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THE EFFECTS OF INTEGRATION ON ACHIEVEMENT IN A LARGE ELEMENTARY SCHOOL

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SUMMARY

The effects of integration in two large elementary schools are reported. In the first year blacks showed severe drops in reading and mathematics. Whites showed less overall decline. The subsequent year scores for both black and white pupils showed a rebound. Integration appeared to be more disruptive to blacks than to the whites.

INTRODUCTION

The educational researcher sometimes fails to take full advantage of an historical change. This event may occur suddenly and conditions may make it possible to test one's hypothesis in the real world when it is otherwise impossible to manipulate experimental conditions. Such an opportunity was available after an abrupt court decision ordering integration at the beginning of the 1971-72 school year.

PROBLEM

The effects of integration on achievement are often obscured by the gradual entrance of black or white students into previously segregated classes. However, what happens to achievement when students from a segregated black elementary school are suddenly transferred and merged with students from an equally large all-white school?

DESIGN

Two large 1000 pupil schools were chosen. The size was important in canceling out any random test administration errors by individual teachers and to compensate for student attrition which sometimes presents problems in developmental studies.

Longitudinal comparisons were made on two entire classes and cross sectional data were compiled to make comparison with student scores of previous years. Achievement scores in math and reading were taken from results of the 1964 edition of the Stanford Achievement Tests and stanines were utilized to compare alternate forms. The white population consisted of mostly upper middle class pupils, while those from the black school were from the upper-lower socio-economic class.

This research was designed to test two hypotheses. The first was from an idea stated by Sullivan (1968). This proposed that negroes bussed to upper class white schools achieve significantly higher than negroes in segregated schools with compensatory education. (The black pupils in this experiment had large amounts of Title III aid.)

The second hypothesis was formed to test a statement by Pettigrew (1968) that achievement of white children in classes with more than half white is as high as for all white classes.

RESULTS

The stanine gains or losses of two successive classes are reported in Table 1. During the first year of integration black scores did not rise but showed a severe drop in reading and math. White scores showed a slight overall decline. During the following year black scores showed less of a drop in reading and even made some gains in math. Scores of white students were largely unaffected.

Table 2 pictures cross sectional comparisons with the students' previously segregated schools. Black 5th graders showed no improvement over their former schoolmates. White pupils had a drop in math scores the first year and reading the second. By the sixth grade, scores had stabilized for white students and black pupils were showing a rebound.

Preliminary data enable us to make these interpretations. Under otherwise stable conditions, integration created a disruptive amount of cultural shock for black pupils and a much lesser amount for white students. This has also been observed cross culturally by Harry Kersey who measured Seminole Indian achievement when they were bussed to white schools. However, unlike the Seminoles, there has been a rebounding of black scores, reflecting faster acculturation.

One other observation of note: A delayed effect has occurred in recent 5th grade reading scores. This type of effect, described by Campbell and Stanley (1966), may have occurred because of teachers' adjustment of instruction to compensate for low achieving students. In other words, sometimes test results become corrective mechanisms which warn teachers to adapt to a portion of their students and they will sometimes overcorrect.

TABLE 1

SCORE CHANGES OF STUDENTS AFTER DESEGREGATION, GR. 5 TO GR. 6 (IN STANINES)

(A ZERO (0) INDICATES THAT A STUDENT HAS REMAINED IN THE SAME STANDING, WHICH IS TO BE EXPECTED.)

1971-72
FIRST YEAR OF INTEGRATION

	WORD MEANING (VOCABULARY) NUMBER WHO GAINED OR LOST		PARAGRAPH MEANING NUMBER WHO GAINED OR LOST		ARITHMETIC COMPUTATION NUMBER WHO GAINED OR LOST	
	BLACK	WHITE	BLACK	WHITE	BLACK	WHITE
+4					1	
+3		4			2	
+2		4	1	6	4	9
+1	5	20	7	12	5	19
EXPTD.	0	11	31	0	11	32	0	16	18 EXPECTED
-1	22	27	-1	15	29	-1	13	23
-2	8	5	-2	12	12	-2	5	11
-3	1		-3	2	1	-3	1	4
-4	1		-4			-4		

1972-73
SECOND YEAR OF INTEGRATION

	WORD MEANING (VOCABULARY) NUMBER WHO GAINED OR LOST		PARAGRAPH MEANING NUMBER WHO GAINED OR LOST		ARITHMETIC COMPUTATION NUMBER WHO GAINED OR LOST	
	BLACK	WHITE	BLACK	WHITE	BLACK	WHITE
+4						1
+3			1	1		2
+2	4	3	2	4	2	13
+1	10	27	6	18	14	11
EXPTD.	0	11	26	0	10	23	0	7	19 EXPECTED
-1	6	15	-1	15	21	-1	9	21
-2	0	3	-2	4	6	-2	3	9
-3	1	3	-3	1	1	-3	3	2
-4			-4			-4		

DISCUSSION

This study has documented what anthropologists label cultural or environmental shock. The effect on black students in this case was larger than on whites. The effects do not appear to be long lasting or residual. This data largely measured changes in achievement from 5th grade to 6th in two successive years. Research is now being conducted to follow a separate class from earlier grades to the end of grade 6. This second phase will attempt to assess the effects of higher black ratios and also might determine whether earlier shock effects can be overcome by the end of grade six, with improvements over scores in previously segregated black schools.

TABLE 2

Median Fifth Grade Scores (in stanines)

	White Scores		
	Segregated School 1971	Desegregated School 1972	Desegregated School 1973
Word Meaning	5.9	5.8	5.2
Paragraph Meaning	6.1	6.2	5.6
Arithmetic Computation	5.8	5.0	5.3
	Black Scores		
Word Meaning	3.3	3.2	3.1
Paragraph Meaning	3.4	3.1	3.3
Arithmetic Computation	3.1	2.9	3.4

Median Sixth Grade Scores (in stanines)

	White Scores	
	1972	1973
Word Meaning	6.0	5.8
Paragraph Meaning	5.9	5.9
Arithmetic Computation	4.9	4.9
	Black Scores	
Word Meaning	2.3	3.0
Paragraph Meaning	2.5	2.9
Arithmetic Computation	2.7	3.2

REFERENCES

Campbell, D. E. and Stanley, J. C., Experimental and quasi-experimental designs for research. Chicago: Rand McNally, 1966, 37-42.

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Sullivan, N. V., Discussion Implementing Equal Educational Opportunity. Harvard Educational Review, 1968, 38, 148-155.

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SELECTING FOREIGN STUDENTS--ARE GPA AND RATINGS INTERCHANGEABLE AS CRITERION VARIABLES?

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SUMMARY

This study investigates the relationship between certain background variables often used to select foreign students for study in the U. S. and two criterion variables--GPA and ratings of on-the-job success upon returning to their home country. It represents an effort to determine whether GPA is a reasonable substitute for ratings of on-the-job as a criterion variable. The relationship between six background variables and the two criterion variables was studied in a group of Honduran educators who studied in Florida during 1969-1970. The study indicated that some variables which were good predictors of GPA were poor predictors of ratings of on-the-job success, and that most variables were more highly correlated with GPA than with ratings.

PROBLEM

In 1969 there were more than 120,000 foreign students studying at United States universities (Walton, 1971). It appears that there is a trend toward an ever-increasing number of foreign students in the U. S., especially from the underdeveloped countries (Education and World Affairs, 1966).

Given the large number of foreign students in the U. S. and the trend toward even larger numbers, it is surprising to find a great paucity of data-based policy in the area of foreign student admissions. "Strange as it may seem, the plain fact is that most of our institutions of higher learning do not have a clear rationale for the admission and training of graduate foreign students." (Harari, 1970, p. 61). Education and World Affairs (1966) reports that less than 25 per cent of the foreign students admitted to American universities receive counseling or are subjected to any testing.

One of the reasons for the lack of uniform admissions policies may be the absence of a clear definition of the university's role in preparing foreign students for life in their home countries. The majority of the research done on foreign students in the U. S. has concentrated on the students' attitudes toward the U. S. culture (Lysgaard, 1955; Coelho, 1958; Pool, 1965; Gullahorn and Gullahorn, 1963) and not the effectiveness of their preparation.

Typically, studies on the performance of foreign students who study at U. S. universities have used grade point average as an exclusive criterion of success. For instance, Hountras (1956, 1957), in two separate studies of foreign students, found that certain student characteristics seem to be positively related to academic success in terms of GPA. These factors were: (1) having come to the U. S. with a graduate degree, (2) being married, (3) having an unconditional admission, and (4) having come to the U. S. with financial aid.

While some researchers have investigated the relationships between certain background variables and foreign students' success upon return to their home country, these have been based on self-reports of success (Bennet, Passin, and McKnight, 1958; Sewell and Davidson, 1961; Watson and Lippett, 1955). All of these studies found a positive relationship between having completed all available training at home before coming to the U. S., and success at home after training. None, however, used statistical techniques to test the significance of observed differences.

This study seeks to suggest tentative answers to two questions raised by the review of literature:

(1) What is the relationship between GPA and ratings of effectiveness upon returning home? (Is GPA a reasonable substitute as a criterion measure of on-the-job effectiveness?)
(2) Do the same variables that predict GPA also predict on-the-job effectiveness?

METHOD

The sample consists of 43 Honduran educators divided into two groups of approximately equal size. Each group came to the University of South Florida (USF) campus for one year of study, between January, 1969 and December, 1970. The persons in the sample had a mean age of 31.4 years, with a range from 23 to 52. Thirty-six were males and 7 were females, and 75 per cent were married. Thirty-one were high school principals; twelve were professors at the Honduran Teaching Training College. Their average number of years of experience was 8.5; 37 had received the highest level of education available in their home country.

Personal files were set up for each participant--including a professional and personal biographical report--before any of the participants came to USF. As the participants progressed through their studies at USF, pertinent data, such as grades, were periodically added to the files. The personal background data and grades used in this study were taken from these files.

To collect data on the performance of participants upon returning to their home country, the author devised a rating scale which required the respondent to rate each participant's performance as an educator upon returning home. Six categories were used: 6 = Extraordinary; 5 = Very good; 4 = Good; 3 = A little deficient; 2 = Very deficient; 1 = Totally ineffective.

Eighteen months after the completion of the Honduran educators' training program, the rating scales were mailed to each of four raters--three USF professors who worked with the educators in Honduras, and one Honduran educational administrator, familiar with all the educators who received training.

A measure of interjudge reliability was obtained on the ratings, using a technique described by Guilford (1954, 395-397) for computing inter-rater reliability, and a technique described by Winer (1962, 96-100) for computing analyses of variance with unequal n's. The reliability estimate for the mean of the four ratings was .91.

Mean ratings and participants' GPA's were correlated with each of six predictor variables: (1) Sex; (2) Age; (3) Years of experience; (4) Level of training (highest degree or not); (5) Kind of position (in higher education or not); and (6) Marital status. Four of the predictor variables--Sex, Level of training, "Kind of position," and Marital status--were considered dichotomous variables. The other two predictor variables and the two criterion variables were considered to be continuous variables. The correlation between any pair of these variables could be calculated by using one of three coefficients--a phi coefficient, a point-biserial correlation coefficient, and a Pearson product-moment correlation coefficient. Since the first two coefficients are algebraically equivalent to the third, the Pearson product-moment correlation coefficient was used for computing all correlations. Multiple correlation coefficients were computed between all combinations of the six predictor variables taken two at a time, and the criterion variables.

RESULTS

The correlation between GPA and the ratings was .48. This correlation is significantly different from zero at the .01 level of significance, but is rather low. Four of the six predictor variables had correlations with GPA which were significantly different from zero at the .05 level: Sex, Age, "Years of experience," and "Kind of position." (See Table 1.) Only two of the predictor variables had correlations with ratings which differed significantly from zero at the .05 level: Sex and "Kind of position." All of the predictor variables except "Kind of position" had higher correlations with GPA than with ratings.

TABLE 1

Correlation Matrix

Predictor Variables	Sex	Age	Education	Experience	Position	Marital Status	GPA	Rating
1. Sex[1]	1.00	-0.03	0.00	-0.11	-0.43	0.57	-0.38*	-0.30*
2. Age		1.00	-0.62	-0.93	0.08	0.03	-0.40*	0.00
3. Education[2]			1.00	-0.66	0.10	-0.04	0.21	0.03
4. Experience				1.00	0.17	-0.05	-0.34*	0.10
5. Position[3]					1.00	-0.30	0.35*	0.45*
6. Marital Status[4]						1.00	-0.25	-0.05

*Significant at the .05 level.

[1]female/male
[2]not having attained highest level/having attained highest level
[3]not in higher education/in higher education
[4]single/married

TABLE 2

Multiple Correlation Coefficients

Predictor Variables	GPA	Predictor Variables	Ratings
1,2	.57	1,2	.31
2,5	.57	2,5	.46
1,4	.55	1,4	.32
4,5	.55	4,5	.46
2,6	.47	2,6	.06
4,6	.44	4,6	.12
1,5	.44	1,5	.47
2,4	.42	2,4	.31
2,3	.41	2,3	.04
3,5	.40	3,5	.46
1,3	.40	1,3	.31
1,6	.39	1,6	.34
5,6	.39	5,6	.46
3,4	.35	3,4	.18
3,6	.32	3,6	.07

The values obtained for the multiple correlation coefficients between all combinations of the six predictor variables taken two at a time, and the two criterion variables appear in Table 2. The two combinations which yielded the highest R's between the predictor variables and GPA's were "Sex" and "Age," and "Age" and "Kind of position." The combination which yielded the highest R between the predictor variables and ratings was "Sex" and "Kind of position." All of the R's except three were higher for GPA's than for ratings.

The size of the correlations between GPA and ratings of on-the-job performance does not seem to permit the substitution of one for the other. Furthermore, there seems to be a difference between the variables which most effectively predict GPA and the variables which most effectively predict on-the-job performance. The most notable difference is seen in the relationship between age and the two criterion variables. While there is a high negative correlation ($r = -.41$) between age and GPA, the correlation between age and ratings of on-the-job performance is only .01. This result suggests that one criteria which an admissions officer might find very useful for predicting success in terms of GPA (age), would be irrelevant to the rated success of the student when placed back on the job.

In two instances, predictor variables which correlated significantly with GPA also correlated significantly with ratings--"Sex" and "Kind of position." However, two variables which correlated significantly with GPA had very low correlations with ratings--"Age" and "Experience."

CONCLUSIONS

The data offer evidence to substantiate a "no" answer for both of the research questions. The data also suggest that the selection criteria considered in this study are related more to GPA than to on-the-job performance after training.

While this study has the limitation of representing only a group of educators from one country studying at one U. S. university, the results suggest the need for investigating in more detail the relationship between predictor variables and different criterion variables (including on-the-job performance) in the selection of foreign students.

REFERENCES

Bennett, J. W.; Passin, H.; and McKnight, R. K. In search of identity: The Japanese overseas scholar in America and Japan. Minneapolis: University of Minnesota Press, 1958.

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