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ABSTRACT

Mexican American and Anglo 11th grade high school students from lower and middle socioeconomic classes were compared using the locus of control, adequate achievement reality, and temporal orientations as potential correlates of scholastic performance and future education and vocational goals. The sample of 89 male and 87 female students from 3 high schools in Tucson, Arizona, was divided into 4 groups: 48 low-socioeconomic status (SES) Mexican Americans, 26 middle-SES Mexican Americans, 27 low-SES Anglos, and 65 middle-SES Anglos. Students' race and class were identified by their responses to a 15-item Information Scale created for this study. The scales were combined into a single booklet of 60 items. These items measured the student's self-concept, achievement reality orientation, temporal orientation, educational achievement, educational aspiration, and level of vocational aspiration. Findings showed scholastic performance and future educational and vocational goals more closely related to socioeconomic class than racial group. Inferences which emerged were: (1) generalizations from one ethnic minority group to another may be risky even when based on empirical data and (2) different types of programs designed to involve ethnic minority members in the mainstream American society may be necessary for different racial groups. (NQ)

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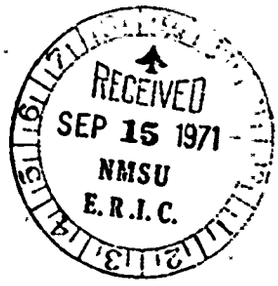

ABSTRACT

This study compares Mexican-American and Anglo eleventh grade high school students from the lower and middle socio-economic classes with respect to (a) locus of control, adequate achievement reality orientation and temporal orientation as potential correlates of (b) current scholastic performance and future educational and vocational goals. In general, these variables appear more closely related to socioeconomic class membership than to racial group. The inferences emerge that generalizations from one ethnic minority group to another may be risky even when based on empirical data, and that different types of programs designed to involve ethnic minority group members in the mainstream of American society may be necessary for different racial groups.

*Paper presented at the Annual Convention of the American Psychological Association, September 1971

RACE AND CLASS AS DIFFERENTIAL DETERMINANTS OF UNDERACHIEVEMENT AND UNDERASPIRATION AMONG MEXICAN-AMERICANS[1]

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There is considerable demographic research (e.g., McClelland, 1958; Passow, 1963; Rosen, 1956, 1959) to indicate that membership in certain ethnic minority groups and/or in the lower socioeconomic classes is correlated with poor performance in the educational and vocational spheres. Specifically, these correlates include (1) lower grade point averages during high school, (2) fewer total years of education and (3) subsequent employment which is less rewarding financially and of a lower social status. There are, in turn, other areas of theory and research which suggest or demonstrate relationships between certain psychological variables and poor educational and vocational performance. One purpose of this research is to determine the nature of the presumed interrelationships between (1) the demographic variables of ethnic minority group membership and socioeconomic status, (2) selected psychological variables (defined below), and (3) performance criteria including current grade point average and future

aspirations for education and vocation. A second purpose is to determine whether any relationships ~ ained between (2) and (3) are primarily associated with membership in an ethnic minority group ("race"[3]) or in a given socioeconomic status group ("class").

In the original planning of this research, the variable of race was defined to include two ethnic minority groups with the largest membership and the most severe problems in education and vocation; Mexican-Americans and Negroes. The primary focus was on the Mexican-American (M-A) group for several reasons: few studies are published compared to the research available on any other ethnic minority groups, the M-A has a unique sub-culture including a common language other than English and this sub-culture is the largest of the Southwestern United States. Negroes were eliminated when it became apparent that the sampling methods employed would fail to yield a number of Ss adequate for reliable analyses. The socioeconomic status groups (SES) selected for study included the lowest and middle categories. Since so few M-A Ss are members of the upper SES groups, these classes were eliminated from study.

The research literature suggests three psychological variables which may share variance in common with the demographic variables (race and class) and the performance criteria (educational performance and future educational and vocational aspirations). These three variables are locus of

control, achievement reality orientation and temporal orientation. A definition of each variable plus a brief review of relevant research follows.

The concept of locus of control is derived from the social learning theory developed by Rotter (1954). The concept is used to describe the extent to which an individual believes--or does not believe--that he is able to exercise control over the direction of his personal life. Locus of control is said to be "internal" when one expects that reinforcements are contingent upon one's own actions; and "external" when one expects that these same reinforcements are due to factors beyond personal control such as luck, fate, or chance. There exists considerable relevant research on this concept. Rotter, Seaman and Liverant (1962), developed the Internal-External Control of Reinforcements Scale; or simply, the I-E Scale. With this scale, Franklin (cited in Rotter, 1966) found a greater frequency of belief in internal control among students who aspire to attend college than among those who do not. Several studies have found an expectancy of external control among minority group and lower SES students (Lefcourt, 1966; Rotter, 1966). Considered jointly, these studies suggest that minority group and lower SES members are less likely to experience internal control or to aspire for continued education and subsequent vocational success. Coan (1968) has performed a factor analysis of his own scale; the POS, or Personal Opinion Survey, to identify independent

areas of locus of control. Two of his factors seem relevant to this discussion; factor one relates to the belief that one can achieve success through conscientious planning and factor four relates to the belief that a person can plan and organize successfully.

There is research indicating that minority and lower SES group members tend to respond in a characteristic maladaptive fashion in planning educational goals and vocational careers. One typical response is to terminate education prematurely and to select occupations with minimal probabilities of advancement (Passow, 1963); and another common pattern is to aspire for high status positions which seem improbable because of the lengthly preparation required (Deutsch, 1963). Although there are several obvious explanations why minority group and lower SES members are underrepresented at the universities and in the professions (e.g., racism, sub-cultural de-valuation of education, inadequate family finances and/or external funding, etc.), these data suggest that judgment, or reality testing, concerning achievement bears investigation. Thus, this research includes for study achievement reality orientation (ARO), defined as the relative adequacy of a student's understanding that future success is related to current achievement. Specifically, a student who fails to recognize that poor grades in high school will decrease the probability of continued education which,

in turn, will limit occupational possibilities, is said to lack adequate ARO.

The third variable which seems relevant is temporal orientation (TO) or the extent to which a person tends to orient himself in the present, past or future. It seems reasonable to predict that the individual who concerns himself with future planning or impending events and who is less pre-occupied with past reminiscence or immediate need gratification, will be more effective in selecting and achieving appropriate educational and vocational goals. Considerable research on this variable has relied on relative or absolute frequency of past, present or future tense use to measure TO (Eson, 1951; Kastenbaum, 1965; Krauss & Ruiz, 1967, 1968; Krauss, Ruiz, Mozdzierz & Button, 1967; Ruiz & Krauss, 1968; and Ruiz, Reivich & Krauss, 1967).

One of the studies cited above merits expansion at this point. Ruiz, Reivich and Krauss (1967) correlated nine scores derived from the five "tests" most commonly reported in the literature as measures of TO. Only expected and "artifactual" intra-test correlations achieved significance; e.g., high negative correlations were obtained between the frequency of past and present tense use on the same test. The absence of significant inter-correlations among tests presumably measuring the same theoretical construct was interpreted as casting serious doubt on the assumption that TO is unifactorial. This led to the caution that research on TO should employ more

than just one measuring instrument. This precaution appears particularly relevant because both the current study and the original research (Ruiz et al., 1967), employed Ss who are youthful and homogeneous in age.

A related precaution merits mention. This study will compare the relative frequency of verb tense use from M-A and Anglo groups to determine whether differences exist in TO. Both groups are members of the lower to middle SES groups and reside in the same geographic area; but M-A Ss who meet these criteria tend to preserve the tradition of speaking Spanish. Since bilingualism could conceivably influence verbal fluency in English, and subsequently the frequency of verb tense use, it seems prudent to include a measure of vocabulary knowledge as a control for possible differences in language familiarity.

Three general predictions are tested:

I. The "validity" hypothesis: Regardless of race or class, measures of internal control, ARO and future TO will correlate positively (and past TO will correlate negatively) with measures of achievement and aspiration level. If the correlations predicted by this hypothesis are not obtained, serious question must be raised concerning the possibility of providing an adequate test of the two hypotheses which follow using the measures and samples selected.

II. The "race" hypotheses: Comparing M-A with Anglo students, M-A students will demonstrate a pattern

of less internal control, ARO and future TO (opposite prediction for past TO) combined with lower achievement and aspiration levels, independent of SES.

III. The "class" hypothesis: Comparing lower and middle classes of SES, lower SES Ss will demonstrate a pattern of less internal control, ARO and future TO (opposite prediction for past TO) combined with lower achievement and aspiration levels, regardless of race.

METHOD

SUBJECTS

Ss are 89 male and 87 female eleventh grade students from three high schools in Tucson, Arizona. Mean age for all 176 students = 16 years; range is from 15-19 years.

Students identified as to race and class on the basis of responses to a 15 item Information Scale especially created for this research. Using the standard formula of the Hollingshead and Redlich (1958) Index of Social Position, four groups of students were identified: 48 low SES M-As (Classes IV & V), 26 middle SES M-As (Classes II & III, 27 low SES Anglos and 65 middle SES Anglos.

Measures

Internal-External control was measured by 32 items selected from the Personal Opinion Survey (Coan, 1968). Item selection was based on: (a) heavy loading on a factor of achievement through conscientious effort, (b) heavy loading

on a factor of successful planning and organization or (c) reference to a general belief in the ability to control the future. Response format was true-false; and response set was controlled by wording items such that half required "true" and half "false" responses to achieve the maximum possible internal control score of 32.

Achievement reality orientation was measured by a 10 item scale created for this research. Items were prepared on the basis of face validity. Thus, endorsement of a typical item such as, "An employer is more likely to hire me if I have finished high school," is assumed to reflect appropriate judgment concerning the prospect of current effort leading toward future success. Five items reflected ARO if answered "true" and five "false"; for a maximum possible total score of ten.

For reasons stated above, TO was measured using two different techniques. One represents a minor modification of the Eson (1951) technique which instructs Ss to list 25 topics (reduced to 10 in the present study), he or she have talked or thought about within the preceding two week period. After completion of this task, Ss are then instructed to indicate whether each topic refers to a "present, past or future" event. Ss response is assumed to denote TO.

The second measure of TO is the Picture Sentence Test, or PST, created for this research. Five simple line drawings of essentially asexual human faces or busts were created.

Three drawings depict an expressionless person reading a book, holding money or raising an arm. The remaining two drawings depict a smiling and a frowning face. Students were instructed to "pretend the picture is you," and to complete the sentence stem "I_____." with any reference to his personal past, present or future. As in numerous other studies with verbal response measures, verb tense frequency was assumed to denote temporal orientation in the past, present or future.

Data bearing on educational achievement were generated by two items asking students to indicate whether their grades were "mostly A's," "mostly B's," etc. during the preceding years and throughout the high school years. Choices by students, ranging from "A" to "F," were transformed into numbers ranging from four to zero; with a maximum possible score of eight.

Level of educational aspiration was measured by response to a single question, "How much schooling do you plan to complete?" To respond, students selected one of five alternative choices ranging in order from highest to lowest level of educational aspiration. Selection of "graduate or professional school" was the highest level choice and earned five points; "no more schooling" was the lowest and earned no points. Thus, maximum possible score equals five.

Three separate tasks were used to generate data on level of vocational aspiration. First, students were instructed to write the job they hoped to have at age 25. A seven point

scoring system was used which was congruent with the list of seven Occupational Levels prepared by Hollingshead and Redlich (1958). The highest level choice was scored seven points and the lowest one point. The second task instructed students to check three jobs they "most liked" and "least liked" from an alphabetical list of 14 job titles. Two titles were selected from each of the seven Occupational Levels. Separate lists were provided which were appropriate to sex. Either endorsement of a job title from the seventh or highest Occupational Level as "most liked," or endorsement of a job title from the first or lowest Occupational Level as "least liked," was assumed to denote the highest level of vocational aspiration and was scored seven points each. Conversely, perference for the lowest status jobs or rejection of the highest status jobs were scored one point each. As implied, this seven point scoring system was also perfectly congruent with the seven occupational levels. On the first task maximum possible score was seven; on the second task the range was from 6 to 42.

The third task dealing with vocational aspiration asked students to complete two items. First, students were asked to indicate their plans following graduation from high school. Definite plans were scored two points, vague plans were scored one point, and the absence of planning (e.g., "I don't know.") was scored zero. Next, students were instructed to indicate degree of certainty concerning these plans by selecting one of three possible choices; "very sure" (scored two points),

"not sure, but have some idea" (one point), or "not sure at all" (zero). Scores from both items were summed which resulted in a range from zero to four.

To provide a measure of word knowledge, the vocabulary subtest of the Shipley (1940) Institute of Living Scale was selected. This scale presents the students with a list of 40 words and the task is to select the correct synonym from four alternative choices.

Procedure

Group testing procedures were employed in the classrooms of the high schools Ss attended. Instructions were designed to motivate students to respond seriously, to reassure them about confidentiality, and to inform them how to complete the various tests. The various scales described above were combined into a single booklet. Some scales appear in a fixed order in this booklet; others were counter-balanced to reduce position effects. Instructions, the various scales, the orders of presentation and a copy of the booklet itself appear in Stone (1971) but are also available on request from the first author.

RESULTS AND DISCUSSION

Table 1 presents intercorrelations among 12 variables as a test of Hypothesis I. Specifically, this hypothesis predicts a positive relationship between a measure of internal control (column 1, Table 1) and a measure of academic achievement

(GPA, row 7), a measure of educational aspiration (row 8) and three measures of vocational aspiration (rows 9, 10, 11). The single exception to total confirmation is the non-significant correlation between internal control and "future job" vocational aspiration (row 9). The same prediction is made between adequate achievement reality orientation (column 2), and the same five variables (rows 7-11). Three of the five predicted correlations are obtained; the exceptions are non-significant correlations with two types of vocational aspiration ("future job," row 9; and "general," row 11). This hypothesis also predicts that measures of past time orientation (column 3) will correlate negatively, and that measures of future TO (columns 5 and 6), will correlate positively with measures of educational and vocational aspiration and achievement (rows 7-11). An unpredicted positive correlation is obtained between present TO (column 4) and GPA. Of the 20 relationships predicted from the Eson and PST, only three from the Eson achieve significance. Since data from the PST seem to lack validity (row 6 and column 6), present and past scores are not reported.

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INSERT TABLE 1 ABOUT HERE

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The pattern of results summarized above and appearing in Table 1 support Hypothesis I. That is, regardless of race or SES class, it appears one may predict educational and

vocational achievement and aspiration from measures of internal control, ARO and TO. Two cautions seem noteworthy; the TO measures are the weakest predictors and the PST seems invalid for this purpose.

Hypothesis II predicts that M-A Ss will demonstrate a pattern of less internal control, less adequate ARO, more past TO and less future TO combined with lower achievement and aspiration levels when compared with Anglo Ss of the same class. In terms of 12 analyses of variance summarized on Table 2, this hypothesis predicts significant race main effects for rows 1-11. This table indicates, however, that only one prediction is verified. Namely, M-A Ss use the past tense in responding to the Tson test more frequently than Anglo Ss of the same SES groups. The interpretation of this finding, as in previous research on TO, is that M-A Ss are relatively more oriented in the past.

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INSERT TABLE 2 ABOUT HERE

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Hypothesis III predicts the same pattern of interrelationships as Hypothesis II, but attributes the source of common variance to membership in a lower SES group rather than to race. Partial confirmation appears in rows 1, 7 and 8 of Table 2. Regardless of race, low SES Ss demonstrate less internal control, report lower GPA's, and expect they will complete fewer years of education.

Conclusions derived from tests of the three hypothesis are murky as long as confounded variables such as language fluency are uncontrolled. Because Anglo Ss are largely monolingual, while M-A Ss are mostly bilingual, it seems possible that differences in verbal fluency could influence responses to questionnaires written in English. To minimize this possibility, the questionnaires were prepared using words of high frequency use (Thorndike and Lorge, 1944) and scores of vocabulary knowledge were obtained. Row 12 of Table 2 indicates a significant difference in the number of words correctly identified by M-A Ss (mean = 23.3), compared to Anglo Ss (mean = 26.6). Furthermore, IQ equivalents based on vocabulary scores are lower for M-A Ss (mean = 95) than for Anglo Ss (mean = 101), although both mean scores fall within the average range. The relatively small size of these differences, although statistically significant, should be kept in mind in estimating the influence of differences in verbal fluency in determining responses to paper and pencil questionnaires.

Table 3 summarizes additional data relevant to the issue of whether differences in vocabulary identification might influence written responses. Basically, Table 3 represents a refined analysis of the 11 correlations reported in row 12 of Table 1. Table 3 presents 11 pairs of correlations between vocabulary scores and the other variables (IE, ARO, TO, and educational - vocational aspiration and achievement); computed

separately for the M-A and Anglo groups. For M-A Ss, significant correlations are obtained between vocabulary scores and IE and GPA; for Anglo Ss, between vocabulary and future TO on the Eson and PST, GPA, educational aspiration, and "future job" vocational aspiration. Thus, different patterns of relationships between vocabulary knowledge and the other variables appear as a function of race. The next question, and the most important one, is "how different" these patterns are. To answer this question, a series of "t" - tests based on the Fisher r-to-z transformation was computed to determine whether any of the 11 pairs of correlations from the M-A and Anglo Ss were significantly different from each other (Table 3). The result of this analysis was negative; i.e., differences between correlations within pairs were not significantly different. Thus, it seems legitimate to conclude that M-A and Anglo Ss differ from each other in terms of amount of vocabulary knowledge and the pattern of relationships between vocabulary knowledge and other variables; but, that these differences do not seem large enough to account for other findings.

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INSERT TABLE 3 ABOUT HERE

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One conclusion which emerges from this study is that a certain pattern of relationships may be demonstrated between IE, ARO and TO and educational - vocational achievement and

aspiration among a group of 11th grade high school students who are heterogeneous with respect to race (M-A plus Anglo) and class (low plus middle). A more refined analysis of these same data indicate that this pattern is independent of race (i.e., equally characteristic of both M-A and Anglo Ss); but that certain aspects of this relationship are more characteristic of membership in a low SES group than in a middle SES group. Data were presented indicating differences in vocabulary knowledge between M-A and Anglo Ss with regard to specific correlations between vocabulary scores and the 11 other variables. But, the absence of significant differences between these 11 pairs of correlations from M-A and Anglo Ss was interpreted as indicating that findings of this research do not appear to be influenced by differences in verbal fluency among M-A Ss who are bilingual compared to Anglo Ss who are not.

Comparing the results of this study with the research reviewed earlier, two additional inferences emerge. First, it is of questionable validity to assume that data generated from the study of a given psychological process in one race may be used to explain the same process in another race. In this study of achievement and aspiration among M-As, for example, one finds a different pattern of results that might be predicted from earlier research which failed to include M-A Ss. A related inference is that programs designed for ethnic minority group members (e.g., to encourage continuation of education or job training for better employment prospects) might be more effective if based on relevant research

with appropriate Ss. This particular study suggests, for example, that among M-A Ss, class membership is more significant than race in determining levels of achievement and aspiration.

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FOOTNOTES

[1]This article is based on a dissertation submitted by the first author, under the direction of the second author, in partial fulfillment of the requirements for the Ph.D. degree at the University of Arizona.

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[2]Requests for reprints should be sent to the second author at the above address.

[3]Throughout this discussion, the label "race" is used in its most broad sense to denote a group which shares a common gene pool and culture.

TABLE 1

CORRELATIONAL MATRIX OF 12 VARIABLES

Concepts		1	2	3	4	5	6	7	8	9	10	11	12
IE	1. POS	--											
ARO	2. AROS	11	--										
TO	3. Eson: Past	-14	-09	--									
	4. Eson: Pres.	13	-01	-35**	--								
	5. Eson: Fut.	09	13	-44**	-30**	--							
	6. PST - Fut.	-07	-08	-10	01	01	--						
Ach.	7. GPA	30**	26**	-21**	17*	13	-05	--					
Asp.-Educ.	8. Educ.	19**	23**	-05	-06	12	-08	30**	--				
Asp.-Vocat.	9. Future Job	01	-03	00	-14	16*	-06	14	47**	--			
	10. Preferred job	21**	14*	02	02	10	01	25**	30**	23**	--		
	11. General	28**	12	-05	-04	07	-03	15	10	00	04	--	
Vocab.	12. SH	20**	12	18*	14	12	03	39**	18*	11	03	12	--

TABLE 2

ANALYSES OF VARIANCE ON EFFECTS OF RACE

AND SES ON 12 VARIABLES

Concepts	Scales	Groups	$\bar{X}$	Effects	S.S.	DF	Mean Squares	F
1-E	1. Pos	LCA	21.38	Race	.074	1	.074	.01
		LCMA	20.73	SES	108.181	1	108.184	5.82*
		MCA	22.46	RXS	16.303	1	16.38	.81
		MCMA	23.11	Error	2.93.031	172	18.58	
ARO	2. AROS	LCA	8.89	Race	4.198	1	4.20	1.30
		LCMA	5.69	SES	2.902	1	2.90	.90
		MCA	8.15	RXS	12.499	1	12.50	3.82
		MCMA	9.08	Error	554.138	172	3.22	
TO	3. ESON-Past	LCA	1.838	Race	28.825	1	28.83	6.12*
		LCMA	2.554	SES	.015	1	.02	.08
		MCA	2.031	RXS	2.544	1	2.54	.65
		MCMA	2.536	Error	669.905	172	3.83	
	4. ESON-Pres.	LCA	3.378	Race	3.029	1	3.03	.79
		LCMA	2.914	SES	.463	1	.46	.12
		MCA	3.107	RXS	1.513	1	1.51	.39
		MCMA	3.038	Error	659.527	172	3.83	
	5. ESON-Fut	LCA	3.19	Race	1.058	1	1.06	.24
		LCMA	3.39	SES	6.043	1	6.04	1.36
		MCA	3.62	RXS	.082	1	.08	.02
		MCMA	3.73	Error	773.655	172	4.50	

TABLE 2--Continued

Concepts	Scales	Groups	$\bar{X}$	Effects	S.S.	DF	Mean Squares	F
	11. General	LCA	3.49	Race	1.389	1	1.39	2.10
		LCMA	3.14	SES	1.334	1	1.33	2.02
		MCA	3.17	RXS	1.040	1	1.04	1.57
		MCMA	3.15	Error	113.745	172	.66	
	12. SH	LCA	26.48	Race	400.78	1	400.78	23.43**
		LCMA	23.27	SES	9.95	1	9.95	.55
		MCA	26.95	RXS	.00	1	.00	.00
		MCMA	23.77	Error	2947.15	172	17.10	

* $p < .05$

** $p < .01$

TABLE 3

CORRELATIONS BETWEEN VOCABULARY SCORES AND OTHER VARIABLES COMPUTED SEPARATELY BY RACE

Concept	Scales	74 M-As	102 Anglos
IE	1. POS	25*	19
ARO	2. AROS	14	19
TO	3. Eson: Past	-19	-15
	4. Eson: Pres	05	04
	5. Eson: Fut	18	27**
	6. PST: Fut	-11	26**
Ach.	7. GPA	28*	48**
Asp-Educ	8. Educ	01	29**
Asp-Vocat	9. Future job	-13	23*
	10. preferred job	10	07
	11. general	09	05

With df = 72,

* < > .233, p < .05

** < > .302, p < .01

With df = 100,

* < > .195, p < .05

** < > .254, p < .01