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In a study of the effects of mixing children of different backgrounds, 18 disadvantaged Mexican-American children were integrated into classes with 36 advantaged Anglo peers to see if the intellectual performance of the Mexican-Americans would be favorably affected. Comparisons were also made between 18 children of the same ethnic group who were in Head Start and another group of 18 children who were not in a preschool program. All children were pretested and posttested on the Wechsler Pre-Primary Scale of Intelligence. As expected, children in the experimental integrated group made greater gains than children either in no program or in Head Start; however, Head Start subjects did not make greater gains than the children in no preschool program. On the basis of this study, it seems possible that improved intellectual performance would be maintained if children were active for a longer period of time in an environment supportive of newly acquired skills. Too often "tracking" or "ability grouping" results in effect, in a segregated school environment. Further investigation is needed to obtain more specific data on the role of imitation in classroom settings. (MS)

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POSTIIVE EFFECTS OF A BICULTURAL PRESCHOOL PROGRAM ON THE INTELLECTUAL PERFORMANCE OF MEXICAN-AMERICAN CHILDREN

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POSITIVE EFFECTS OF A BICULTURAL PRESCHOOL PROGRAM ON THE INTELLECTUAL PERFORMANCE OF MEXICAN-AMERICAN CHILDREN[1]

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The purpose of the investigation reported in this paper was to test the assumption that the intellectual performance of disadvantaged Mexican-American children may be favorably affected by integrating them into classes with Anglo peers from more advantaged backgrounds.

It is well known that disadvantaged children are often segregated from middle-class children as a result of various grouping practices in the schools. These practices have been criticized by educators who emphasize the instructional advantages of heterogeneous grouping (Arizona Center for Early Childhood Education, 1969; Pearl, 1967). Some findings of the Coleman Report (1966) bear upon this argument. Coleman's study revealed that school characteristics, such as facilities, curriculum, and quality of teachers, have more impact upon the achievement of pupils from ethnic and racial minorities than they have upon the achievement of pupils from the dominant white segment of American society. A point of equal interest is the related finding that, for the pupil from a racial or ethnic minority, achievement seems to be related to the aspirations and educational backgrounds of his peers in school.

These findings may hold some important implications for the organization of instruction, especially since school practices such as "tracking" and intra-class "homogeneous" ability grouping may result in social accessibility patterns which are, from the students' vantage point, almost indistinguishable from either de facto or legal segregation.

The Coleman Report suggests that the composition of the peer group in school may have important relationships to learning. But while the ameliorative effects of integration are widely assumed, they are difficult to validate. Katz (1964) has identified three reasons for the paucity of data on the effects of school integration on academic performance. He indicates, first, that good data are not usually available because other efforts to upgrade the quality of education often accompany desegregation. In addition, many school systems do not identify students by race, and in some Southern school systems, only a very few select Negro students have been admitted to "integrated" schools.

In view of the paucity of controlled investigations of the effects of mixing children from different backgrounds, this research was designed to examine the effects of integration on the intellectual performance of young Mexican-American children. Data on such effects should be of particular social significance, since Headstart, a preschool program intended to benefit poor children, is essentially a segregated program.

METHOD

Hypotheses: The design of this investigation was guided by four hypotheses. It was anticipated that:

1. Mexican-American children attending integrated classes would make greater gains in intellectual performance than comparable children who received no formal education during the year.

2. Mexican-American children attending integrated classes would make greater gains in intellectual peformance than comparable children who attended a more segregated type of program in Headstart.

3. Mexican-American children participating in Headstart would make greater gains in intellectual performance than comparable children participating in no formal educational program.

4. The intellectual performance of Anglo-American children participating in the integrated classes would not change during the interval of the investigation.

Subjects: The experimental group (BPP) consisted of 18 Ss who attended a cooperative community school in integrated classes, which were designated as the Bicultural Preschool Program. Scholarships and transportation for the experimental Ss were provided by the Arizona Center for Early Childhood Education, a component of the National Laboratory on Early Childhood Education. Ss attended classes for 2½ hours on each school day. Mothers of the BPP Mexican-American Ss were required to work in the regular parent participation program of the school. This consisted of assisting in the school for one school-day each week for one semester.

A comparison group (HSP) consisted of 18 Ss who were comparable in ethnic identity and socioeconomic status to the BPP group, and who attended a conventional Headstart program. A control group (NPP) was comprised of 18 Ss who attended no preschool during the interval of the investigation. Data were collected on this group to control for practice effect.

An additional group of Ss was composed of 20 Anglo (AA) children who were randomly selected from a total of 36 Anglo-American children attending classes with the Mexican-American children in the BPP. These children were not comparable in socioeconomic status or initial intellectual performance to the Mexican-American groups. They were tested, however, to test the assumption that the integrated instructional situation would not adversely affect their performance.

Procedures: Ss in the three groups of Mexican-American children were matched by initial Wechsler Pre-Primary Scale of Intelligence (WPPSI) score. Ss in these groups were not matched individually on socioeconomic status, but all lived in Federally designated poverty areas of Tucson, Arizona.

Ss were tested during the first month of school using the WPPSI. This test has been demonstrated to be highly reliable with disadvantaged Mexican-American children (Rankin and Henderson, 1968), and is considered by the investigators to provide a measure of specific acquired abilities which are related to successful school performance.

The WPPSI was readministered as a post-test during the last month of the school year.

RESULTS

The most succint way to evaluate the effect of the preschool experiences on children in each of the groups in the study is to show the pre- to post-test gain for each group and compare this gain to that found in the no school control group. The standard error of the differences in gain is obtained using the Peters and Van Voorhis design for matched pairs. Because of its sample characteristics, the Anglo sample in the Bicultural nursery school is analyzed separately.

Using the WPPSI Total score, the initial mean IQ of the BPP group was 82.94, for the Headstart group 82.83, and for the no school control group 82.50. The post treatment IQ's were 96.39 for the BPP group, HSP was 90.72 and the NPP control group was 88.33. Thus the 13.44 mean gain for the BPP group is compared with 7.89 mean gain in the NPP group. The 7.11 mean gain difference is significant beyond the .02 level. When the HSP gain of 7.89 is compared with the NPP control group gain of 6.33, the 1.56 mean gain difference is not significant. Comparing the BPP mean gain of 13.44 to the HSP gain of 7.89, the 5.55 difference in gain reaches the .05 level. Thus the first two hypotheses, that the BPP children would make greater gains than those in the HSP, or in no formal program, were supported in

terms of the total test. The third hypothesis, that HSP children would make greater gains than those in no formal program, is not supported.

Examining the Verbal section of the WPPSI, the initial mean scores were: BPP, 75.61; HSP, 73.56 and NPP control group 75.11. The end IQ's are 89.99, 83.22 and 78.22 respectively. The gain of 14.33 in the BPP group when compared to the NPP group gain of 3.11 yeilds a differential gain of 9.67, which is significant beyond the .01 level. The HSP mean gain of 9.67, when compared with the NPP gain of 3.11, shows a non-significant gain of 6.56, $\underline{t} = 1.81$. The BPP differential gain over the HSP group is 4.66, which also does not reach a satisfactory confidence level.

The initial performance IQ's are: BPP, 94.22; HSP, 92.56; and NPP, 94.22. The performance IQ's are much closer to "normal" than are the Verbal IQ's. The post treatment IQ's are: BPP, 103.55; HSP, 97.39; and NPP, 99.38. Neither the 9.14 differential gain in the BPP group, nor the 4.83 differential mean gain in the HSP group is significanly different from the 4.67 gain in the NPP group. The 4.50 differential gain between the BPP and the HSP groups is also not significant.

In summary, the BPP is more effective than no program, or test practice effect, and more effective than the HSP in this instance. The bulk of the effect shows up on the Verbal section of the WPPSI.

The fourth hypothesis presents an interesting problem. The initial AA score on the total WPPSI is 112.20 and the end score is 112.95.

As predicted in the hypothesis, there is no significant gain in the AA group, however, the Mexican-American NPP control group gain of 6.33 is significantly larger, at the .01 level, than is the .75 gain in the AA group. If this 6.33 gain can be attributed to practice effect, then there is a

relative loss for the AA group. Interpretation is not possible because of the relatively large differences in mean IQ for the two groups, precluding a matched group design, but differential regression is a plausible explanation of this result.

DISCUSSION

The results of the investigation tend to support the assumption that integrating disadvantaged Mexican-American children into classes with advantaged Anglos may have a favorable effect on their intellectual development. Whether such effects will be maintained when the children attend schools under conditions of de facto segregation remains to be seen. Unfortunately, past experience with the transitory nature of gain scores resulting from compensatory education programs for young children suggests the possibility that the improved performance may fade when the children ender a de facto segregated school. It is also possible that the improved intellectual performance might be maintained if the children are active for a longer period of time in an environment which supports the newly acquired skills. These possibilities should be tested.

There are two parallel developments which are pertinent to the discussion of the results of this investigation. One line of development includes the work of investigators such as Bandura and Walters (1963), which documents the important role of imitation in the learning of young children. The other line of development has taken place in applied settings, where the general notion of imitative learning has long been recognized. The value of utilizing peer models (Arizona Center for Early Childhood Education, 1969) and peer tutors (Asbell, 1966) has

been discussed, and some innovative instructional programs (e.g., Arizona Center for Early Childhood Education, 1969) are at great pains to organize behavioral settings to take advantage of the instructional potential of the modeling effects of both adults and children in the classroom environment. When such instructional programs deal with disadvantaged children, it is assumed that the wider range of school-appropriate behaviors, the motivational systems, and academic skills represented among the middle-class student population will have favorable modeling effects for children from less advantaged backgrounds.

It is tempting to interpret the investigation reported here in these terms. While it seems reasonable to assume that the modeling of language and other behaviors by the Anglo children is in part responsible for the improved intellectual performance of the Mexican-American Ss, this interpretation goes beyond our data. There is a great need to bring the experimental and applied lines of development referred to earlier together, in an effort to determine how imitation works in the natural environment of the classroom. People working in curriculum and instruction often naively assume that if the teacher or a child models some desired behavior, a "target" child will imitate it. Little attention is paid to the conditions under which imitation takes place, as defined in the experimental literature (e.g., Bandura and Walters, 1963). If curriculum makers are to take full advantage of the great potential held in the principles of imitative learning, investigations must be designed to obtain highly specific data on the role of imitation in classroom settings.

FOOTNOTES

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