic backgrounds. The programs are also free of specific linguistic criteria and may be employed with non-English speaking children.

The learning process, structured by the teacher from the Open Framework, is usually paced by the child himself with adaptation of the activities by the teacher to match the child's needs and interests. In well run Open Framework classrooms teachers frequently report their surprise at the minimal discipline and management problems, which would seem to reflect the range of adaptations the framework allows.

In general, these curricula are organized to accomplish cognitive and language development based upon a theory of intellectual development. An open framework is provided for the teacher as a context within which she develops a specific program for the children in her classroom. Learning by the child is the product of his active involvement with the environment structured by the teacher. Examples of programs using this approach are Susan Gray's curriculum for the Demonstration and Research Center for Early Education; Merle Karnes' Ameliorative Preschool program; Herbert Springle's Learning to Learn program; and our own Cognitive Curriculum.

Child-Centered. In this quadrant, representing *child initiates-teacher responds*, are the bulk of the traditional preschool programs as found on college campuses and in national projects such as Head Start. These curricula tend to focus on the development of the "whole child," with emphasis on social and emotional growth. They are characterized by open and free environments with a generally permissive relationship between the teacher and the children and among the children themselves. Content revolves around things of interest or helpful to the child, such as community helpers, seasons, holidays, etc. There is a firm commitment to the idea that "play is the child's work" and recognition of the importance of the child's active involvement in his environment. Considerable attention is given to social adjustment and emotional growth through fantasy play, imitation of adult roles, rehearsal of peer relationships, and the careful development of the ability of the child to be independent of direct adult assistance.

If theory is involved in one of these programs, it is usually a theory of emotional development. The actual curriculum developed by the teacher comes mainly from her own intuitive understanding of child development on the one hand and her observation of the needs of her children on the other. In general, the hallmark of Child-Centered curricula is an open classroom with children free to express their individual interests and help create their own environment, and with a careful response by an experienced and intuitive teacher who has developed a sense of how to support this creative environment.

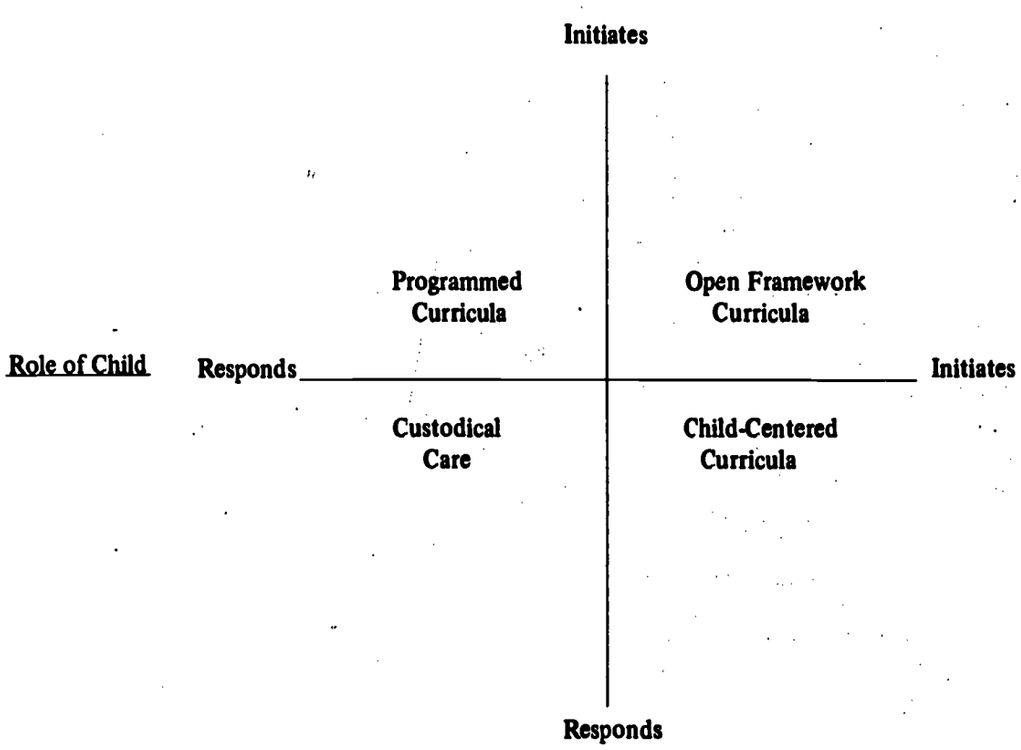
The major advantage of the Child-Centered curricula is the complete openness to the needs of individual children. The program may be in direct harmony with the goals of both the parents and the professionals, reflecting the specific concerns of all involved. In addition, Child-Centered curricula are highly reflective of the values given considerable prominence in society as a whole: independence, creativity, self-discipline, constructive peer relationships, etc. Also, since this is the dominant preschool program style, there is a vast reservoir of trained talent throughout the country, in colleges and universities, in organized national associations, and in the large number of programs currently utilizing these methods.

In general, these curricula attempt to assist the child in his overall development through careful attention to his individual needs. The teacher draws upon her knowledge of child development to create a supportive classroom where learning is the result of the child's interaction with the materials, his classmates, and his teacher. While there may be agreement on general goals in most Child-Centered programs, each teacher is individually responsible for the design of her work. Typical of programs using this approach are the traditional nursery schools, the Bank Street College programs, Ron Henderson's Tucson Early Education Model, Glen Nimnicht's Responsive Program, Robert Spaulding's Durham Education Improvement Project, and in spite of the odd "fit," the Montessori programs.

Custodial. In this quadrant, representing *teacher responds-child responds*, are programs which are of minimal value to children. At best these programs protect the child from physical harm and may be some improvement over extraordinarily bad social conditions. However, with the knowledge and resources available today, there is little excuse for maintaining custodial centers where teachers and children respond to nothing but physical needs, since nothing is initiated.

Figure 1

Preschool Curricula Models



	TYPICAL PROGRAMS
Programmed Curricula	Englemann-Bereiter's DISTAR Glazer and Resnick's Primary Education
Open Framework	Susan Gray's Demonstration and Research Center for Early Education Merle Karnes' Ameliorative Preschool Herbert Sprigle's Learning to Learn David Weikart's Cognitively Oriented Curriculum
Child-Centered	Bank Street College programs Ron Henderson's Tucson Early Education Model Glen Nimnicht's Responsive Program Robert Spaulding's Durham Education Improvement Project Montessori programs