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EFFECTS OF SOCIOECONOMIC STATUS, RACE, AND TEACHING
METHOD UPON TRANSFER PERFORMANCE

The University of Nebraska - Lincoln

PH.D.

1979

University
Microfilms
International

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PREVIEW

EFFECTS OF SOCIOECONOMIC STATUS, RACE, AND TEACHING METHOD
UPON TRANSFER PERFORMANCE

by

Mary Ann Haerer Sullivan

A DISSERTATION

Presented to the Faculty of
The Graduate College in the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Philosophy
Department of Educational Psychology and Measurements

Under the Supervision of Associate Professor Dewaine A. Alcorn

Lincoln, Nebraska

December, 1979

TITLE

EFFECTS OF SOCIOECONOMIC STATUS, RACE, AND TEACHING METHOD

UPON TRANSFER PERFORMANCE

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ACKNOWLEDGEMENTS

Much appreciation and gratitude must be expressed to the many persons who assisted me in this study. Special appreciation must go to Father Furlong and Sister Michaelina of the Sacred Heart Parochial School in Omaha, and to the third and fourth grade teachers and the administration of the three Lincoln public schools (Clare McPhee, Elliott, and Hartley Elementary Schools), for their cooperation and assistance in this study.

Gratitude is also due to my committee--to Dr. Dewaine Alcorn, my advisor and co-chairman of my committee, for his patience and for providing me with guidance and encouragement throughout my doctoral studies; to Dr. Ronald Joekel and Dr. Roger Bruning for their valuable contributions as members of my reading committee; to Dr. Howard Tempero for remaining on my committee past his retirement and for his helpful suggestions throughout these many years; and to Dr. Lee Witters who graciously served as co-chairman of my committee. Appreciation must also be given to Dr. Marshall Hiskey, who was my advisor during my undergraduate and master's studies, for encouraging me to continue my education and to seek a doctoral degree.

Most of all, many thanks are due to my husband Bob for his continuous support and encouragement.

M.A.H.S.

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PREVIEW

CHAPTER I

INTRODUCTION

For many years our educational systems have largely been based upon the supposed needs and learning styles of the white middle-class child. Research to determine how to best teach children generally sampled the majority class, the white middle class children. Minority children were generally disregarded. In recent years, however, educators have become increasingly aware of the minority children, especially those children who are black and/or who live in poverty. How well are the middle-class schools meeting their needs and considering their possible unique learning styles? If we are to provide an equal education for all children, regardless of race or socioeconomic status (SES), then research is necessary to ascertain how to best teach the children who are not now being reached. There have been studies researching the intelligence of blacks--is it lower than that of whites, is it a different "type" of intelligence, are there cultural factors and/or environmental factors which account for the differences? Early intervention programs (Head Start and Follow Through) were initiated in the United States for disadvantaged children, but there has been much criticism of the lasting effects of these programs. Cronbach and Snow (1977) stated:

Compensatory preschool programs have some short-term effects, but before long their graduates are falling behind the pack. An education that is merely remedial, in the narrow "training" sense, is insufficient; we have to design a true education that employs unique means wherever the child's distinctive development makes traditional methods ineffective for him. (p. 11)

Although traditionalists have asked that educators design and standardize efficient teaching techniques which are best for everyone, as long ago as in 1883, L. F. Ward (Dynamic Sociology, New York: Appleton, 1883), as cited in Cronbach and Snow (1977), proposed that educators should use different kinds of methods to teach students having different "mental aptitudes." Cronbach and Snow (1977) suggested that information about the learner should help to adapt instruction to him.

In view of this information, it appears that one of the variables involved which should be studied is the type of learning which is most effective with children of various races and of differing SES's. It needs to be determined whether or not the learning style of black children is different from that of white children. Is a certain teaching method used by teachers more effective with one race than with another? Similarly, is there a difference of learning styles among children of different SES's? Do children of one SES learn better if taught by one method and the children of another SES learn better if taught by another teaching

method? As stated by Cronbach and Snow (1977), "there probably are broad classes of learners for whom different streams of instruction are appropriate" (p. 173). For example, Blushan (1971) found in his study of nine-year old students that programmed instruction was advantageous for low-SES students, but not necessarily so for students of other SES backgrounds. According to Cronbach and Snow (1977), however, most of the teaching techniques advanced by modern educational theory, such as supportive-spontaneous teaching and those techniques which provide opportunity for student self-direction, appear to produce inferior results with low-SES children, while children from upper-SES homes profit from such instruction.

Purpose of this Study

The overall objective of this present investigation was to determine if race, socioeconomic status, and teaching method interact with one another when students are required to transfer learned responses to other meaningful materials. Two different methods of teaching the material, two racial groups, and two different socioeconomic groups were utilized in this study. The premise of this type of study (aptitude x treatment interaction), as stated by Cronbach and Snow (1977),

. . . is not that some persons are invariably fast learners and some slow, but that the instructional conditions determine what kind of person will learn most rapidly. The relatively fast learners in one condition could be laggard in another condition. (p. 107)

In this study, the success of different groups of children to transfer material, taught to them by two different methods, to a new situation was compared.

Hypotheses

The overall hypothesis considered was as follows: A child's performance in transfer of learning depends upon an interaction among that child's race, SES, and the method employed for learning and transfer. Race, SES, and method (treatment) would all interact with one another. More specifically, black and white children of low SES would perform better by association-practice (AP) than by rule-example (RE). On the other hand, black children of middle SES would be superior to white children of middle SES when taught by association-practice (AP), but white middle-SES children would be superior to black middle-SES children when both were taught by rule-example (RE). Looking at the expected results from another direction, it was hypothesized that the low-SES black subjects would perform nearly as well as the middle-SES black subjects when both were taught by treatment RE, while the performance of the low-SES white subjects would be inferior to that of the middle-SES white

students. More significantly, it was hypothesized that on association-transfer the low and middle-SES black children would perform about the same, but that the low-SES whites would be superior to the middle-SES white children.

With the three variables (SES, race, and learning treatment) involved in this study, the hypotheses predicted that there would result three double interactions which would be statistically significant. Each of the variables would interact with the others as follows:

1. There would be an interaction between race and SES. The low-SES white children would perform about the same as the low-SES black children, but the middle-SES white children would demonstrate a performance superior to that of the black children from a middle-SES home (see Figure 1).

2. An interaction would result between race and the learning treatment, no matter which SES the subjects represent (see Figure 2).

- (a) The mean score of the white children would be less than the mean score obtained by the black children when both groups were taught by treatment AP.

- (b) The mean score of the white subjects taught by treatment RE would be greater than the mean score obtained by the black subjects taught by treatment RE.

FIGURE 1
Predicted Performance of Low and Middle-Class
White and Black Children

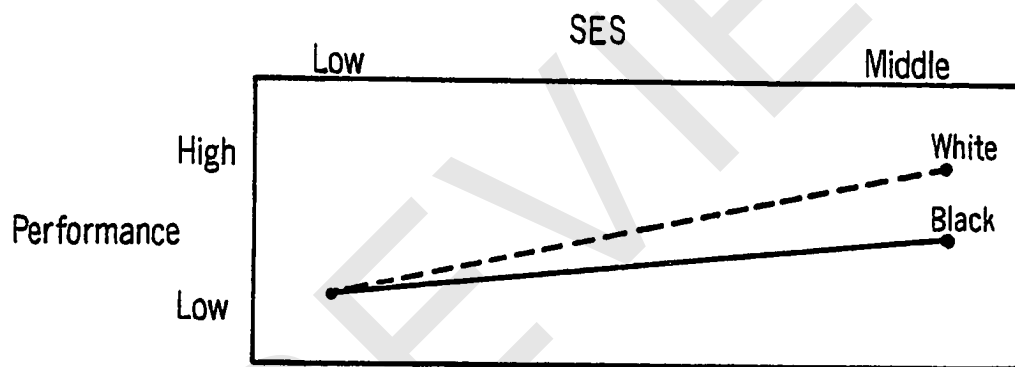
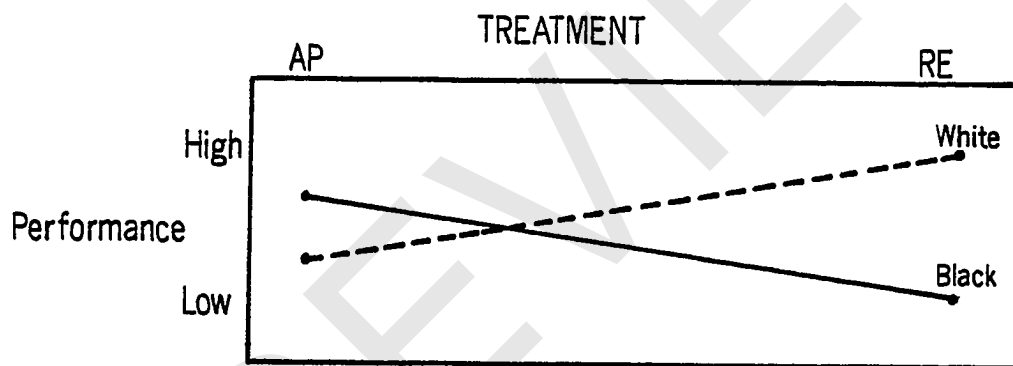


FIGURE 2

Predicted Correlation of Performance of Black
and White Children Taught by Two
Different Treatment Methods

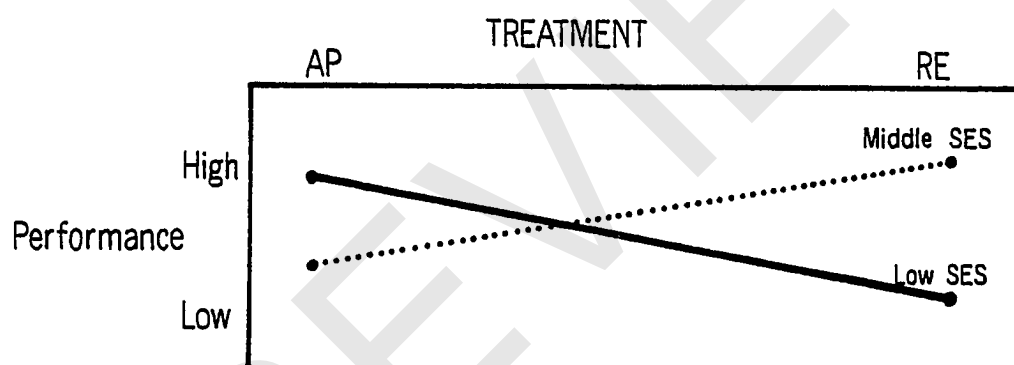


3. If race is not considered, an interaction between SES and the learning treatment would result (see Figure 3).

- (a) The mean score received by the low-SES children would prove greater than the mean score of the middle-SES children when both groups were taught by treatment AP.
- (b) The mean score of the low-SES children would be less than the mean score of the middle-SES children when both groups were taught by treatment RE.

FIGURE 3

Predicted Correlation of Performance of Children
of Low- and Middle-SES When Taught by
Two Different Treatment Methods



CHAPTER II

REVIEW OF RELATED RESEARCH

Theoretical Basis of the Study

In the past 15 years, enumerable studies have compared the intelligence, scholastic achievement, and learning style of whites with that of blacks and of children of differing social classes. One of the primary researchers in this area has been A. R. Jensen. In 1966, he demonstrated that although disadvantaged white, Mexican-American, and Negro children perform well on associative types of learning tasks, middle- and upper-class children tend to perform better than the lower-class children on conceptual learning tasks. Later Jensen (1970, 1973) differentiated between the two broad classes of mental abilities. Jensen (1974) summarized his theory as follows:

Briefly, the theory involves two types of mental abilities, Level I and Level II, and their interaction with population (socio-economic status and/or race) differences. Level I ability consists of rote learning and primary memory; it is the capacity to register and retrieve information with fidelity and is characterized essentially by a relative lack of transformation, conceptual coding, or other mental manipulation intervening between information input and output. Level II ability, in contrast, is characterized by mental manipulation of inputs, conceptualization, reasoning, and problem-solving; it is essentially the general intelligence (g) factor common to most complex

tests of mental ability and standard tests of intelligence. Level I abilities are best measured by rote-learning tasks: serial learning, repeated trials of free recall of a number of successively presented familiar uncategorized objects, pictures, or nouns, and tests of short-term memory, such as digit span. Level II ability is best measured by tests of general intelligence that have a high general intelligence loading and especially those of non-verbal, fluid intelligence, culture-fair variety. (p. 99)

Jensen theorized that Level I abilities are evenly distributed among the different social classes, while Level II abilities are greater for those in the middle- and upper-classes. He attributed these differences to genetic and environmental influences.

Correlation of Level I and Level II Abilities to SES

Paired-associate types of tasks have traditionally been utilized to measure Level I abilities. Such tasks require one to register stimulus information and to immediately retrieve past learned information to provide an appropriate response. Numerous studies (Semler & Iscoe, 1962; Rohwer, Lynch, Levin, & Suzuki, 1967; Green & Rohwer, 1971; Nazzaro & Nazzaro, 1973; Prawat, 1973; Hoover, 1973; Barcher, 1976) indicated that there are no significant social class differences of performance on paired-associate learning tasks. Regardless of age, children of different SES's perform equally well on these tasks.

Rohwer (1971), however, in contradiction of Jensen's theory, proposed that paired-associate tasks are conceptual in nature, that they require one to transform input in order to learn efficiently, and that successful performance on such tasks requires acquisition and application of a set of relatively explicit rules. He argued that the distinction between Jensen's Level I and Level II types of abilities is rather speculative. In one of his studies, Rohwer (1970) noted that SES-ethnic differences accounted for little variance on a paired-associate test for first and third grade subjects, but that the difference was significant at the kindergarten level. Rohwer theorized that high-SES children have learned to supply additional conceptual activity spontaneously, to elaborate on materials they are to learn, whereas low-SES Negro children have not. When provided with prompting to trigger a response, however, Rohwer (1972) theorized that low-SES children are able to perform as well as high- and middle-SES children. Rohwer (1970) stated that the elaborative activities resulting from prompting, which he calls imaginative conceptual activity, successfully facilitate paired-association, free recall, and even serial learning. Additionally, Rohwer and Levin (1971) concluded that there is evidence that this elaboration improves learning efficiency whether it is self-generated or examiner-generated.