A Follow-Up Study of the Kalamazoo Learning Village

Margarita Camacho

Western Michigan University

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A FOLLOW-UP STUDY OF THE
KALAMAZOO LEARNING VILLAGE

by

Margarita Camacho

A Project Report
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Specialist in Education Degree

Western Michigan University
Kalamazoo, Michigan
August 1975
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My expression of gratitude would be far from complete without recognition of my parents whose moral and financial support made it possible for me to pursue my studies in the United States.

Margarita Camacho
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CHAPTER I

INTRODUCTION

Some of the main goals for a society should be those which focus on making individuals more productive, increasing scientific knowledge, increasing human endowment and experience, and encouraging constructive social relations and humanistic intellectual achievement. The best way to accomplish these should be through education.

Education, then, could be the primary program for the prevention of the many problems that society now has and could be instrumental in lessening the necessity for the large number of remedial and therapeutic programs that surround the communities.

One of the solutions might be to change some of the educational methods used today, since most of the schools are being indicted for having failed in their traditional role of providing that equality of educational opportunity which makes for upward social mobility (Coleman, 1970). Although most children do learn something from school (Silbermann, 1970), the children in many schools seem to decrease in intelligence and achievement (Gray and Klaus, 1970). Truly educational events must take place in order for a child to learn.

The educational literature is replete with evidence that there exist substantial differences between so-called lower-class and middle-class children (Hyman and Kliman, 1967; Man and Elliot, 1968; Oxer, 1965). It is reported that the former enter school much below the level attained by the latter, on the average, and the schooling
seems to increase these differences. Consequently, disadvantaged children drop out of school in large numbers, failing to develop vocational competence or achieve academic excellence.

In the late 1950's and 1960's the social conscience of Americans was awakened to the fact that many citizens were not receiving an education which would equip them to cope in a full and useful manner with the complexities of the American society. At first on the local level and then as part of a nation-wide concern for the rights and opportunities of minority groups, a massive social effort was promoted to correct this condition. There arose a multitude of social action programs which have been labeled "Compensatory Education." The goal of these programs was to alleviate some of the personal learning experiences of these disadvantaged groups by modifying the behavior of the individual so that he could better survive in the educational system or by altering the system so that it would be more helpful to students having special difficulties.

Much research suggested that pre-school compensatory education might be an important step in disrupting the cycle of educational and economic poverty experienced by large numbers of Americans. Combining with powerful social and political factors, this notion led to the authorization of Project Head Start in 1965, a preventive and compensatory program for academic, intellectual and social deficits usually found among children from low socio-economic groups.

One of the bases for the interest in preschool intervention programming is that early childhood seems to be the most promising time for effecting desired improvement in intellectual development patterns.
Bloom (1964) pointed out in his summary of the research on child development that before four years of age is the time of greatest intellectual growth and is, therefore, the optimal time. He concluded that in the case of characteristics such as intelligence and school achievement, environment is a more reliable predictor of performance than are initial tests, test measurements and observations. He further stated that such characteristics are most readily altered during the period of most rapid change, indicating that acceleration of development may be achieved much more easily during the preschool years than at any later time.

Working with animals, Scott (1962) developed the concept "critical period." He observed the effect of various kinds of deprivation such as isolation on rats and puppies and concluded that timing was a crucial factor in early environmental conditions. He hypothesized that various kinds of experiences have an effect when they occur at one period in time but not at another. Krench (1960), Rosenzweig (1964), Bennet (1964) and others in carefully controlled studies with laboratory rats, have successfully identified and measured physiological changes in the brain which relate directly to early experiences. Hebb's experiments, demonstrated that cage-reared rats were significantly inferior in problem-solving ability to rats that had enjoyed more stimulating environments (Hunt, 1961). With respect to experience, Hunt (1961) has argued convincingly that intelligence must be viewed principally as a function of the interaction of the individual with his environment. Controlled studies of deliberate deprivation of experiences have been limited to animals. Replication of these
studies with high-order species reveal even more striking differences, leading to the inference that children would be drastically affected.

Pasamanick and Knowblock (1961) have documented the impact of deprivation most vividly in their study of infant development. They employed samples of black and white infants selected for equal birth weights and absence of defects of premature birth. They concluded that "It appears to be life experiences and the socio-cultural milieu influencing biological and physiological function that in the absence of organic brain damage make human beings significantly different behaviorally from each other."

Various studies indicate that even among severely deprived young children the distribution of intelligence scores does not differ drastically from norms (Beller, 1966). But if these three and four year old children remain in deprived environments, their later IQ scores will be significantly depressed, according to Hunt's interpretation of older studies (Hunt, 1961), and more recent evidence (Gordon, 1965; Karp and Sigel, 1965). The work of Deutsch and his associates (Deutsch and Brown, 1964; Deutsch, 1964) lends support to the conclusion of Hunt and Gordon, also indicating the cumulative nature of IQ deficit and leading to the inference that environment determines intelligence level to a large extent.

In an early study Engelmann (1968) showed the contribution that could be made to the intellectual development of disadvantaged children four and five year olds. He raised the IQs of twelve disadvantaged youngsters an average of 24 points with two years of direct
instruction in reading, arithmetic and language. Control children placed in a child-development-oriented preschool for two hours a day gained an average of five points in two years.

Two environmental deficiencies—language facility and experiential background—apparently account for the lower measured "intelligence" of disadvantaged children. The language handicaps, important in themselves since they interfere with communication and learning, also depress measured intelligence when highly verbal instruments are employed. But disadvantaged children also do more poorly than middle-class children on less verbally bound tests (Gordon, 1965; Karp and Sigel, 1965). Whiteman (1964), in discussing the similar findings of Deutsch and his associates, has pointed out that the middle-class parent "teaches" the child to use language to comprehend experience which is not intrinsically verbal.

John (1965) has pointed out that investigations thus far demonstrate that improvement in language skills is most readily apparent as a result of preschool programs. Studies by Gray and Klaus (Bloom et al., 1965, pp. 116-17) and Weaver, (Bloom et al., 1965, pp. 172-73) revealed that young educationally deprived black children given special summer experiences and a home-contact service for a year significantly out-performed a control group on measures of intelligence and language skills.

Brazziel and Terrel (Bloom et al., 1965, pp. 88-89) significantly influenced performance on a reading readiness test through a program of parent meetings, educational television and special language
activities. Bereiter (1966) reported very significant gains on several language dimensions for disadvantaged children undergoing an intensive sequence of experiences in language and cognitive skills.

Weikart, et al., (1964) described the early stages of a study of control and experimental groups of three and four year old disadvantaged black children. The subjects had been intensively studied at various points from the ages of three and four years old. Results rather consistently favored the groups given the preschool experience. Wilkerson (1965) cautioned, however, that the initial surge of gain in IQ performance after the first year of nursery school was not maintained; that is, the gap between experimental and control groups narrowed the next year.

While these studies would seem to point to an unusual potential for success in preschool education, the research in the field is equivocal. Reviews of the research literature by Fuller (1960), Sears and Dowley (1963) and Seift (1964) indicate that for middle-class children, on the whole, there are few, if any, differences between groups attending and not attending preschool programs. Robinson (1966) and Fowler (1966) also support these suggestions.

Information on preschool research projects has been summarized by Britain (1966), Gordon and Wilkerson (1966) and Weikart (1966). Data from the Perry Preschool Project in Ypsilanti, Michigan, as representative of the current studies, indicate that preschool experiences for groups of children from disadvantaged homes (in a small urban northern community) will not greatly change the measured
intellectual level but may provide the foundation necessary to produce improved academic achievement. With preschool experience, the child from a limited environment may be able to better utilize the general intellectual ability he has in a school setting. These findings are based upon a three-year follow-up of children who received a one-year structured curriculum preschool experience (Schwertfeger and Weikart, 1967; Weikart, 1967).

The American Institute for Research in Behavioral Science (1968-1969), under contract to the U.S. Office of Education, reviewed compensatory education projects across the country. Data from the preschool program in Fresno, California (Forrester, 1965), the Language Stimulation Program in Auburn, Alabama (Carter, 1965) and the Diagnostically Based Curriculum in Bloomington, Indiana (Spiker, 1967), indicate that after the end of treatment, the program children had maintained their language and general achievement superiority over the control children. Many other research studies support these optimistic results, Downes (1968), Schaefer (1966) and Karnes (1965).

Another follow-up study by the Westinghouse Learning Corporation (1969) evaluating the effects of Head Start on children's cognitive and affective development concludes that Head Start children, whether from summer or full-year programs, still appear to be in a disadvantaged position with respect to national norms for the standardized tests of language development and scholastic achievement. Similarly, gains made in the successful Head Start programs are often lost after the child spends some time in a public school. Although no one doubts
the value of the ultimate goals of the project, simply exposing the students to learning experiences did not insure long-term educational success. In order for a child to learn, precise and systematic educational events must take place. The authors of the Westinghouse Report noted limitations in the study. Two limitations were significant: 1) The data did not allow for the range of quality difference among the various Head Start centers; 2) the entire study was post-hoc measurements obtained after the children had been out of Head Start for one to three years (Payne, Mercer, Payne and Davison, 1973, p. 57).

The effectiveness of Head Start is commonly determined by applying an intervention technique of statistically measuring the differences between pre- and post-standardized tests or by applying behavioral management techniques to individual Head Start subjects and charting rates of modified behaviors. The intervention procedure was extensively reviewed and the general conclusions were: 1) Head Start children initially show significant differences on pre- and post-standardized tests; and 2) non-Head Start children appear to catch up with Head Start children shortly after attending public school.

Smith (1969) observed that Head Start failed because "those who administer the program know little about children" (p. 11). He claimed that there is not enough freedom in the centers, that more exploration of the world about the children is needed. He suggested that classes should be held in neighborhood buildings, encouraging those who work with the children to explore ways to give them positive feelings about life and about themselves.
The most pressing problem facing preschool education as part of the total compensatory education effort is to understand the conditions necessary for the operation of effective preschool education programs.

Current programs in compensatory education are handicapped by the vagueness with which each of their objectives is specified. This becomes increasingly true the younger the target population. With younger children few skills can be taught and some educators are violently opposed to teaching any cognitive skills, such as reading or its predecessor, reading readiness to preschool children. All can agree on the objective of establishing a program which will make it easier for children to adjust successfully to regular school settings or to achieve within the conventional classroom scholastic performance consistently higher than is now obtained.

When evaluation of the academic gains of children in Head Start programs showed that children who were given direct instruction usually made the largest gains but were lost within a year or two, a Follow Through program was initiated in 1967 as an experimental program to explore possible ways of continuing the gains until the children were assured of success. In 1973-74 Follow Through reached 84,000 children from kindergarten through third grade in 155 communities. Many models for teaching disadvantaged children are currently being implemented and evaluated by the Office of Education through various sponsoring universities and research institutions.

Preliminary results from the National Evaluation of Follow Through show strong positive results after kindergarten for two behavioral
models (University of Oregon and University of Kansas) and one cognitively-oriented model (High/Scope Foundation).\(^1\)

In summarizing the comparisons of the various preschool programs, success seemed to be found upon careful planning, including a statement of objectives, teacher training, frequent reviews of the program, small groups, a high degree of individualization and instruction and materials closely relevant to the objectives.\(^2\)

The purpose of this study is to assess the effects of the program at the Kalamazoo Learning Village and follow up the children who attended it for any length of time, at any period of time and who are old enough to be in attendance in regular public schools.

The Learning Village grew out of efforts by the Behavior Development Corporation in Kalamazoo, Michigan to make available to the disadvantaged population an early preventive education and to make university training and experience more relevant to cultural concerns (Ulrich, 1970). The center was set up with the intentions of applying behavioral methodology to all aspects of education (Ulrich, Wolfe and Surrat, 1969; Ulrich, Wolfe and Cole, 1970).

The Learning Village also committed to the belief that experience

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with people of various cultural backgrounds is essential to the true education of any child. The children and staff of the Learning Village, therefore, come from a wide range of economic and cultural backgrounds. Many of the students might be described as academically disadvantaged because of the lack of language and conceptual skills usually considered essential to success in school.

A few years ago data from standardized tests were presented in terms of the academic program at the Learning Village with remarkable results in the area of reading (Ulrich, Louisell and Wolfe, 1969; Alessi, Hren, Mueller, Spates, Ulrich and Ulrich, 1974). Children who entered the Learning Village with academic deficits soon caught up to children with good academic backgrounds.

The educational program began in the infant nursery with children as young as two months of age. Here teaching was on a one-to-one basis. While younger infants were being taught basic skills such as social and verbal imitation, visual searching and object manipulation, more advanced infants were learning complex object-function identifications, abstract verbal concepts and descriptive verbal elaboration.

The nursery program enrolled children between the ages of two and one-half and five years. Here the children learned the logical relationship among words, the conceptual organization of knowledge and cooperative social skills. A major emphasis of this program was on the acquisition of vocabulary and correct word usage. Before leaving the program, the children should have mastered the basic decoding skills associated with the phonetic system of reading instruction. Youngsters worked in groups of five.
In the elementary school, children worked in larger groups depending on the subject being taught and the student's level of mastery. Much of the instruction was programmed allowing students to progress at independent rates. The content, while designed for the type of Learning Village education desired, covered most of the subject matter taught in the public schools.

In the area of reading, program material used were Distar (Engelmann and Bruner, 1969) and the SRA Reading Laboratory (Parker et al., 1959). The math curriculum was based on Distar (Engelmann and Carnine, 1969) and the Sets and Numbers math series by Suppes and Suppes (1962). In the area of language, again Distar (Engelmann, Osborne and Engelmann, 1969), was used in addition to English for Meaning (McKee and Harrison, 1968) and Handwriting with Write and See (Skinner and Krakower, 1968). Science instruction was based on the Scott-Foresman science series (Marshall and Beauchamp, 1968; Marshall, Challand and Beauchamp, 1968; Blough, Marshall, Bailey and Beauchamp, 1968b, 1968c, 1968a).

In the Kalamazoo Public School System the program materials used for reading were the Scott-Foreman Basic Reading Series, and for math Exploring Elementary Math (Holt, Rinehart and Winston).

The basic methodology employed at the Learning Village involved arranging functional events within the environment, including the behavior of the staff, in such a way that the occurrence of desired behaviors increased and the occurrence of undesired behaviors decreased.

Once behavioral goals had been defined, Village staff turned their attention to antecedent events. These included all stimulus
materials or activities that increased the probability of a student making the appropriate response on the first trial in a new task situation. For the infant learning to label objects, antecedent events might include attending while a teacher pointed to various objects and stated the proper value cue. For the elementary student mastering arithmetic computations, these events might include statements of rules to follow in solving such problems and demonstration of actual applications by the teacher.

After the student responded appropriately under such prompting conditions, the teacher would gradually fade or withdraw the number and quality of such prompts until the student's responding was under the exclusive control of cues inherent in the task situation itself.

At the same time that antecedent events were being introduced to prompt responses, consequent events were manipulated so that the student received immediate feedback as to the appropriateness of his response.

Children enrolled in the Learning Village were required to attend daily from 9 a.m. to 3 p.m. on a year-round basis. However, data showing clock hours of instruction in the programs or even the percent of daily attendance is not available. Nevertheless, a daily record-keeping procedure was developed by using tokens. This system automatically provided a daily record of how many tokens were received, who dispensed the tokens, the category of behavior that was reinforced and the approximate time of day reinforcement occurred (Alessi, 1970). If a child had earned or saved few tokens, or if he had lost
an exceptional amount, the system assured that the teacher was alerted. Charts were made in order to demonstrate the rate of progress of a student who completed one lesson unit every day. Units were defined in terms of lessons in a programmed sequence, pages in a textbook or lessons in a textbook. The diagonal lines represented an ideal, or, in some cases, a more than ideal rate of progress. For each lesson unit completed, the child's line was drawn up a notch. Each dot to the left of a step represented an error in whatever active behavior was required. Gaps in the line represented absences. The charts were simply a convenient way of providing at a glance a record of a child's recent progress on given curriculum material.

Evaluative instruments used were the Wide Range Achievement Test (WRAT, Jastak, 1965), the Metropolitan Reading Readiness Test and the Weschler Preschool and Primary Scale of Intelligence (Wechsler, 1967) among others. On these instruments Learning Village children scored well beyond the norms, and slightly higher than children who had experienced, in general, a more enriched academic home life and traditional preschool program.

Standardized tests are not always accurate indicators of the children's achievement. First, they do not directly sample the child's academic behavior. Second, in the Learning Village case it is not clear what variables changed the children's behavior during the learning experience. Poor reading performance may be due to anything from motor restlessness to failure to grasp concepts. Relatively high reading performance may be due to a very high rate of both correct and incorrect
responses or to a moderately high rate of correct responses. Therefore, some form of direct observation of the child's behavior must be made to obtain an accurate picture of his work, but, in this particular situation, that type of information was missing.

As it is true from the Learning Village, the data from the public school system are lacking in these areas: 1) criterion referenced test data related to the specific instructional program packages the children were exposed to; 2) the actual daily clock hours of instruction the students were subjected to in reading and math; and 3) any measures of teacher behaviors critical to implementing the preacademic programs.

According to these premises, an academic achievement comparison between the Learning Village group (Experimental Group) and a Control Group will be attempted based on the Metropolitan Reading Readiness Test and the Metropolitan Achievement Test (MAT) scores, to determine whether there is any difference in performance between the two groups, and whether there are any significant academic gains made between the first and second administrations of the test within the two groups.

Since 80% of the Learning Village population is disadvantaged, (mostly black children of low socio-economic backgrounds coming from non-academic home environments) exposure to an accelerated academic program such as that of the Learning Village was expected to prepare the children to make average educational progress. In other words, it was intended to demonstrate that "low achievement" could be substantially prevented by early development of the skills that are
essential to success in school. Therefore, gains in academic performance and a reduced percentage of slow-learners will be expected from children who have attended the Learning Village.
CHAPTER II

METHOD

Subjects

Subjects were selected in the following fashion:

A) Learning Village Group

The files of all children who attended the Village for any length of time, at any period of time, were investigated to see how many were old enough to be in attendance in public schools. These children were then categorized according to length of attendance at the Village in the following manner:

1) 0 - 12 months
   a) 0 - 4 months
   b) 4 - 8 months
   c) 8 - 12 months

2) 12 - 24 months

3) 24 - 36 months

4) 36 - 48 months

As it is indicated in this list, children were categorized on a yearly basis of attendance duration, with children who attended only up to one year being subdivided into smaller four-month intervals. The reason for this subdivision was to allow for the possibility that many children in the 0 - 12 months group may have only been in attendance at the Village for a few days and, thus, had not really been exposed to the program.
If this body of short-term people was very large, their weight might bias the means for their group in an upward or downward direction, off-setting any true effects of the Village experience for the remaining students. Subdividing this group allowed for assessment of this possibility.

All groups and subgroups were then subdivided according to sex.

Once this had been done, the files of the Kalamazoo Public School were selected in order to find the Metropolitan Reading Readiness and Metropolitan Achievement Test scores of the already identified experimental group.

Collection of the data was limited by the fact that there was a high irregularity of available information on the children that had taken the tests, e.g., most of the youngsters whose scores were in the kindergarten records were not found during the following three years; children with pre-test data in the first grade did not have post-test data in the same year, nor in the subsequent grades.

B) Randomly selected control group

After data had been collected for all Learning Village children, corresponding data were then gathered for randomly selected control children of the same sex, race, public school district, classroom and administration of the test across the selected grades.

An attempt to select a sample from other preschool programs was made, but only three students' scores out of fifteen children were found. Therefore, such an attempt was disregarded.
Procedure

A sample of 51 Learning Village children out of 98 was found in the files of the Kalamazoo Public Schools.

Data from the Metropolitan Reading Readiness Test for kindergarten and the Metropolitan Achievement Test for first to third grade children were gathered. The former is a standardized test for knowledge of word meaning, numbers and the alphabet, listening, matching and copying skills. The latter is designed to evaluate reading and mathematical skills taught in the schools.

The scores of the children who were able to take the second administration of the Metropolitan Achievement Test at the end of the year were also collected.

Total reading standard scores for kindergarten, first, second and third grades were taken, as well as total mathematics standard scores for first, second and third grades during both administrations.

Efforts to follow up each child through all the grades were made.

Experimental and Control groups were matched according to the variables mentioned above; that is, if a Learning Village child was found in kindergarten, first grade-second administration and third grade-first administration, a randomly selected control child (same race, sex, public school district, classroom and administration) would be picked up. Whenever a child could not be matched according to both sex and race, the latter would have priority over sex. In other words, if one of the Learning Village children was a black boy and there were only white boys in that particular classroom, a black
girl would be selected instead. This criteria of selection was done with the purpose of matching the two groups as closely as possible based on the same type of cultural background.

A correlated sample \( t \)-test was finally applied to only the data taken from those children who were in both administrations to determine whether or not there were significant pre- and post-test gains in reading and mathematics. The same variables controlled for in the initial total sample were used in this case.

Data were plotted and graphed, and the results were analyzed and discussed.
CHAPTER III

RESULTS

Table I on page 22 shows the percent of the Learning Village children on which data were found in the Kalamazoo Public School files according to the grade and administration of the test. As it is indicated, there was not any consistency in the sample size, nor in the actual children who took the various administrations of the test through the years. For this reason, when interpreting the following results, it is important to take into consideration the just mentioned restrictions.

Table II on page 23 shows the average standard scores for the initial sample, first and second MAT administration (I.a) of the upper level children (first, second and third grades), and the average standard scores on reading readiness for kindergarten children (I.b). Subdivisions are by sex, race, grade level, reading (I.a and b) and math (I.a). The scores represent the 1972 and 1973 school year.

Some trends are apparent: the average kindergarten reading scores show no significant differences between the two groups (experimental = 60.95, control group = 61.75). The kindergarten experimental group indicates a slight increase in reading over the control group for females and black children, but males and white children from the control group scored higher than the experimental group. (See Fig. 1, p. 25.)

No significant differences were manifested during the first administration for any subdivision. The experimental and the control
Table I

Percent of the Learning Village Children on which Data was found in the Kalamazoo Public Schools

<table>
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<th>1.1*</th>
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<td>6</td>
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*Numbers before period indicate the grade; numbers after the period indicate administration of the test.

Note: For more specific information regarding this data see the Appendix, p. 61.
Table II
Average S.S. for the First and Second MAT Administrations (I.a) of the Upper Level (First, Second and Third Grade) Children, and the Average S.S. on Reading Readiness for Kindergarten Children (I.b) with their Respective Subdivisions. (N=102)

<table>
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<th>Group</th>
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*Numbers in parenthesis equal sample size.
Figure 1

Kindergarten Standard Score Means for the Experimental and Control Groups
Fig. 1. Kindergarten standard mean scores for total reading for learning village (V) and control (C) groups.
females scored higher than males in both the initial sample and the one based only on those children who took both administrations of the test. (See Figs. 2 and 3, pp. 28 and 30.) Of interest are the data on race. Learning Village blacks manifested a smaller difference from the whites of either groups than did non-Village blacks. It should be added that 23 blacks out of 32 were referred by Social Services, which means that they came from so-called disadvantaged home and lower socioeconomic backgrounds.

In general, however, the white population showed a higher performance than the black in both reading and math. (See Figs. 4 and 5, pp. 32 and 34.)

Tables III and IV on pages 35 and 36 represent an attempt to assess gains from one administration to the other. Preschool experience might predispose children to learn faster or slower by effecting of some motivational variable, and it was felt to be necessary to ascertain this. The population of these tables consist of children selected from the total population referred to earlier, on the basis of having taken both administrations. This procedure avoids natural confoundings due to some selection factors.

The Learning Village girls did not report a significant gain between first and second administrations, t(11) = .08704 (Tot. Rdg.) p < .05 and 1.725 (Tot. Math), p < .05; yet, the control group girls did report a significant gain in math; t(9) = 3.229, p > .05. Similar results were found in the white population. For the black population of the experimental group, no gains were found for reading t(19) = 1.477, p < .05, as opposed to math t(19) = 2.637, p > .05 in which the
Figure 2

Total Reading Scores Based on Sex
Fig. 2. Mean standard scores for total reading for both groups based on sex as a function of administration for the initial total sample (a & b) and only those children who took both administrations (c & d).

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Figure 3

Total Mathematics Scores Based on Sex
Fig. 3. Mean standard scores for total mathematics for both groups based on sex as a function of administration for the initial total sample (a & b) and only those children who took both administrations (c & d).
Figure 4

Total Reading Scores Based on Race
Fig. 4. Mean standard scores for total reading for both groups based on race as a function of administration for the initial total sample (a & b) and only those children who took both administrations (c & d).
Figure 5

Total Mathematics Scores Based on Race
Fig. 5. Mean standard scores for total mathematics for both groups based on race as a function of administration for the initial total sample (a & b) and only those children who took both administrations (c & d).
Table III

Average S.S. for Children Who Took Both MAT Administrations of the Upper Level (1st, 2nd and 3rd Grade) Groups, with the Respective Subdivisions. (N=55).

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* (Numbers in parenthesis equals sample size)
Table IV

Significant Gains from the T-Test Results When Comparisons Between First and Second Administration Were Made for both Total Reading and Total Mathematics

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<th>SSRD₂</th>
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<th>Decisions against Ho (Math.)</th>
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differences were significant. In the second grade population, no significant gains were found for the control group in math, $t(5) = 2.96$, $p < .05$, whereas, the experimental group made significant gains in both reading, $t(4) = 3.262$, $p > .05$ and math, $t(4) = 5.186$, $p > .05$. The results for the third grade indicate no significant gains within the experimental group: $t(7) = -.8382$, $p < .05$ (Tot. Rdg.) and $t(8) = 1.968$, $p < .05$ (Tot. Math). However, significant gains were found in math for the control group, $t(8) = 2.891$, $p > .05$.

Cumulative gains in academic performance through the years is indicated for both groups. Although the experimental group did not maintain their reading gain during the second administration of the third grade, it reflected a more consistent pattern of gains through the years than did the control group. (See Figs. 6 and 7, pp. 39 and 41.)

Figure 8 on page 43 shows the maximum length of attendance at the Learning Village and its relation to obtained test performance. During the period of four to eight months of attendance an evident gain is seen with an abrupt drop immediately after that period. Following that performance increases with attendance length.

Based on race and sex, the sample size for each category was as it is shown in Table V on page 44.

Overall, the initial data indicated that the highest performance of the experimental children over the control group was during the first administration of the test. However, during the second administration the scores were lower than the control group. Progress in performance for those children who had attended the Learning Village for a longer
Figure 6

Total Reading Scores Based on Grade Levels
Fig. 6. Mean standard scores for reading as a function of administration for both groups based on grade level. A, B, and C represent scores based on the initial total sample, while D, E, and F represent means based on only those children who took both administrations.
Figure 7

Total Mathematics Scores Based on Grade Levels
Fig. 7. Mean standard scores for total mathematics as a function of administration for both groups based on grade level. A, B, and C represent means from the total initial sample, while D, E, and F depict scores based on only those children who took both administrations.
Figure 8

Experimental Group Scores Based on Maximum Length of Attendance
Fig. 8. Mean standard scores as a function of learning village attendance for total reading (a & b) and total mathematics (c & d).
Table V

Learning Village Sample Size
for each attendance category
Based on Sex and Race

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<td>0 - 4 mos.</td>
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<td>4 - 8 mos.</td>
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<td>8 - 12 mos.</td>
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<td>12 - 24 mos.</td>
<td>11</td>
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<td>24 - 36 mos.</td>
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<tr>
<td>36 - 48 mos.</td>
<td>6</td>
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period of time was indicated, with an abrupt increase in academic performance for the children who had been there from four to eight months.

A consistent cumulative gain in math through the years was indicated by the experimental children, whereas in reading the gain was lost in the second administration of the third grade.
CHAPTER IV

DISCUSSION

The literature indicates that a preschool education program teaches children certain skills which can currently be of use in a learning situation and can prepare them to succeed in public school. Yet when the academic performance of the children who have attended the Learning Village is compared with a typical population of public school children, the data do not support significant differences between the experimental and the control groups. However, some significant gains for both groups were found when comparisons were made between first and second administrations of the test.

An analysis of the children's performances based on the initial total sample (N = 102) demonstrates that during the first part of the school year, girls and black children from the Learning Village performed higher than the respective control groups. The average performance from first to third grade remains higher for the experimental group during the first administration. When tested the second time, the control group generally scored above the experimental group. It is not clear, however, why the data seemed to indicate that the Learning Village children consistently do better when tested at one time of the year and the control group children seem to consistently do better when tested at another part of the year. These findings may lead one to think that children who are accustomed to receiving more individualized instruction and attention, and who have worked in small groups

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with very well defined academic objectives may have a hard time adjusting to a more structured but less individualized system as it is in the public schools, thus impeding an increase in their academic achievement at the same rate at which they started.

As Engelmann (1966) expressed, "a change in the activity of the environment results not only in a change in what the child learns, but also in his capacity to learn," (p. 31). It is possible that the change from a very active environment such as the Learning Village to a less active one forced a decrease in the children's capacity to learn.

Deutsch (1964) has also expressed concern that special adjustments in the educational offerings for disadvantaged children ought to be extended for several grade levels beyond kindergarten until at least the basic skills are well established. In the case of this study, the experimental group does not maintain its gains during the third grade indicating a decrease in the reading scores.

A contributing factor to some of the incongruities in the results are due to various difficulties in the procedure of selecting and measuring the sample. It was not possible to follow through any subject for all four years that the study was based on. (See Table V, p. 44). Also, the evaluation does not offer data on all the children who started the program because the scores were taken only from the Kalamazoo Public System, leaving aside other school systems such as Portage, Richland and others that the Learning Village children attended. Therefore, the sample may not be very representative of the population that attended the Learning Village. A number of variables are related to these facts: some students who did not attend school the day the test was
given, some dropped out; some families moved from the school district, some children transferred from kindergarten to parochial schools, and some last names were changed when mothers remarried leading to loss of the youngster's correct identification. It was also impossible to get information about the socio-economic background of the control group because the school system does not record such data.

As in any applied project research, there are many variables that are beyond the control of the experimenter which, in this case, did not facilitate collection of complete information and accurate data.

Due to these limitations, another sample was selected from the initial one in which only those subjects who had taken both MAT administrations were chosen. In that way, gain effects could be measured. The experimental and the control males indicated significant gains, but only females from the control group showed similar results. The final outcome is a significant gain for the experimental group's first and second grade children in reading and math, and for the control group's first and third graders in the same subject areas.

Accelerated academic behaviors of the students at the Learning Village were reported by Ulrich, Louisell and Wolfe (1969) and Ulrich, Alessi and Wolfe (1971).

Results of both the Boehms Test of Basic Concepts, only three of fourteen children in both the kindergarten and first grade norm groupings scored below the 90th percentile. The lowest scores fell at the 60th percentile, or still above the mean for the standardized population. Of the eleven children who scored better than 90 percent, five were from lower socio-economic backgrounds as determined by place of
old who said, "They have done wonders for her. She eats with a spoon like an expert. They have taken a special interest in the children and they learn very fast." In general, the mothers felt the Village program had developed both academic and social skills in their children to a degree unanticipated by themselves or their friends.

From the data collected thus far, it seemed that the Learning Village approach to education was meeting with great success. The Learning Village had no selection requirements, yet it was generating student achievement which approximate a "J"-shaped distribution.

One of the current findings in the results shows a cumulative gain from the Learning Village students through the years, whereas the control group indicates a higher but less consistent growth: they drop the gained scores at the beginning of the year and recuperated the loss during the end of the same year. (See Figs. 6 and 7, pp. 39 and 41.) In reading, however, the experimental group does not maintain its gain during the second administration of the test in the third grade.

The large score differences between first graders against second and third graders were analyzed in order to establish whether it was due to inflating factors of the size sample (first graders = 19, second graders = 6 and third graders = 8). Only subject #88 was found with data in both first and third grades and with similar average scores. This suggests that variables other than the size of the sample, which have been already mentioned, determined such an abrupt gain.

The heightened performance found for the children who attended the Learning Village for a period of four to eight months might be due to the fact that they were there during the end of 1969 and through
residence.

From the data collected on the Gates-MacGinities Reading Tests for all the elementary school children, the first grade children scored higher on the tests than their current working level within the curriculum. Most of these children scored well above the norm, while none scored below grade level.¹

In addition to the test results, data on parental opinion of program effects on the children were obtained by use of a comprehensive structured interview with each mother (Alessi, 1971). To the last question on the instrument, "In general how satisfied are you that (name) is in the Learning Village?" mothers responded favorably. Some 59% of the responding mothers answered "very satisfied," another 40% answered "satisfied" and 1% answered "not satisfied." The last response category represented a single mother who had two children in the program. While she was quite satisfied with the program for one of the children, she had doubts about the effects upon her other child.

To the second part of this question, "Why do you say that?" comments were highly favorable ranging from "(name) will be more sound—develop human relationships more at the Village, and get straight answers," from the mother of a nine year old. The mother of an 18-month

the 1970 school year, a period in which the accelerated academic programs were in progress. The youngsters were exposed to a very active and stimulating environment.

However, any of the cited explanations will be almost impossible to confirm. Consequently, they will lead one to fall into speculations and empirical questions that may or may not be possible, because throughout the study there have been several selection factors difficult to control.

The Metropolitan Achievement Test itself brings another difficulty into the interpretation of the results. Analysis of the Metropolitan Reading subtest shows that the vocabulary in the Elementary Form (used in the third grade) extends far beyond the experiences of disadvantaged children even in an intensive program (Becker, Engelmann and Thomas, 1975, p. 207).

According to the authors, it would take another two years of language concept instruction to make the average disadvantaged child equivalent to the average advantaged child in language comprehension skills by the end of third grade.

To conclude that a Learning Village type program may or may not have made some differences in the future academic achievement of the children is pretty risky, because all the data collected so far have been based on individual distinctions or psychometric models without stressing enough whether the program characteristics and teacher behaviors may have led to the gains.

Whenever it is intended to evaluate the effectiveness of a preschool program, this question should be asked: "Can the desired
behavior changes best be effected by a discrete preschool intervention followed continuously by the same high quality of instructional techniques and materials?" This is an empirical question difficult to answer. To do so a reversal design would be required, but there are some behaviors in children that once learned cannot be reversed, e.g., reading, etc. However, school and work habits, attention span and so on can be changed by modifying the environment.

It is said that an effective preschool program can make differences in the academic behavior of the children whatever the background they come from. However, a child's capacity to learn follows the activity of the environment. In that case, one might ask the reason for exposing a child to a preschool program since when he encounters the traditional school system, his capacity to learn will decrease as he adapts to the new environment.

Although this paper means to evaluate and judge a preschool program, the loss of gains demonstrated by the children in this and other preschool programs may be due to the inability of the public school system to provide effective education for the total school population. It is necessary to examine teaching methods more carefully in order to determine why children fail. With systematic instruction, starting where the child is, building step-by-step learning tasks and using good motivational procedures, the relationship of early experiences to gains from instruction will become less critical. Who can be taught what is best determined by teaching with the best methods available.

One of the basic problems with follow-up studies of preschool programs is that no evidence is provided that obtained achievement test
gains are, in fact, related to specific school instruction rather than to instruction at home, maturation or instruction in related programs. In the particular case of the Learning Village children, there were no data indicating that they had gone through the program and/or were exposed to the academic curriculum. Because this information was missing, there was no way to demonstrate that the sample on which this study was based benefited from the program.

Any further attempt to evaluate the effectiveness of the Learning Village program or any related preschool-achievement relationship study should first specify the following points (Becker, 1975):

1) The instructional program or description of the academic curriculum,
2) The test of program effects,
3) The teaching of behaviors critical to program use and their utilization (teacher-student interaction),
4) The clock hours of instruction (or some measure of the amount of instruction).

To close this study it might be relevant to add that achievement arises from improving the methods of instruction of children. Therefore, there is an urgent need for the careful experimental study of the instructional process to determine which teacher performance and program variables best maximize academic achievement of the youngsters regardless of the type of home environment in which they might find themselves.
REFERENCES


Britain, C. V., "Some early findings of research on preschool programs for culturally deprived children." *Children* (1966), 13, 4, pp. 130-134.


Data Found on Learning Village Children in Public School Files from Kindergarten to Third Grade in Either One or Both Administrations

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"X" indicates that information pertaining to that subject was found in the public school files.