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ABSTRACT

This study sought to answer two questions: Do teachers stereotype students of different ethnic and social class backgrounds when using actual classroom evaluative criteria? What are the relative effects of audio and visual cues in eliciting teachers' stereotypes? Stimulus materials portraying students from different ethnic and social class backgrounds were presented to teacher subjects via three modes: audio, visual and audiovisual. Teachers evaluated students using a semantic differential constructed from a random sample of public school teachers' criteria for student evaluation. A three-way analysis of variance for repeated measures was employed to test for any significant main effects for ethnicity, social class, and presentation mode and for possible interaction effects among these independent variables. The results of this study confirm results from previous studies (surveyed in this paper) which showed that teachers stereotype on the basis of ethnic and social class cues. They also confirm earlier findings that ethnic and social class cues are transmitted through both the audio and visual modes and that the audio mode provides more information for making judgments. The study extends previous findings to the classroom and confirms their applicability to teachers' evaluations of students on classroom criteria. (The final instrument used in the study appears among the appendices. A bibliography is included.) (DDO)

# AN INVESTIGATION OF TEACHERS' STEREOTYPING BEHAVIOR: THE INFLUENCE OF MODE OF PRESENTATION, ETHNICITY, AND SOCIAL CLASS ON TEACHERS' EVALUATIONS OF STUDENTS



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# CHAPTER I

## INTRODUCTION TO THE STUDY

It is commonly thought that education is one of the most powerful determinants of economic position in the American system (Thurow, 1972). An increasing amount of education is believed to make possible an increasingly wide array of job and career opportunities. Thus it is of concern that students from different minority and ethnic group backgrounds do not fare equally well in our public schools (Coleman, 1966; Sexton, 1961). The aim of this study was to investigate the possible influence of ethnic and social class stereotyping on teachers' judgments of students, as well as how these stereotypes might be transmitted.

A number of explanations have been offered to account for the differences in educational attainment of different ethnic and social class groups. These have been grouped by Rosen, et al., (1969) under three rubrics: (1) the moralistic perspective, (2) the intellective perspective, and (3) the personality-social structure perspective.

The moralistic perspective typically expounds maxims regarding personal characteristics and character structure, linking achievement to such variables as thrift, honesty, ambition, and hard work. "Early to bed and early to rise. . . ," "A penny saved is a penny earned," and "One gets his just

reward" are examples of moralistic explanations for achievement.

The intellective perspective views achievement primarily as a product of intellectual potential, that is, the more intelligent will achieve more. Jensen (1969), one of the proponents of this perspective, has suggested that underlying genetic differences in intelligence of different ethnic groups might account for different achievement levels. Black children may have a fundamentally different learning style because of lower intelligence, and this may mitigate against their success in the typical public school. Bernstein (1961), another proponent of this perspective, points to differences in language structure and usage for different socio-economic groups and concludes that these differences lead to differences in cognitive abilities which subsequently affect school achievement.

The personality-social structure perspective views achievement as a product of the interactions of many complex variables, including achievement motivation, values, and social class. Rosen, et al., (1969) comment, ". . . the structure of relations which develop within a social system is viewed as affecting the individual's perception of his environment, influencing what he strives to achieve, and determining to some degree how successful he will be in reaching his goal [p. 7]." Coleman (1966) reports research dealing with a number of variables in this category, including equality

of facilities, programs, teachers, and student body characteristics of different schools. His findings indicate that minority group schools are inferior to predominantly white, middle-class schools in providing educational services to their clients. He further suggests that it is not ethnicity per se that affects achievement in school, but rather, the social-economic climate of the institution.

The personality-social structure perspective rejects simplistic, uni-factorial notions of causality. By definition, this perspective views achievement as the result of multiple causes and interactions of causes. Since uni-factor explanations have been unable to predict achievement with reasonable accuracy, the personality-social structure perspective was adopted as the most viable approach for this study (Rosen, 1969).

Social class is reputed to be one of the most powerful personality-social structure variables influencing educational achievement (Toby, 1957; Deutsch, 1969; Sewall and Shah, 1967). Sexton (1961) studied the relation between income and educational achievement and showed that where the average family income exceeded $7,000, achievement was above grade level; where the income was below $7,000, achievement was below grade level.

> Numerous reports indicate that the IQ scores of disadvantaged children are lower than those of middle class children, their reading is sub-standard, their

> attitudes are negative, and their behavior is annoying to teachers (Becker, 1952; B. Clark, 1962; Davis and Dollard, 1940; Sexton, 1961). Disadvantaged children by definition come from lower socioeconomic groups where low income is married to values alien to the school culture. A larger proportion of disadvantaged children than middle-class children are failing in school [Rosenthal and Jacobson, 1968, p. 48].

Sewell, Haller, and Straus (1957) report that even when intelligence is held constant, educational and occupational aspirations vary with social status for both males and females. Rosen (1969) concludes that social class is more related to achievement motivation than ethnicity, but that neither ethnicity nor social class alone is sufficient to predict an individual's achievement motivation score. Thus, although the student's social class is an important variable, it is not the only variable which should be considered in a discussion of school achievement.

The personality-social structure perspective predicts that school achievement will be the result of many causes. The disadvantages associated with lower social status affect not only students' abilities and participation in middle class schools, but also affect the teachers' behavior toward those students. Becker (1952) found that teachers behave differently toward lower class students: they expect less from them, are offended by their behavior, and try to avoid them by transferring out of lower class schools as soon as they can. Miller (1973) found that teachers hold higher expectations for students' academic achievement when students

are perceived as being from middle rather than lower social class backgrounds.

Just as student characteristics have been found to affect teachers' behavior, Rosenthal and Jacobson (1968), and Beez (1972), and Palardy (1969) conclude that the mere presence of teachers' expectations for student achievement can influence student behavior in the direction of those expectations. Brophy and Good (1970) found that teachers behave in systematically different ways in line with their expectations for student achievement, and the nature of this differential treatment is such to elicit confirming behavior from the students for the teachers' expectations (cf., Kester and Letchworth, 1972). Although Pitt (1956) did not uncover expectancy effects, he did discover that low teacher expectations produced lower student self-ratings in regard to school performance.

In the Rosenthal and Beez Studies, experimenters manipulated teachers' expectations; however, experimenters are not the only source of teachers' expectations. A more obvious source are general societal ethnic and social class stereotypes which suggest that students in certain ethnic and lower social classes are less well equipped and less interested in school achievement than their middle class anglo peers (Becker, 1952).

A number of definitions of stereotypes have been

suggested (for a critical review of the literature on ethnic stereotyping, see Brigham, 1971). Secord (1959) says, "A stereotype is commonly thought of as involving a categorical response; that is, membership in a category is sufficient to evoke the judgment that the stimulus person possess all the attributes belonging to that category [p. 309]." Although research findings have not established a definite relationship between the tendency to stereotype and the tendency to discriminate behaviorally on the basis of stereotypes (Anderson and Foster, 1964), it is commonly believed that such a relationship does exist (Brigham, 1971; Gardner and Taylor, 1968). It is this belief that leads to the notion that stereotypes may influence teachers' expectations for their students' classroom behavior and subsequently lead to a cycle of self-fulfilling prophecies (Brophy and Good, 1970).

Secord (1958) suggests that there are five inference processes involved in stereotyping--of these, two appear more relevant for ethnic and social class stereotyping than the others: categorization and metaphorical generalization.

Categorization is the process whereby certain personality attributes are ascribed to a category of people on the basis of physiognomic cues. For example, photographs of Negroes have been rated lower on alertness, honesty, responsibility, refinement, intelligence, and thrift in comparison to photographs of caucasians. Negroes were rated higher on

superstition, laziness, emotionality, untidiness, and immorality.

Metaphorical generalization is the process by which the perceiver uses physiognomic cues to generalize directly to personality characteristics of the individual possessing them. For example, heavy eyebrows, disheveled hair, and coarse skin may be classified under the rubric of roughness which is then generalized to personality attributes, such as unkind, boorish, and hostile.

Both of these inference processes involve visual cues. However, a growing body of research provides evidence that audio cues are also important in eliciting stereotypes. Heider hypothesized,

> While we believe that we get to know something about a person from the shape of his face, or even the color of his hair, these physiognomic properties are far out-weighed by his actions as clues to his personality. In most cases we cognize a person's traits, and especially his wishes, sentiments, or intentions from what he does and says and we know considerably less when we are limited to what we can see of him as a static object [Heider, 1958, p. 23].

Buckingham (1972) investigated the importance of different modes of presentation. He asked native and non-native speakers to predict the next sentence in a dialogue and found that the audio channel provided more information than the visual channel. Jecker, et al., (1964) report that audio cues are superior to visual cues for assessing student comprehension. However, conflicting evidence is offered by Gitter,

et al., (1972) who found that, in the perception of emotions, visual cues are superior to audio cues.

Research on the use of audio cues to predict social class indicates that there are reliable syntactical and functional differences of speech between those of lower and middle classes (Williams and Naremore, 1969; Harms, 1961; Williams, Whitehead and Traupman, 1971; Williams and Naremore, 1971), and that furthermore, objectively classified higher class speakers are accorded more credibility and higher ratings on a variety of measures than are lower class speakers (Naremore, 1971; Williams, Whitehead and Traupman, 1971; Harms, 1961; Moe, 1972). Research in the area of paralinguistics indicates that people use paralinguistic cues to infer personal characteristics and traits, personality as a whole, emotionality, credibility, status, and ethnicity (Rosenfeld and Hayward, 1972).

Results from studies dealing with ethnicity and audio cues support the idea that listeners can accurately distinguish among speakers of different ethnic backgrounds (Buck, 1968; Nerbonne, 1967). Speakers of sub-standard, dialectical or accented English (the terms appear to be used interchangeably in the literature) are devalued on a number of measures, including height, good looks, leadership, dependability, and self-confidence (Anisfeld, Bogo and Lambert, 1962). In addition, Hurt and Weaver (1972) conclude that ethnocentric

subjects evaluated a speaker with a Negro dialect lower in character and also tended to distort the information from that speaker in line with their stereotypes of him.

More recently, a number of studies have been conducted with particular relevance to stereotyping in education. Most of these focused on ethnic and social class variables; some included a variety of presentation modes. The results of these investigations suggest that educational settings are rich with examples of stereotyping.

In terms of visual cues alone, Clifford and Walster (1973) varied physical attractiveness of photographed students and found that teachers' expectations for attractive children were higher for both social and intellectual dimensions than they were for unattractive children. Using both urban and suburban teachers as subjects, Woodworth and Salzer (1971) found that both groups of teachers devalued papers presented by black students, even though the papers presented were identical in content and form to those presented by white students.

Williams, Whitehead, and Miller (1971) used a standard English audio tape and varied ethnic cues visually while playing the audio tape. They concluded that visual cues do influence teachers' judgments of students. Furthermore, they found significant differences among ethnic groups on the two scales used as the dependent measure: ethnicity-nonstandardness and confidence-eagerness.

In another study using audio, visual and a combination of these modes, Williams, Whitehead, and Traupman (1971) studied the effects of ethnicity and social class on teachers' evaluations. Their results support the notion that teachers employ the dimensions of ethnicity-nonstandardness and confidence-eagerness across all presentation modes when making judgments of students. They also found that the perception of ethnic differences varies as a function of social status and that cues associated with middle class individuals elicit higher ratings across all ethnic conditions than those associated with the lower class.

Whitehead (1971) investigated the effect of paralinguistic cues of middle and lower class blacks, anglos and chicanos. He reports that teachers' ratings of students' speech predicted how students would be assigned to graded classes, especially in areas related to language arts. He concluded that teachers' expectations of students were significantly related to the students' language behavior.

Using a different approach, Whitehead and Miller (1972) investigated the correspondence between teachers' evaluations of students' speech and teachers' stereotypes using cues provided by middle and lower class anglos, blacks and chicanos. They found a moderate but statistically significant correlation between stereotypes and ratings based upon audio cues. They interpreted these findings as suggesting that teachers'

stereotypes affect but do not necessarily dominate ratings of students' speech. Thus, not only do teachers rate students portraying certain audio and visual cues lower, the basis of these ratings may reside in social stereotypes already present in the teachers.

These last studies indicate that (1) teachers evaluate students on the basis of ethnicity and social class, (2) teachers evaluate on the basis of audio, visual, and audio-visual cues, and (3) teachers' evaluations correspond closely to their stereotypes of students.

Although the evidence presented in these studies suggests that teachers do stereotype according to ethnic and social class backgrounds of students, the question as to whether teachers employ stereotypes when evaluating students using classroom evaluative criteria has not been answered satisfactorily. This is due in part to the dependent measure used in several of the studies cited. A semantic differential with the dimensions of ethnicity-nonstandardness and confidence-eagerness should logically reflect ethnic differences when teachers are rating students from different ethnic backgrounds. Whether differences found using these and other measures can be generalized to the classroom is another question. Whitehead (1971, 1972) offers evidence from two studies suggesting that teachers do stereotype on the basis of audio cues; however, the relative effects of audio and visual cues are unknown.

If student achievement is dependent, at least partly, upon teachers' stereotypes and expectations, then understanding how these stereotypes are elicited and if they affect teachers' ratings of students when they use classroom evaluative criteria is important. Once this information is available, the next step is to learn how teachers communicate their expectations to students, and then, how the negative cycle of self-fulfilling prophecies that seem to plague so many minority and disadvantaged students can be broken.

This study focuses on two questions. First, do teachers stereotype students of different ethnic and social class backgrounds when using actual classroom evaluative criteria? This part of the study serves to confirm or disconfirm existing evidence. Second, what are the relative effects of audio and visual cues in eliciting teachers' stereotypes?

The results of this study contribute to the literature of perceptual psychology, social psychology, communication, and education. Once it is known how social stereotypes are elicited, then efforts can be made by educators and those concerned with social issues to counteract their negative effects. In education the data may serve to document what may precede subtle behavioral discrimination by teachers. A second and related function of the data may be to alert preservice and in-service teachers to the tendencies teachers have to employ social stereotypes when evaluating students.

Finally, for those engaged in teacher training, the data may, in addition to the above functions, provide clues for combating stereotypes through a variety of techniques, including habituation to the eliciting cues and re-education with regard to the inappropriateness of the stereotypes.

# CHAPTER II

## METHODOLOGY

In Chapter I, two questions concerning ethnic and social class stereotyping were raised. The first question was whether teachers stereotype students when they use evaluative criteria commonly employed by public school teachers. The second question dealt with how stereotypic cues are communicated to teachers, that is, what is the relative influence of audio and visual cues on teachers' ratings of students. More specifically, this study tested the following research hypotheses:

1. There is a significant interaction of student ethnicity, mode of presentation and social class which affects teachers' evaluations of students.
2. There is a difference in teachers' evaluations of students based upon audio, visual or audio-visual cues.
3. There is a difference between teachers' evaluations of middle and lower class students.
4. There is a difference between teachers' evaluations of students on the basis of students' ethnic membership.

## OVERVIEW

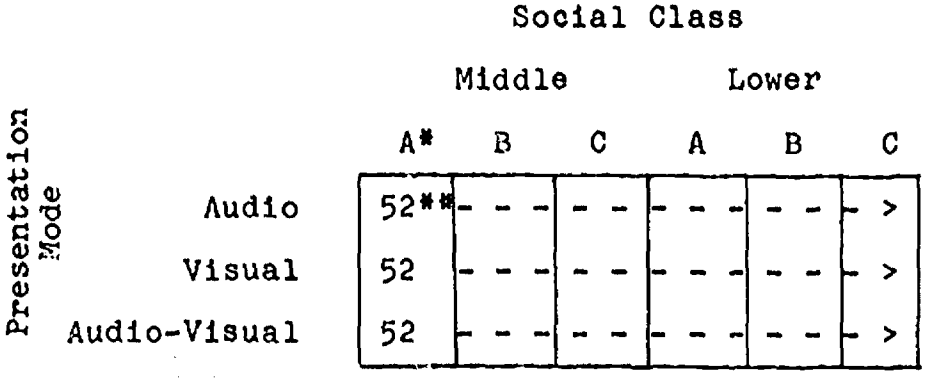
Stimulus materials portraying students from different ethnic and social class backgrounds were presented to teacher subjects via three modes: audio, visual, and audio-visual.

Teachers evaluated students using a semantic differential constructed from a random sample of public school teachers' criteria for student evaluation. A three way analysis of variance for repeated measures was employed to test for any significant main effects for ethnicity, social class, and presentation mode, and for possible intereaction effects among these independent variables. Figure 1 illustrates the design used in the study.

## INDEPENDENT VARIABLES

Three ethnic groups, "[groups] accorded special status on the basis of complex, often variable traits including religious, linguistic, ancestral or physical characteristics," (American Heritage Pocket Dictionary, 1970) were chosen for use in this study: anglo, black, and chicano. These groups were selected because (1) they represent major ethnic groups residing in the southwest, (2) these groups have been used in studies of this type previously and data for them is available, and (3) black and chicano ethnic groups are characterized by unfavorable social stereotypes, and therefore may be the target of discrimination in the school.

The videotapes of the students were obtained from Fred Williams, Director, Center for Communication Research, Austin, Texas. Students ethnicity was identified for these tapes using the following criteria: neighborhood, surname,




* A = Anglo
B = Black
C = Chicano

**52 subjects responded to both middle and lower class Anglo, Black, and Chicano students, in each of the three presentation modes.

FIGURE 1

DESIGN

and the students' own perceptions of their ethnic identities (Williams, 1973).

Social class has been defined as a social stratum whose members share similar characteristics, including economic and occupational similarities (for a discussion of class categories, see Lenski, 1966, pp. 74-82). For the videotapes, "Status was defined largely upon the basis of the child's neighborhood which in all cases corresponded also to the location of his school. The status identifications of the children's families can be additionally described in terms of the father's occupation [Williams, et al., 1971, p. 17]." Middle and lower class students were selected for videotaping. In addition, these two social classes were chosen for this study because of the evidence indicating that persons of lower social class are stereotyped more negatively than persons of middle class, and these negative stereotypes may produce concomitant behavioral displays by teachers toward students. Middle class students were chosen as the group with which to compare lower class students, because of the commonly held belief that our schools teach to middle class students and their values.

Presentation mode indicates how the stimulus materials were presented to teacher subjects. Subjects received cues from students in audio, visual, and audio-visual modes. Because videotapes were used, it was possible to turn off the sound

on the television monitor to obtain a Visual only condition.* The Audio condition was obtained either by covering the television screen or by distorting the picture beyond recognition. In the Audio-Visual condition, both sound and picture were presented to the subjects. Screen size varied from approximately sixteen to twenty-four inches, depending upon the monitor available for use.

The videotapes used in this study were copied from tapes originally used by Williams, Whitehead, and Miller (1971). Fifth and sixth grade boys were recorded in interview situations dealing with the boys' favorite games and television shows. The boys were selected to represent middle and lower class anglo, black, and chicano ethnic groups. All of the boys were selected through schools in or near Austin, Texas; therefore their speech reflects regional variations typical of that area. All of the boys were neatly dressed, most of them in sport shirts and slacks. Each was individually interviewed by an anglo female in her mid-twenties for a period of approximately eight minutes. These interviews were then edited and sections approximately ninety seconds in length were selected by Williams, et al., for the final videotapes. Four tapes, each containing six student interviews representing middle and lower class anglos, blacks, and chicanos (randomly

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*Capitalization indicates a treatment condition or interaction effect.

ordered on each of the tapes) were copied. However, due to the poor visual quality of the first tape, only the last three were actually used in this study.

## DEPENDENT VARIABLES

During May, 1972, forty-one mail questionnaires were sent out to a randomly selected group of Albuquerque Public School teachers. Teachers were asked to list the criteria they used to evaluate their students in the classroom (see Appendix A for a copy of the form letter). Thirty-seven per cent of the teachers responded. The fifteen most commonly appearing concepts were selected for use in the study. Due to the nature of the concepts selected (most were highly evaluative adjectives) it was decided that a semantic differential was the most appropriate instrument for having teachers evaluate students using these concepts.

Semantic differentiation is a procedure which involves rather standard scaling practices using bipolar adjectives at opposite ends of a seven point scale. "Differences in the patterns of check marks on the scales are assumed to represent differences in meaning of the concepts judged and/or differences in groups of subjects judging the same concepts [Darnell, 1970, p. 182]."

According to Gardner, Wonnacott, and Taylor (1968), "This technique [semantic differentiation] provides a

sensitive index of community-wide stereotypes as well as an individual difference measure of the extent to which such traits are attributed to the ethnic group [p. 35]." In addition, semantic differentiation bypasses the objection raised to traditional stereotype research by providing subjects with a format which allows them freedom to evaluate stimuli toward either the stereotypic or non-stereotypic end of the scale (Ehrlich and Rinehart, 1965; Brigham, 1971). Because stereotyping has been defined as a categorical response on the basis of one or more perceived cues, and because the instrument has been shown to be effective in stereotype research, ratings which varied systematically along ethnic and social class lines were taken as evidence for stereotyping.

Norman (see Darnell, 1970) reports a median test-retest reliability coefficient over a four week period of .66 for the semantic differential procedure. Immediate test-retest reliability has been established by Osgood, et al., (see Darnell, 1970) at .85. In addition, Osgood, et al., report that "less than 5% of the time will an individual's marks differ by as much as two scale units [p. 184]." Thus there is good evidence that the procedure produces reliable scales.

Validity of the semantic differential must be established for each individual instrument. The concepts for the instrument used in this study were generated by a random sample of public school teachers. One hundred seventeen separate

concepts were generated. Each of these concepts was typed on a 3 x 5 card and the deck of all the concepts was given to four public school teachers who were asked to rank order the cards by placing them into ten stacks according to their importance. Concepts for the final instrument were selected on the basis of (1) the most commonly appearing concepts from the original list (average agreement for each concept = 27%, range, 13% to 53%, and (2) the concepts deemed most important, that is, placed in the first stack by the four public school teachers.

The average agreement level for many concepts was low because selection was based upon the use of a specific word or phrase. There were, however, many cases of words and phrases which implied the same concept as the word or phrase selected, but these synonyms were not included in the agreement figures. (For example, "thought and original application of information," "thinking, analysis, and application," "ability to grasp concepts," and "asking appropriate questions" were not included in the agreement figures for "intelligence," which was mentioned specifically only 27% of the time.) Thus, although the figures for agreement seem low, a claim may be made for face validity of the instrument. (A list of the original concepts and their frequencies of occurance is included in Appendix B.)

Williams (1972), in a telephone conversation with the

author, suggested that each concept be presented in the form of a sentence, in order to reduce ambiguity by providing a context for marking the scales. Therefore, opposites were generated for each concept and each opposite was presented as the end part of a sentence root appearing at the top of the page. Scales and their format are presented in Figure 2.

For the final instrument, six different forms of these fifteen concepts were prepared (one form for each of six students appearing on each videotape). On each form, both the polarity and the order of the scales was randomized to eliminate possible order effects. Finally, the order of the forms themselves was randomized. (Appendix C contains the final instrument.)

Because of the evaluative nature of the concepts generated, it was believed that social desirability might play an important part in how teachers responded to the students on the scales. Therefore, the Crowne-Marlowe Social Desirability Scale was included as an additional measure in the study. Teachers' responses to this instrument indicated that, as a group, the teachers in this study showed a significantly lower tendency to respond in a socially desirable manner ($\bar{X}$ = 14.25, s.d. = 5.79) than those in the normative group ($\bar{X}$ = 15.99, s.d. = 5.54; t = 3.63, df = 1573, p. < .001).

THIS STUDENT PROBABLY. . .

| | | |
|---|---|---|
| participates in class | __:__:__:__:__:__:__ | does not participate in class |
| has a good attitude | __:__:__:__:__:__:__ | has a poor attitude |
| exerts no effort | __:__:__:__:__:__:__ | exerts a great deal of effort |
| attends regularly | __:__:__:__:__:__:__ | is frequently absent |
| performs well on tests | __:__:__:__:__:__:__ | performs poorly on tests |
| lacks motivation | __:__:__:__:__:__:__ | is highly motivated |
| is cooperative | __:__:__:__:__:__:__ | is not cooperative |
| works well independently | __:__:__:__:__:__:__ | does not work well independently |
| is not intelligent | __:__:__:__:__:__:__ | is very intelligent |
| does not follow directions | __:__:__:__:__:__:__ | follows directions |
| is irresponsible | __:__:__:__:__:__:__ | is responsible |
| is courteous | __:__:__:__:__:__:__ | is not courteous |
| is very creative | __:__:__:__:__:__:__ | lacks creativity |
| has a poor self concept | __:__:__:__:__:__:__ | has a good self concept |
| is sloppy | __:__:__:__:__:__:__ | is neat |

FIGURE 2

FORMAT OF SEMANTIC DIFFERENTIAL SCALES

## SAMPLE

Twelve junior high and four senior high schools were randomly selected from a list of schools included in the Albuquerque Public School system. Teachers from these schools either volunteered or were chosen by their principals for participation in the study, since school administrators would not allow a random selection of teachers from their faculties. Teacher subjects were then randomly assigned to experimental groups. Prior to participating in the study, each teacher completed a subject information sheet (see Final Instrument, Appendix C) indicating such things as age, years of teaching, sex, and ethnic background. Response sheets were assigned an identification number so that coding of responses was accomplished with as much subject anonymity as possible.

A total of one hundred sixty-eight teachers participated in the study. However, the responses of twelve subjects were randomly discarded in order to have equal n's for the analysis (Games, 1972). Of the remaining one hundred fifty-six teachers, forty-nine were male and one hundred seven were female. The teachers' average age was in the response category of 30-39 years; and they averaged 9.08 years of teaching experience. One hundred thirty-one were anglo. One hundred fifty of the respondents were secondary school teachers while six were school counselors. Ninety-one held at least a

bachelor's degree, sixty-one held at least a masters degree, and two had a Ph.D. Three had not completed any college degree at all. (See Appendix D for complete teacher background information.)

# CHAPTER III

## RESULTS

This chapter contains the results of the statistical analysis; Chapter IV contains the interpretations and conclusions. Chapter IV may be read independently of Chapter III without losing the relevance of the research.

A 3 x 3 x 2 design was analyzed using an analysis of variance for repeated measures. A relatively stringent probability level of .01 was selected for the level of significance in order to reduce the probability of making a Type I error (rejecting a true null hypothesis when it should be retained) on the fifteen F tests. In addition, the analysis of variance for repeated measures is a powerful test which may warrant a more conservative level of significance to be employed. Finally, the total number of subjects was large (N = 156), and since the possibility of obtaining significant results increases as N increases, the .01 level was employed.

## OVERVIEW OF THE RESULTS

Triple interactions (Mode x Ethnicity x Class) were obtained on seven scales:

Scale 1: Participation

Scale 2: Attitude

Scale 5: Test Performance

Scale 6: Motivation

Scale 9: Intelligence

Scale 14: Self Concept

Scale 15: Neatness.

Double interactions were obtained for six scales. A Mode x Ethnicity interaction was found for

Scale 3: Effort

Scale 4: Attendance

Scale 13: Creativity.

A Mode x Class interaction was found for

Scale 8: Works Independently.

An Ethnicity x Class interaction was found for

Scale 4: Attendance

Scale 8: Works Independently

Scale 10: Follows Directions

Scale 11: Responsibility

Scale 13: Creativity.

Main effects for Ethnicity were found on

Scale 7: Cooperation

Scale 12: Courtesy.

A main effect for Class was found on

Scale 3: Effort.

Significant interactions were obtained on thirteen of the fifteen analyses of variance. In order to determine significant differences among cell means, the Neuman-Keuls

multiple comparison procedure was employed as a follow-up for the F tests. In any set of analyses, the probability of making a Type I error increases as the number of comparisons increases. Since a large number of comparisons were necessary in the present study, it was important to choose a comparison procedure which controlled for the probability of making both family-wise and per comparison error. The Neuman-Keuls procedure controls for Type I error by setting the alpha level at .01 for all ordered sets of means, regardless of how many steps apart the means are. (For a description of the Neuman-Keuls procedure, see Appendix E.) In addition, the Neuman-Keuls procedure is liberal compared to other comparison procedures which control family-wise error, such as Tukey and Sheffé. Since significant F's were present, a more liberal comparison procedure was justified.

A scale by scale description of the results is presented in the following order: (1) a verbal description of the results, (2) acceptance or rejection of the hypotheses for each scale, (3) the analysis of variance summary table, and (4) a visual presentation of significant differences between cell means.

A visual description depicting cell means in ascending order is presented (1 = a positive rating; 7 = a negative rating.) Means which share a common underscore do not differ significantly from each other. Means which are statistically

different from each other are not connected by underscoring (this procedure is discussed in Duncan, 1955). A complete explanation of the findings is given for Scale 1: Participation. Explanations for other scales are abbreviated.

Scale 1: Participation

A triple interaction (Mode x Ethnicity x Class) was obtained for Scale 1: Participation. Underlines indicate that the following cells did not differ significantly from each other (cell names are located above cell numbers on Table 3, page 32): 9, 15, 13, 8, 7, 1, 12, 10, 11, 18, 14, and 16. This group of cells did differ from cells 17, 2, 4, 6, 5, and 3. The second group of cells which did not differ significantly from each other included 7, 1, 12, 10, 11, 18, 14, 16, and 17. This group of cells did differ from cells 9, 15, 13, and 8; and from 2, 4, 6, 5, and 3. The third group of cell means which did not differ significantly from each other were cells 12, 10, 11, 18, 14, 16, 17, and 2. These means did differ from cells 9, 15, 13, 8, 7, and 1; and from cells 4, 6, 5, and 3. The fourth underscore indicates that cells 11, 18, 14, 16, 17, 2, and 4 did not differ significantly from each other, but did differ from cells 9, 16, 13, 8, 7, 1, 12, and 10; and from cells 6, 5, and 3. The final underscore indicates that cells 17, 2, 4, 6, 5, and 3 did not differ from each other but did differ from all other

TABLE 1

OVERVIEW OF REJECTION/RETENTION OF NULL HYPOTHESES

| Scale | Hypotheses* 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1: Participation | reject | retain | retain | retain |
| 2: Attitude | reject | retain | retain | retain |
| 3: Effort | reject | retain | reject | retain |
| 4: Attendance | reject | retain | retain | retain |
| 5: Test Performance | reject | retain | retain | retain |
| 6: Motivation | reject | retain | retain | retain |
| 7: Cooperation | retain | retain | retain | reject |
| 8: Works Independently | reject | retain | retain | retain |
| 9: Intelligence | reject | retain | retain | retain |
| 10: Follows Directions | reject | retain | retain | retain |
| 11: Responsibility | reject | retain | retain | retain |
| 12: Courtesy | retain | retain | retain | reject |
| 13: Creativity | reject | retain | retain | retain |
| 14: Self Concept | reject | retain | retain | retain |
| 15: Neatness | reject | retain | retain | retain |

*Hypotheses:

1. There is a significant interaction of student ethnicity, mode of presentation and social class which affects teachers' evaluations of students.

2. There is a difference in teachers' evaluations of students based upon audio, visual or audio-visual cues.

3. There is a difference between teachers' evaluations of middle and lower class students.

4. There is a difference between teachers' evaluations of students on the basis of students' ethnic membership.

TABLE 2

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 1: PARTICIPATION

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A* | 18.20726 | 9.103632 | 2 | 2.063 | 0.131 |
| Error | 675.1122 | 4.412498 | 153 | | |
| Within subjects | | | | | |
| J | 243.8034 | 121.9017 | 2 | 43.161 | 0.000 |
| AJ | 16.95299 | 4.238248 | 4 | 1.501 | 0.202 |
| Error | 864.2436 | 2.824325 | 306 | | |
| K | 79.62500 | 79.62500 | 1 | 37.921 | 0.000 |
| AK | 30.94231 | 15.47115 | 2 | 7.368 | 0.001 |
| Error | 321.2660 | 2.099778 | 153 | | |
| JK | 80.41026 | 40.20513 | 2 | 14.672 | 0.000 |
| AJK | 52.74359 | 13.18590 | 4 | 4.812 | 0.001 |
| Error | 838.5128 | 2.740238 | 306 | | |

*A = Mode
J = Ethnicity
K = Class

TABLE 3

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 1: PARTICIPATION

(Mode x Ethnicity x Class)

| AuV A M | AuV B M | Aud A M | V B M | V A L | V A M | AuV A L | Au A L | Au B M | Au C L | V B L | AuV C L | AuV C M | V C M | Au B L | AuV B L | Au C M | V C L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 15 | 1 | 9 | 8 | 7 | 14 | 2 | 3 | 6 | 10 | 18 | 17 | 11 | 4 | 16 | 5 | 12 |

n = 52
Variance estimate = 2.74024

cell means. The lack of overlap between the first underscore and the last underscore reveals that the most positive group of ratings (the group with the lowest mean ratings) differed significantly from the least positively rated group (the group with the highest mean ratings).

In general, Anglo Middle class (AM) in all conditions and Black Middle class (BM) in the Visual (V) and the Audio-Visual (AuV) conditions were rated more positively than Chicano Middle class (CM), Chicano Lower class (CL), and Black Lower class (BL), regardless of the latter three's mode of presentation.

Hypotheses:*

1. There is a significant interaction of student ethnicity, mode of presentation and social class which affects teachers' evaluations of students.
2. There is a difference in teachers' evaluations of students based upon audio, visual or audio-visual cues.
3. There is a difference between teachers' evaluations of middle and lower class students.
4. There is a difference between teachers' evaluations of students on the basis of students' ethnic membership.

Results for all scales are given for the null, rather than for the alternative hypotheses, since statistical tests are based upon tests of the null hypothesis. Results for Scale 1 indicate that the following actions are appropriate

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*Hypotheses will be referred to by number for subsequent scales.

with regard to the hypotheses:

Hypothesis 1--reject the null, retain the alternative.**

Scale 2: Attitude

A triple interaction (Mode x Ethnicity x Class) was obtained for Scale 2: Attitude. AuVAM was evaluated significantly higher than all modes of CM; than the VAM mode; than AuCL and VCL; and than AuBL and VBL. VBM was rated significantly more positively than AuBM, AuVBL, and AuBL; all modes of CL; and AuCM and AuVCM.

Hypotheses: Results for Scale 2: Attitude indicate that the following actions are appropriate with regard to the hypotheses:

Hypothesis 1--reject the null, retain the alternative.

Scale 3: Effort

A double interaction for Mode x Ethnicity and a main effect for Class were obtained for Scale 3: Effort. In the interaction, AuA was rated significantly more positively than AuC, AuVC, and AuB. AuVA and VA were rated significantly higher than AuB, but did not differ significantly from other conditions.

In the main effect for Class, M was evaluated significantly

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**Higher order interactions render lower order interactions and main effects (for the same variables) meaningless, hence if Hypothesis 1 is rejected, Hypothesis 2, 3, and 4 are ignored.

TABLE 4

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 2: ATTITUDE

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 30.19444 | 15.09722 | 2 | 4.943 | 0.008 |
| Error | 467.3013 | 3.054257 | 153 | | |
| Within subjects | | | | | |
| J | 70.46368 | 35.23184 | 2 | 18.405 | 0.000 |
| AJ | 19.09402 | 4.773504 | 4 | 2.494 | 0.043 |
| Error | 585.7756 | 1.914299 | 306 | | |
| K | 22.77350 | 22.77350 | 1 | 16.147 | 0.000 |
| AK | 2.438034 | 1.219017 | 2 | 0.864 | 0.423 |
| Error | 215.7885 | 1.410382 | 153 | | |
| JK | 14.82265 | 7.411325 | 2 | 4.187 | 0.016 |
| AJK | 33.58120 | 8.395299 | 4 | 4.743 | 0.001 |
| Error | 541.5962 | 1.769922 | 306 | | |

TABLE 5

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 2: ATTITUDE

(Mode x Ethnicity x Class)

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AuV | AuV | V | Au | AuV | Au | V | AuV | AuV | Au | V | V | Au | AuV | Au | Au | V | V |
| A | B | B | A | A | A | A | C | B | B | C | A | C | C | C | B | B | C |
| M | M | M | M | L | L | L | L | L | M | M | M | M | M | L | L | L | L |
| 13 | 15 | 9 | 1 | 14 | 2 | 8 | 18 | 16 | 3 | 11 | 7 | 5 | 17 | 6 | 4 | 10 | 12 |

n = 52
Variance estimate = 1.76992

more positively than L.

Hypotheses: Results for Scale 3 indicate that the following actions are appropriate with regard to the hypotheses:

Hypothesis 1--reject the null, retain the alternative.

Hypothesis 3--reject the null, retain the alternative.

Scale 4: Attendance

Two double interactions were obtained for Scale 4: Attendance. These were Mode x Ethnicity and Ethnicity x Class. In the first interaction, Mode x Ethnicity, As in all three modes were evaluated significantly more positively than all other cells, except VB. VB did not differ from As in any condition, but was rated more favorably than AuB. All other differences were nonsignificant.

In the Ethnicity x Class interaction, AM and AL were rated significantly more positively than BM, though BM did not differ significantly from AL.

Hypotheses: Results from the ratings for Scale 4: Attendance indicate that the following actions are appropriate with regard to the hypotheses:

Hypothesis 1--reject the null, retain the alternative.

Scale 5: Test Performance

A triple interaction for Mode x Ethnicity x Class was obtained for Scale 5: Test Performance. AuVAM was rated

TABLE 6

ANALYSIS OF VARIANCE SUMMARY TABLE FOR SCALE 3: EFFORT

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 4.880342 | 2.440171 | 2 | 0.834 | 0.436 |
| Error | 447.4904 | 2.924774 | 153 | | |
| Within subjects | | | | | |
| J | 54.36111 | 27.18056 | 2 | 12.521 | 0.000 |
| AJ | 30.01709 | 7.504274 | 4 | 3.457 | 0.009 |
| Error | 664.2885 | 2.170877 | 306 | | |
| K | 31.24038 | 31.24038 | 1 | 16.116 | 0.000 |
| AK | 4.333333 | 2.166667 | 2 | 1.118 | 0.330 |
| Error | 296.5929 | 1.938516 | 153 | | |
| JK | 17.44231 | 8.721154 | 2 | 3.832 | 0.023 |
| AJK | 25.51282 | 6.378205 | 4 | 2.803 | 0.026 |
| Error | 696.3782 | 2.275746 | 306 | | |

TABLE 7

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 3: EFFORT

(Mode x Ethnicity)

| AuA | AuVA | VA | VB | AuVB | VC | AuC | AuVC | AuB |
|---|---|---|---|---|---|---|---|---|
| T 1 | T 7 | T 4 | T 5 | T 8 | T 6 | T 3 | T 9 | T 2 |
| 2.5962 | 2.808 | 2.885 | 2.971 | 2.990 | 3.231 | 3.365 | 3.385 | 3.625 |

n = 104
Variance estimate = 2.17088

TABLE 8

TABLE OF SIGNIFICANT DIFFERENCES FOR SCALE 3: EFFORT

(Class)

| M | L |
|---|---|
| T 1 | T 2 |
| 2.912 | 3.278 |

n = 468
Variance estimate = 1.93852

TABLE 9

ANALYSIS OF VARIANCE SUMMARY TABLE FOR SCALE 4: ATTENDANCE

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 20.08333 | 10.04167 | 2 | 2.463 | 0.089 |
| Error | 623.7885 | 4.077049 | 153 | | |
| Within subjects | | | | | |
| J | 167.7692 | 83.88462 | 2 | 29.009 | 0.000 |
| AJ | 43.03205 | 10.75801 | 4 | 3.720 | 0.006 |
| Error | 884.8654 | 2.891717 | 306 | | |
| K | 39.38462 | 29.38462 | 1 | 18.010 | 0.000 |
| AK | 5.698718 | 2.849359 | 2 | 1.303 | 0.275 |
| Error | 334.5833 | 2.186819 | 153 | | |
| JK | 24.33333 | 12.16667 | 2 | 5.156 | 0.006 |
| AJK | 23.89103 | 5.972756 | 4 | 2.531 | 0.041 |
| Error | 722.1090 | 2.359833 | 306 | | |

TABLE 10

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 4: ATTENDANCE

(Mode x Ethnicity)

| AuA | AuVA | VA | VB | AuVB | AuVC | VC | AuC | AuB |
|---|---|---|---|---|---|---|---|---|
| T 1 | T 7 | T 4 | T 5 | T 8 | T 9 | T 6 | T 3 | T 2 |
| 2.4808 | 2.519 | 2.558 | 2.865 | 3.279 | 3.433 | 3.452 | 3.500 | 3.952 |

n = 104
Variance estimate = 2.89172

TABLE 11

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 4: ATTENDANCE

(Ethnicity x Class)

| AM | AL | BM | CM | CL | BL |
|---|---|---|---|---|---|
| T 1 | T 2 | T 3 | T 5 | T 6 | T 4 |
| 2.391 | 2.647 | 2.936 | 3.404 | 3.519 | 3.795 |

n = 156
Variance estimate = 2.35983

significantly higher than all other cells except AuAM, VAL, and VBM. AL, BM, and AM in the V mode were rated significantly better on test performance than AuVCM.

Hypotheses: Results indicate that the following actions are appropriate with regard to the hypotheses and Scale 5:

Hypothesis 1--reject the null, retain the alternative.

Scale 6: Motivation

A triple interaction (Mode x Ethnicity x Class) was obtained on Scale 6: Motivation. AuAM and AuVAM were rated significantly more favorably than Cs in all conditions and Bs in all conditions except AuVBM and VBM. AuAM and AuVAM were also rated higher than VAM, and than VAL and AuVAL.

Hypotheses: Results for Scale 6 indicate that the following actions are appropriate with regard to the hypotheses:

Hypothesis 1--reject the null, retain the alternative.

Scale 7: Cooperation

A main effect for Ethnicity was obtained for Scale 7: Cooperation. As were rated as significantly more cooperative than Bs and Cs. Bs and Cs did not differ significantly from each other.

Hypotheses: Results indicate that the following actions are appropriate for Scale 7 with regard to the hypotheses:

TABLE 12

ANALYSIS OF VARIANCE SUMMARY TABLE FOR SCALE 5: TEST PERFORMANCE

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 10.47650 | 5.238248 | 2 | 1.615 | 0.202 |
| Error | 496.3526 | 3.244134 | 153 | | |
| Within subjects | | | | | |
| J | 187.7201 | 93.86004 | 2 | 30.080 | 0.000 |
| AJ | 33.12607 | 8.281517 | 4 | 2.654 | 0.033 |
| Error | 954.8205 | 3.120328 | 306 | | |
| K | 19.18376 | 19.18376 | 1 | 8.143 | 0.005 |
| AK | 3.348291 | 1.674145 | 2 | 0.711 | 0.493 |
| Error | 360.4679 | 2.356000 | 153 | | |
| JK | 55.42521 | 27.71261 | 2 | 11.642 | 0.000 |
| AJK | 51.17735 | 12.79434 | 4 | 5.375 | 0.000 |
| Error | 728.3974 | 2.380384 | 306 | | |

TABLE 13

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 5: TEST PERFORMANCE

(Mode x Ethnicity x Class)

| AuV | Au | V | V | V | Au | AuV | AuV | V | V | Au | V | Au | AuV | AuV | Au | Au | AuV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | A | A | B | A | A | B | A | C | C | C | B | B | B | C | B | C | C |
| M | M | L | M | M | L | M | L | L | M | L | L | M | L | L | L | M | M |
| 13 | 1 | 8 | 9 | 7 | 2 | 15 | 14 | 12 | 11 | 6 | 10 | 3 | 16 | 18 | 4 | 5 | 17 |

n = 52
Variance estimate = 2.38038

TABLE 14

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 6: MOTIVATION

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 1.547009 | 0.7735043 | 2 | 0.213 | 0.808 |
| Error | 555.8590 | 3.633065 | 153 | | |
| Within subjects | | | | | |
| J | 225.6816 | 112.8408 | 2 | 40.942 | 0.000 |
| AJ | 42.94658 | 10.73665 | 4 | 3.896 | 0.004 |
| Error | 843.3718 | 2.756117 | 306 | | |
| K | 60.51709 | 60.51709 | 1 | 27.717 | 0.000 |
| AK | 17.75214 | 8.876068 | 2 | 4.065 | 0.019 |
| Error | 334.0641 | 2.183426 | 153 | | |
| JK | 50.54060 | 25.27030 | 2 | 12.988 | 0.000 |
| AJK | 64.76709 | 16.19177 | 4 | 8.322 | 0.000 |
| Error | 595.3590 | 1.945618 | 306 | | |

TABLE 15

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 6: MOTIVATION

(Mode x Ethnicity x Class)

| Au | AuV | AuV | V | Au | V | AuV | V | V | AuV | Au | Au | V | Au | AuV | V | Au | AuV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | A | B | B | A | A | A | A | C | C | C | B | B | B | C | C | C | B |
| M | M | M | M | L | L | L | M | M | L | L | M | L | L | M | L | M | L |
| 1 | 13 | 15 | 9 | 2 | 8 | 14 | 7 | 11 | 18 | 6 | 3 | 10 | 4 | 17 | 12 | 5 | 16 |

n = 52
Variance estimate = 1.94562

Hypothesis 4--reject the null, retain the alternative.

Scale 8: Works Independently

Two double interactions were obtained for Scale 8: Works Independently. These were Ethnicity x Class and Mode x Class. In the first interaction, Ethnicity x Class, AM was rated significantly higher on Works Independently than all other conditions. AL was rated higher than CL, CM, and CL. BM was rated significantly higher than BL and CM. CM, CL, and BL did not differ significantly from each other.

In the second interaction, Mode x Class, AuVM was rated significantly more positively than AuVL and AuL. All other means did not differ significantly from each other.

Hypotheses: Results indicate that the following actions are appropriate with regard to the hypotheses and Scale 8:

Hypothesis 1--reject the null, retain the alternative.

Scale 9: Intelligence

A triple interaction (Mode x Ethnicity x Class) was obtained for Scale 9: Intelligence. AuAM, AuVAM, VAL, VBM, and AuVBM were rated significantly more positively than all modes of CL; than the Au and AuV modes for BL, and CM; and AuVAL.

Hypotheses: Results indicate that the following actions are appropriate with regard to the hypotheses for Scale 9:

TABLE 16

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 7: COOPERATION

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 15.73291 | 7.866453 | 2 | 2.957 | 0.055 |
| Error | 407.0577 | 2.660508 | 153 | | |
| Within subjects | | | | | |
| J | 45.96368 | 22.98184 | 2 | 14.199 | 0.000 |
| AJ | 10.43376 | 2.608440 | 4 | 1.612 | 0.171 |
| Error | 495.2692 | 1.618527 | 306 | | |
| K | 4.940171 | 4.940171 | 1 | 3.654 | 0.058 |
| AK | 7.181624 | 3.590812 | 2 | 2.656 | 0.073 |
| Error | 206.8782 | 1.352145 | 153 | | |
| JK | 10.98932 | 5.494658 | 2 | 3.243 | 0.040 |
| AJK | 11.56197 | 2.890491 | 4 | 1.706 | 0.148 |
| Error | 518.4487 | 1.694277 | 306 | | |

TABLE 17

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 7: COOPERATION

(Ethnicity)

| A | B | C |
|---|---|---|
| T 1 | T 2 | T 3 |
| 2.042 | 2.446 | 2.558 |

n = 312
Variance estimate = 1.61853

TABLE 18

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 8: WORKS INDEPENDENTLY

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 4.726496 | 2.363248 | 2 | 0.575 | 0.564 |
| Error | 629.0641 | 4.111530 | 153 | | |
| Within subjects | | | | | |
| J | 228.2137 | 114.1068 | 2 | 35.804 | 0.000 |
| AJ | 26.58120 | 6.645299 | 4 | 2.085 | 0.083 |
| Error | 975.2051 | 3.186945 | 306 | | |
| K | 36.17094 | 36.17094 | 1 | 11.682 | 0.001 |
| AK | 44.77778 | 22.38889 | 2 | 7.231 | 0.001 |
| Error | 473.7179 | 3.096196 | 153 | | |
| JK | 39.29060 | 19.64530 | 2 | 7.126 | 0.001 |
| AJK | 24.41453 | 6.103632 | 4 | 2.214 | 0.067 |
| Error | 843.6282 | 2.756955 | 306 | | |

TABLE 19

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 8: WORKS INDEPENDENTLY

(Ethnicity x Class)

| AM | AL | BM | CL | BL | CM |
|---|---|---|---|---|---|
| T 1 | T 2 | T 3 | T 6 | T 4 | T 5 |
| 2.647 | 3.404 | 3.615 | 4.090 | 4.218 | 4.269 |

n = 156
Variance estimate 2.75695

TABLE 20

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 8: WORKS INDEPENDENTLY

(Mode x Class)

| AuVM | AuM | VL | VM | AuVL | AuL |
|---|---|---|---|---|---|
| T 5 | T 1 | T 4 | T 3 | T 6 | T 2 |
| 3.186 | 3.532 | 3.622 | 3.814 | 4.045 | 4.045 |

n = 156
Variance estimate = 3.09620

Hypothesis 1--reject the null, retain the alternative.

Scale 10: Follows Directions

An Ethnicity x Class interaction was obtained for Scale 10: Follows Directions. The most positive rating was received by AM, which was significantly higher than all other conditions. AL was significantly higher than CM, which received the least favorable rating. All other differences between cell means were nonsignificant.

Hypotheses: Results indicate that the following actions are appropriate with regard to the hypotheses and Scale 10:

Hypothesis 1--reject the null, retain the alternative.

Scale 11: Responsibility

An Ethnicity x Class interaction was obtained for Scale 11: Responsibility. AM, AL, and BM conditions were rated significantly higher than CL, CM, and BL conditions.

Hypotheses: Findings indicate that the following actions are appropriate with regard to the hypotheses and Scale 11:

Hypothesis 1--reject the null, retain the alternative.

Scale 12: Courtesy

A main effect for Ethnicity was obtained for Scale 12: Courtesy. As were rated significantly higher than Cs. Ratings for Bs did not differ significantly from either As or

TABLE 21

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 9: INTELLIGENCE

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 37.50214 | 18.75107 | 2 | 5.890 | 0.003 |
| Error | 487.1218 | 3.183803 | 153 | | |
| Within subjects | | | | | |
| J | 156.0662 | 78.03312 | 2 | 41.523 | 0.000 |
| AJ | 42.21581 | 10.55395 | 4 | 5.616 | 0.000 |
| Error | 575.0513 | 1.879253 | 306 | | |
| K | 57.50427 | 57.50427 | 1 | 32.482 | 0.000 |
| AK | 13.29701 | 6.648504 | 2 | 3.755 | 0.026 |
| Error | 270.8654 | 1.770362 | 153 | | |
| JK | 61.47650 | 30.73825 | 2 | 17.402 | 0.000 |
| AJK | 61.35684 | 15.33921 | 4 | 8.684 | 0.000 |
| Error | 540.5000 | 1.766340 | 306 | | |

TABLE 22

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 9: INTELLIGENCE

(Mode x Ethnicity x Class)

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Au | AuV | V | V | AuV | V | Au | V | V | Au | AuV | AuV | V | Au | AuV | AuV | Au | Au |
| A | A | A | B | B | A | A | B | C | B | C | A | C | C | C | B | C | B |
| M | M | L | M | M | M | L | L | M | M | L | L | L | L | M | L | M | L |
| 1 | 13 | 8 | 9 | 15 | 7 | 2 | 10 | 11 | 3 | 18 | 14 | 12 | 6 | 17 | 16 | 5 | 4 |

n = 52
Variance estimate = 1.76634

TABLE 23

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 10: FOLLOWS DIRECTIONS

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 16.69444 | 8.347222 | 2 | 2.220 | 0.112 |
| Error | 575.4038 | 3.760809 | 153 | | |
| Within subjects | | | | | |
| J | 111.7009 | 55.85043 | 2 | 23.460 | 0.000 |
| AJ | 5.485043 | 1.371261 | 4 | 0.576 | 0.680 |
| Error | 728.4808 | 2.380656 | 306 | | |
| K | 10.68376 | 10.68376 | 1 | 4.653 | 0.033 |
| AK | 1.989316 | 0.9946581 | 2 | 0.433 | 0.649 |
| Error | 351.3269 | 2.296254 | 153 | | |
| JK | 31.62393 | 15.81197 | 2 | 6.791 | 0.001 |
| AJK | 18.93376 | 4.733440 | 4 | 2.033 | 0.090 |
| Error | 712.4423 | 2.328243 | 306 | | |

TABLE 24

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 10: FOLLOWS DIRECTIONS

(Ethnicity x Class)

| AM | AL | BM | CL | BL | CM |
|---|---|---|---|---|---|
| T 1 | T 2 | T 3 | T 6 | T 4 | T 5 |
| 2.160 | 2.801 | 3.013 | 3.141 | 3.269 | 3.397 |

n = 156
Variance estimate = 2.32824

TABLE 25

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 11: RESPONSIBILITY

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 6.967949 | 3.483974 | 2 | 1.103 | 0.334 |
| Error | 483.0609 | 3.157261 | 153 | | |
| Within subjects | | | | | |
| J | 89.71795 | 44.85897 | 2 | 22.149 | 0.000 |
| AJ | 20.54487 | 5.136218 | 4 | 2.536 | 0.040 |
| Error | 619.7372 | 2.025285 | 306 | | |
| K | 26.33440 | 26.33440 | 1 | 18.503 | 0.000 |
| AK | 1.412393 | 0.7061966 | 2 | 0.496 | 0.610 |
| Error | 217.7532 | 1.423224 | 153 | | |
| JK | 21.70085 | 10.85043 | 2 | 6.447 | 0.002 |
| AJK | 9.331197 | 2.332799 | 4 | 1.386 | 0.239 |
| Error | 514.9679 | 1.682902 | 306 | | |

TABLE 26

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 11: RESPONSIBILITY

(Ethnicity x Class)

| AM | AL | BM | CL | CM | BL |
|---|---|---|---|---|---|
| T 1 | T 2 | T 3 | T 6 | T 5 | T 4 |
| 2.231 | 2.532 | 2.590 | 3.090 | 3.109 | 3.314 |

n = 156
Variance estimate = 1.68290

Cs.

Hypotheses: Findings indicate that the following actions are appropriate with regard to the hypotheses and Scale 12:

Hypothesis 4--reject the null, retain the alternative.

Scale 13: Creativity

Double interactions for Mode x Ethnicity and Ethnicity x Class were obtained for Scale 13: Creativity. In the first interaction, Mode x Ethnicity, AuA, VB, and AuVA were rated more positively than AuB, VC, AuVC, and AuC, but did not differ significantly from each other.

In the Ethnicity x Class interaction, AM was rated significantly more favorably than AL, CL, BL, and CM. BM was rated more favorably than CL, BL, and CM. CL, BL, and CM did not differ significantly from each other.

Hypotheses: Findings indicate that the following actions are appropriate with regard to the hypotheses and scale 13:

Hypothesis 1--reject the null, retain the alternative.

Scale 14: Self Concept

A triple interaction (Mode x Ethnicity x Class) was obtained for Scale 14: Self Concept. AuAM was rated significantly higher than all other conditions except AuVAM, AuVBM, VBM, and AuAL. AuVAM was rated more favorably than all modes of CL, CM, and BL; and VAM, and AuBM. AuVBM and VBM were

TABLE 27

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 12: COURTESY

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 12.34188 | 6.170940 | 2 | 2.272 | 0.107 |
| Error | 415.4872 | 2.715602 | 153 | | |
| Within subjects | | | | | |
| J | 28.39957 | 14.19979 | 2 | 11.443 | 0.000 |
| AJ | 9.561966 | 2.390491 | 4 | 1.926 | 0.106 |
| Error | 379.7051 | 1.240866 | 306 | | |
| K | 0.8376068 | 0.8376068 | 1 | 0.728 | 0.395 |
| AK | 9.854701 | 4.927350 | 2 | 4.284 | 0.015 |
| Error | 175.9744 | 1.150159 | 153 | | |
| JK | 2.002137 | 1.001068 | 2 | 0.690 | 0.502 |
| AJK | 6.420940 | 1.605235 | 4 | 1.107 | 0.354 |
| Error | 443.9103 | 1.450687 | 306 | | |

TABLE 28

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 12: COURTESY

(Ethnicity)

| A | B | C |
|---|---|---|
| T 1 | T 2 | T 3 |
| 1.949 | 2.093 | 2.369 |

n = 312
Variance estimate = 2.71560

TABLE 29

ANALYSIS OF VARIANCE SUMMARY TABLE FOR SCALE 13: CREATIVITY

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 8.284188 | 4.142094 | 2 | 0.962 | 0.385 |
| Error | 659.1090 | 4.307902 | 153 | | |
| Within subjects | | | | | |
| J | 123.1816 | 61.59081 | 2 | 24.235 | 0.000 |
| AJ | 52.15812 | 13.03953 | 4 | 5.131 | 0.001 |
| Error | 777.6603 | 2.541373 | 306 | | |
| K | 63.60684 | 63.60684 | 1 | 29.866 | 0.000 |
| AK | 14.87393 | 7.436966 | 2 | 3.492 | 0.033 |
| Error | 325.8526 | 2.129755 | 153 | | |
| JK | 45.59188 | 22.79594 | 2 | 8.820 | 0.000 |
| AJK | 33.19658 | 8.299145 | 4 | 3.211 | 0.013 |
| Error | 790.8782 | 2.584569 | 306 | | |

TABLE 30

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 13: CREATIVITY

(Mode x Ethnicity)

| AuA | VB | AuVA | VA | AuVB | AuB | VC | AuVC | AuC |
|---|---|---|---|---|---|---|---|---|
| T 1 | T 5 | T 7 | T 4 | T 8 | T 2 | T 6 | T 9 | T 3 |
| 3.135 | 3.173 | 3.308 | 3.615 | 3.865 | 4.048 | 4.106 | 4.221 | 4.375 |

n = 104
Variance estimate = 2.58457

TABLE 31

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 13: CREATIVITY

(Ethnicity x Class)

| AM | BM | AL | CL | BL | CM |
|---|---|---|---|---|---|
| T 1 | T 3 | T 2 | T 6 | T 4 | T 5 |
| 3.064 | 3.179 | 3.641 | 4.212 | 4.212 | 4.256 |

n = 156
Variance estimate = 2.54137

rated more positively than BL in all modes, VCM, AuCM, and VCL.

Hypotheses: Results indicate that the following actions are appropriate for Scale 14 with regard to the hypotheses:

Hypothesis 1--reject the null, retain the alternative.

Scale 15: Neatness

A triple interaction for Mode x Ethnicity x Class was obtained for Scale 14: Neatness. All Au conditions, except AuAM, were rated at the least favorable end of the scale. Other modes interacted with other conditions.

Hypotheses: Results indicate that the following actions are appropriate with regard to the hypotheses and Scale 15:

Hypothesis 1--reject the null, retain the alternative.

TABLE 32

ANALYSIS OF VARIANCE SUMMARY TABLE FOR
SCALE 14: SELF CONCEPT

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 26.05983 | 13.02991 | 2 | 3.185 | 0.044 |
| Error | 625.8718 | 4.090665 | 153 | | |
| Within subjects | | | | | |
| J | 166.7073 | 83.35363 | 2 | 25.351 | 0.000 |
| AJ | 64.51709 | 16.12927 | 4 | 4.906 | 0.001 |
| Error | 1006.109 | 3.287938 | 306 | | |
| K | 59.50427 | 59.50427 | 1 | 24.025 | 0.000 |
| AK | 8.213675 | 4.106838 | 2 | 1.658 | 0.194 |
| Error | 378.9487 | 2.476789 | 153 | | |
| JK | 46.66880 | 23.33440 | 2 | 8.924 | 0.000 |
| AJK | 48.55556 | 12.13889 | 4 | 4.642 | 0.001 |
| Error | 800.1090 | 2.614735 | 306 | | |

TABLE 33

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 14: SELF CONCEPT

(Mode x Ethnicity x Class)

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Au | AuV | AuV | V | Au | AuV | V | Au | AuV | Au | AuV | V | V | V | Au | AuV | Au | V |
| A | A | B | B | A | A | A | B | C | C | C | A | B | C | B | B | C | C |
| M | M | M | M | L | L | L | M | L | L | M | M | L | M | L | L | M | L |
| 1 | 13 | 15 | 9 | 2 | 14 | 8 | 3 | 18 | 6 | 17 | 7 | 10 | 11 | 4 | 16 | 5 | 12 |

n = 52
Variance estimate = 2.61473

TABLE 34

ANALYSIS OF VARIANCE SUMMARY TABLE FOR SCALE 15: NEATNESS

| Source | Sums of Squares | Mean Squares | DF | F Ratio | Probability |
|---|---|---|---|---|---|
| Between subjects | | | | | |
| A | 291.5192 | 145.7596 | 2 | 35.545 | 0.000 |
| Error | 627.4071 | 4.100700 | 153 | | |
| Within subjects | | | | | |
| J | 75.71154 | 37.85577 | 2 | 18.714 | 0.000 |
| AJ | 48.61538 | 12.15385 | 4 | 6.008 | 0.000 |
| Error | 619.0064 | 2.022897 | 306 | | |
| K | 7.719017 | 7.719017 | 1 | 4.516 | 0.035 |
| AK | 0.2841880 | 0.1420940 | 2 | 0.083 | 0.920 |
| Error | 261.4968 | 1.709129 | 153 | | |
| JK | 25.34829 | 12.67415 | 2 | 6.892 | 0.001 |
| AJK | 37.88889 | 9.472222 | 4 | 5.150 | 0.000 |
| Error | 562.7628 | 1.839094 | 306 | | |

TABLE 35

TABLE OF SIGNIFICANT DIFFERENCES FOR
SCALE 15: NEATNESS

(Mode x Ethnicity x Class)

| V | AuV | AuV | V | V | Au | V | V | V | AuV | AuV | AuV | AuV | Au | Au | Au | Au | Au |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | B | A | A | A | A | C | B | C | C | A | B | C | A | B | C | C | B |
| M | M | M | L | M | M | L | L | M | L | L | L | M | L | L | L | M | M |
| 9 | 15 | 13 | 8 | 7 | 1 | 12 | 10 | 11 | 18 | 14 | 16 | 17 | 2 | 4 | 6 | 5 | 3 |

n = 52
Variance estimate = 1.83909

# CHAPTER IV

## INTERPRETATIONS AND CONCLUSIONS

Chapter III gives a scale by scale analysis of the significant results. Looking at the results, certain patterns in the data emerge. This can be most easily seen when the cell means are graphed for each of the effects found to be significant.

### MAIN EFFECTS

There were three main effects. Two of these were for Ethnicity; one was for Social Class. In the main effects for Ethnicity, the order of the means was always the same (see Figure 3): Anglos were rated better than Blacks; Blacks were rated better than Chicanos.

Cooper (1972) has shown that one's own ethnic group is perceived more favorably than other ethnic groups. Therefore, the effect for ethnicity may be due to the fact that roughly 84 per cent of the sample identified themselves as anglos. Ethnocentrism may have produced the finding that anglos were ranked higher than blacks or chicanos.

On the other hand, the effect for ethnicity may be due to stereotyping on ethnic dimensions. The perception of a student as a black or chicano may have been enough to have elicited a categorical response to him. In ethnocentrism,

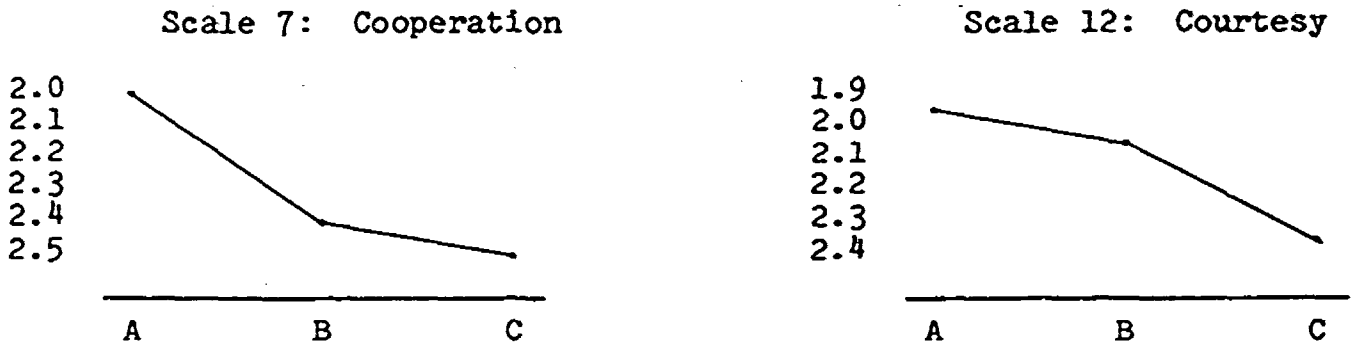


FIGURE 3

MAIN EFFECTS: ETHNICITY

anglos are rated more favorably than blacks and chicanos because the perceiver is an anglo. In stereotyping, blacks and chicanos are rated lower because they belong to groups which are categorically evaluated lower. Stereotyping then, depends less on the reference group of the perceiver, and more on the prescribed attributes of the group being evaluated. The fact that blacks and chicanos were not rated equally low lends support to the idea that teachers were responding on the basis of stereotypes rather than ethnocentrism. If teachers had been responding on the basis of ethnocentrism, we would expect anglos to be evaluated higher than blacks and chicanos (which they were), but we would not expect a difference in the ratings for blacks and chicanos (which was present).

The proportional size of a minority group may also determine the degree of negative beliefs about that group. As the size of a minority group increases, the perceived threat to the majority group's economic or social dominance increases. In Albuquerque, chicanos make up a larger proportion of the population than do blacks; thus, according to this explanation, we would expect chicanos to rate lower on the scales than blacks, and they did.

A main effect for Class was found for Scale 3: Effort. Middle class students were rated significantly higher on effort than Lower class students. These findings are consistent with stereotypes of the poor as lazy and not caring about

getting ahead (Becker, 1952; Davis, 1972), and with results of earlier studies dealing with the evaluation of middle and lower social class speakers from vocal cues (Naremore, 1971; Williams, Whitehead and Traupman, 1971; Harms, 1961; Moe, 1972).

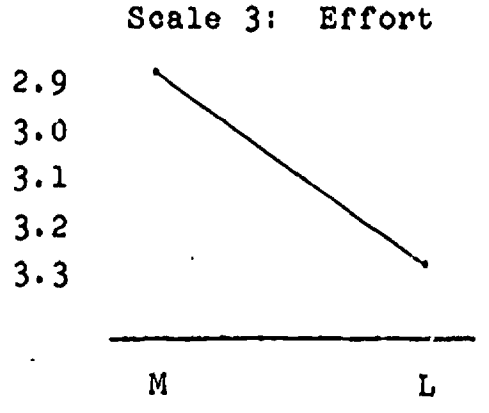


FIGURE 4

MAIN EFFECT: CLASS

DOUBLE INTERACTIONS

Double interactions were found on six different scales. All three possible types of interactions were represented on these scales. A Mode x Ethnicity interaction was found for Scales 3, 4, and 13; a Mode x Class interaction was obtained for Scale 8; and an Ethnicity x Class interaction was found for Scales 4, 8, 10, 11, and 13.

Mode x Ethnicity. Again, looking at the graphed data, we see patterns emerging from the different scales. Anglos tended to be rated higher than either Blacks or Chicanos, and

Anglos always received their highest ratings in the Audio mode. Blacks received their highest ratings in the Visual mode and their lowest ratings in the Audio mode. Chicanos tended to be rated lower than either Anglos or Blacks, and there was less variation in the ratings for Chicanos than for either Anglos or Blacks.

The tendency for anglos to be rated higher than blacks and chicanos was discussed under main effects for Scales 7 and 12. It may be that once a teacher determines from vocal cues that a student is anglo, he assumes that the student will exert more effort, attend more regularly, and will be more creative than black or chicano students. The fact that anglos were rated better in the audio mode suggest that judgments for anglos on the dimensions of effort, attendance, and creativity are judged more favorably on the basis of audio cues than on visual or audio-visual cues.

Blacks consistently received their lowest ratings in the Audio mode and their highest ratings in the Visual mode. When teachers are presented with a black student visually, they may make a conscious effort not to discriminate--this would seem especially likely in light of the emphasis on racial equality in the last decade. However, there apparently are cues in black speech which cause teachers to devalue blacks. Anisfeld, Bogo, and Lambert (1962), and Hurt and Weaver (1972) provide evidence that speakers of dialectical

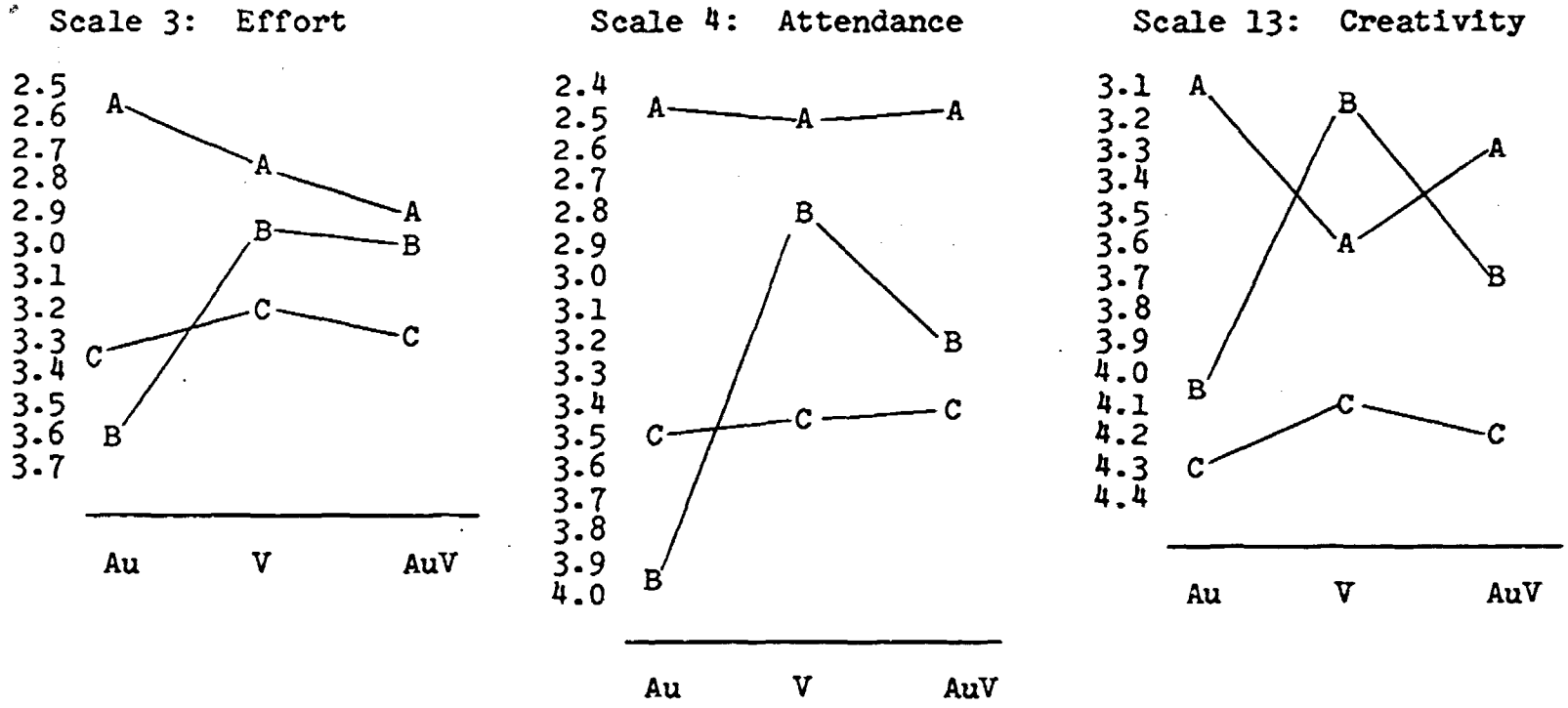


FIGURE 5

MODE x ETHNICITY INTERACTIONS

speech are devalued compared to speakers of standard English.

Chicanos were rated low on all three scales regardless of mode of presentation. This suggests that ethnicity is more important in evaluating chicanos than mode of presentation. Apparently, once a student was perceived as a chicano, he was categorically evaluated lower than either anglos or blacks. This finding is certainly not very encouraging for the large population of chicanos attending public schools.

Mode x Class. In this interaction, a smaller range of ratings was obtained for Middle and Lower class students in the Visual mode. One reason for this may be that fewer social class cues are picked up visually than in other modes of presentation. In the Audio mode, teachers discriminated between classes more. This finding lends support to Buckingham's (1972) conclusions that the audio channel contains more information than the visual channel. The widest range of ratings was obtained in the Audio-Visual mode. This suggests that when teachers are given both audio and visual cues, they are better able to classify and evaluate on the basis of social status. The finding that Lower class was rated less favorably in the Audio and Audio-Visual modes is consistent with the results of Naremore (1971), Williams, Whitehead and Traupman (1971), Harms (1961), and Moe (1972), who report that lower class speakers are devalued on the basis of

Scale 8: Works Independently

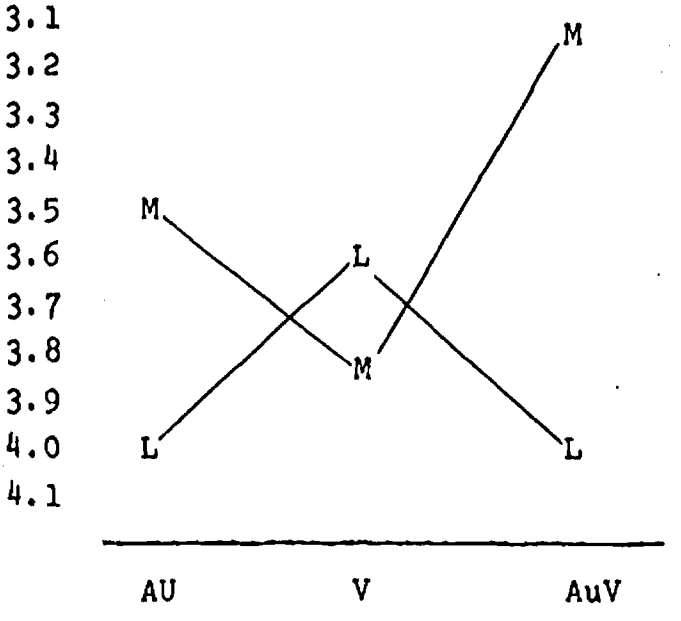


FIGURE 6

MODE x CLASS INTERACTION

paralinguistic cues.

Ethnicity x Class. Patterns of Ethnicity x Class interactions are strikingly similar across graphs (see Figure 7). Anglos and Blacks both received better ratings when they were Middle, rather than Lower class. For Scale 13: Creativity, the class variable for Black Middle class students overcame the advantage Audio Lower class Anglo students had on this scale due to their ethnicity. Black Lower class students were evaluated considerably lower than Black Middle class students in most cases and generally were rated equally low with Chicanos of both classes. Among Chicanos, there was far less variability between classes and all differences between chicano Middle and chicano Lower class students were nonsignificant. Chicanos, as a group, were rated lowest on the scales.

Earlier research suggests that both class and ethnicity are dimensions used for evaluation. Lower class Anglos in the Audio mode were rated less favorably than Anglos in all other conditions, apparently because of class cues contained in their speech. Although Blacks were rated lower than Anglos, the same general findings are true with regard to mode of presentation. Thus, for blacks, class may be more important than ethnicity for eliciting favorable ratings. For chicanos, the reverse may be true, for chicanos were evaluated low

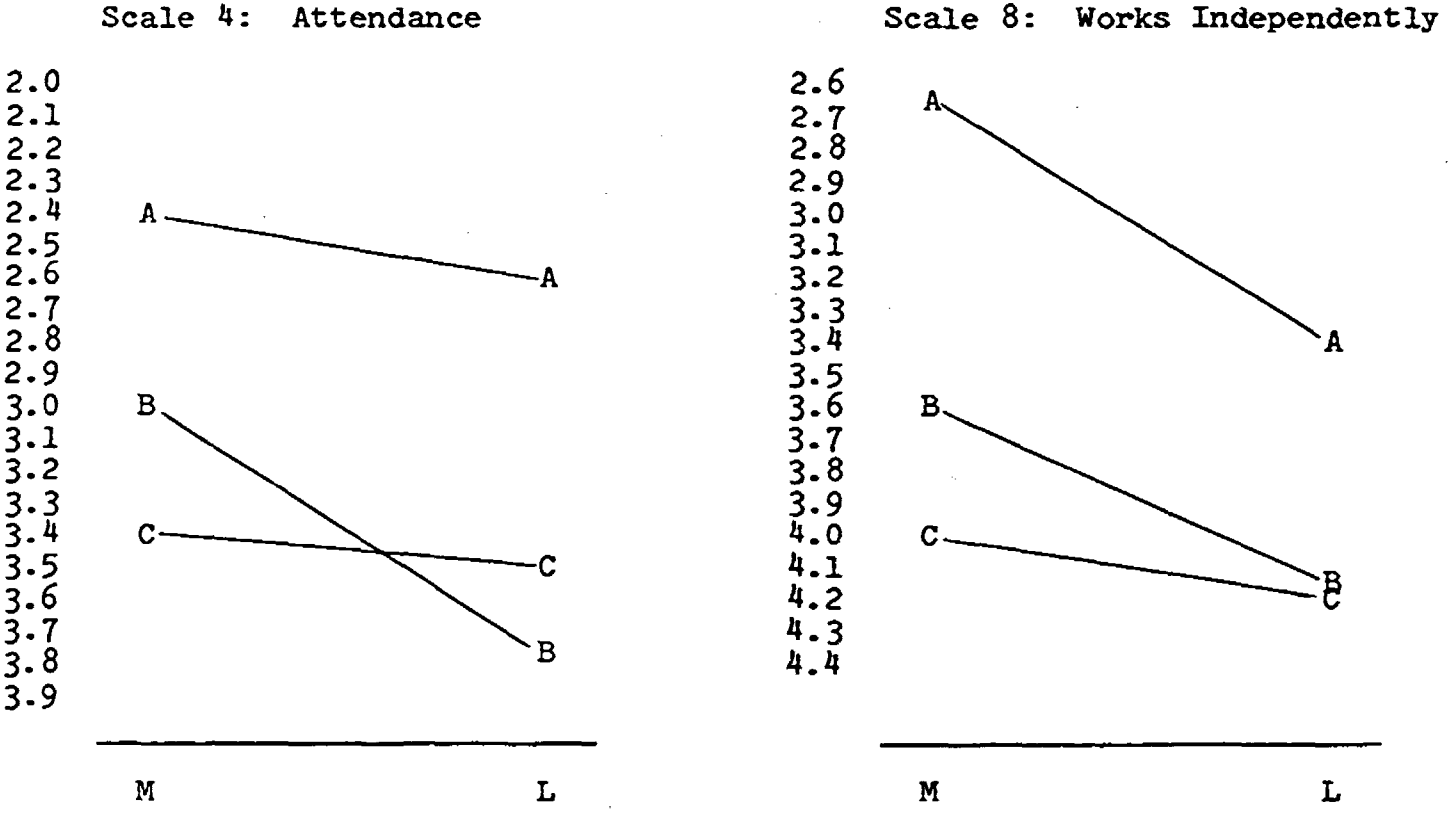


FIGURE 7

ETHNICITY x CLASS INTERACTIONS

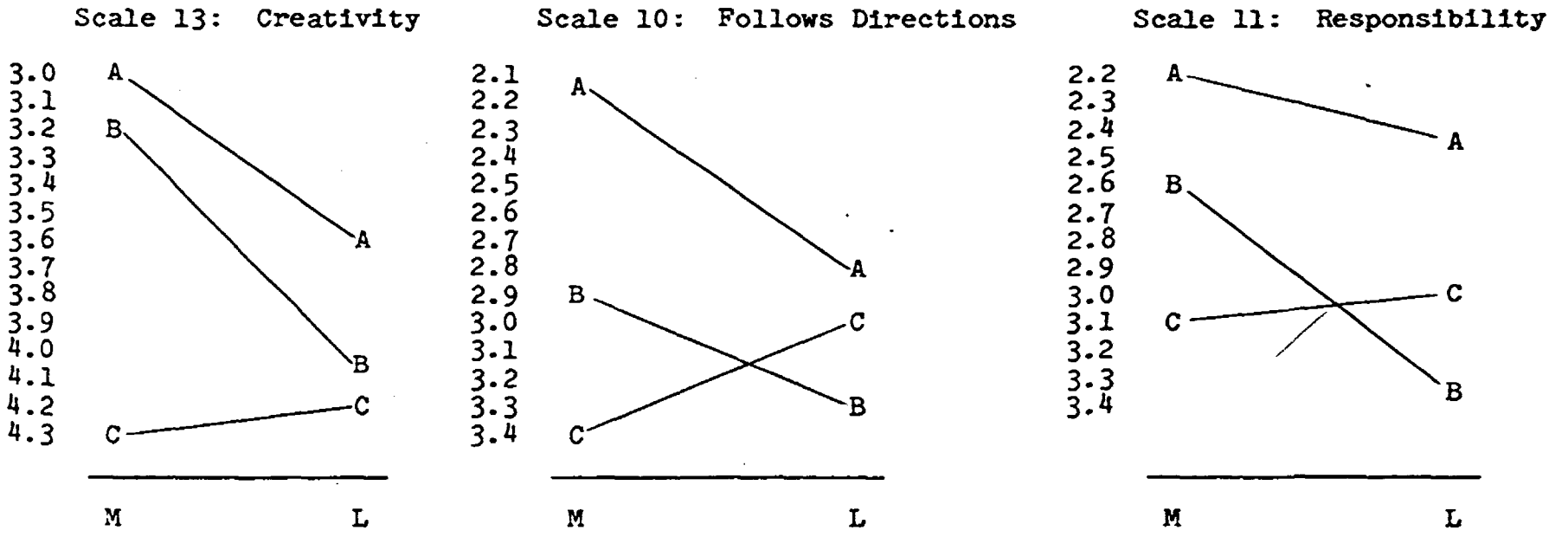


FIGURE 7 (continued)

ETHNICITY x CLASS INTERACTIONS

regardless of their social class. Perhaps the teachers in this study were not able to differentiate status cues in chicano speech, or perhaps they chose to ignore those cues in favor of others. Another explanation for the different findings for blacks and chicanos may be in the nature of the civil rights movement. Although more recently, blacks have emphasized their racial heritage ("Black is beautiful!"), earlier efforts to reduce discrimination contained appeals to anglo middle class society on the basis of shared life styles and values--factors associated more with class than ethnicity. The effectiveness of these appeals would produce the present findings that black middle class students were evaluated higher than black lower class students.

A similar "time lag" phenomenon resulting from earlier socialization may have produced the findings that Chicanos were evaluated lowest on the scales. If teachers were socialized with the stereotype of chicanos as lazy, passive, and unmotivated, they may have responded on the basis of these previously learned stereotypes in spite of the recent chicano movement. Another explanation is that the contemporary chicano movement has emphasized ethnicity rather than similarity of class values. The findings that chicano middle class students and chicano lower class students were not differentiated may reflect this emphasis on ethnicity.

## TRIPLE INTERACTIONS

Triple interactions were obtained for Scales 1, 2, 6, 9, 14, and 15. All of these except Scale 15, reveal some similarities. Therefore, the discussion which follows deals with Scales 1, 2, 5, 6, 9, and 14. Scale 15 is discussed separately at the end of this section.

Anglo Middle class students received the highest ratings on six out of seven triple interactions. Visual Anglo Middle Class was considerably lower than Audio Anglo Middle Class or Audio-Visual Anglo Middle Class on all six of the scales. These findings are consistent with those found with the double interactions. Audio cues provide confirmation for social status, while visual cues merely establish ethnicity.

On scales 5: Test Performance, 6: Motivation, and 9: Intelligence, there was a narrower range of scores in the Visual condition than in either of the other modes. Again, this suggests that either less information is available in that mode, or that teachers tend not to use visual information for discriminating between students of different ethnic x class combinations--at least on these scales. It is interesting to note the order of the ratings in this condition: Visual Anglo Middle Class, Visual Black Middle Class, and Visual Anglo Lower Class received consistently higher ratings than Visual Black Lower Class, Visual Chicano Middle Class, and

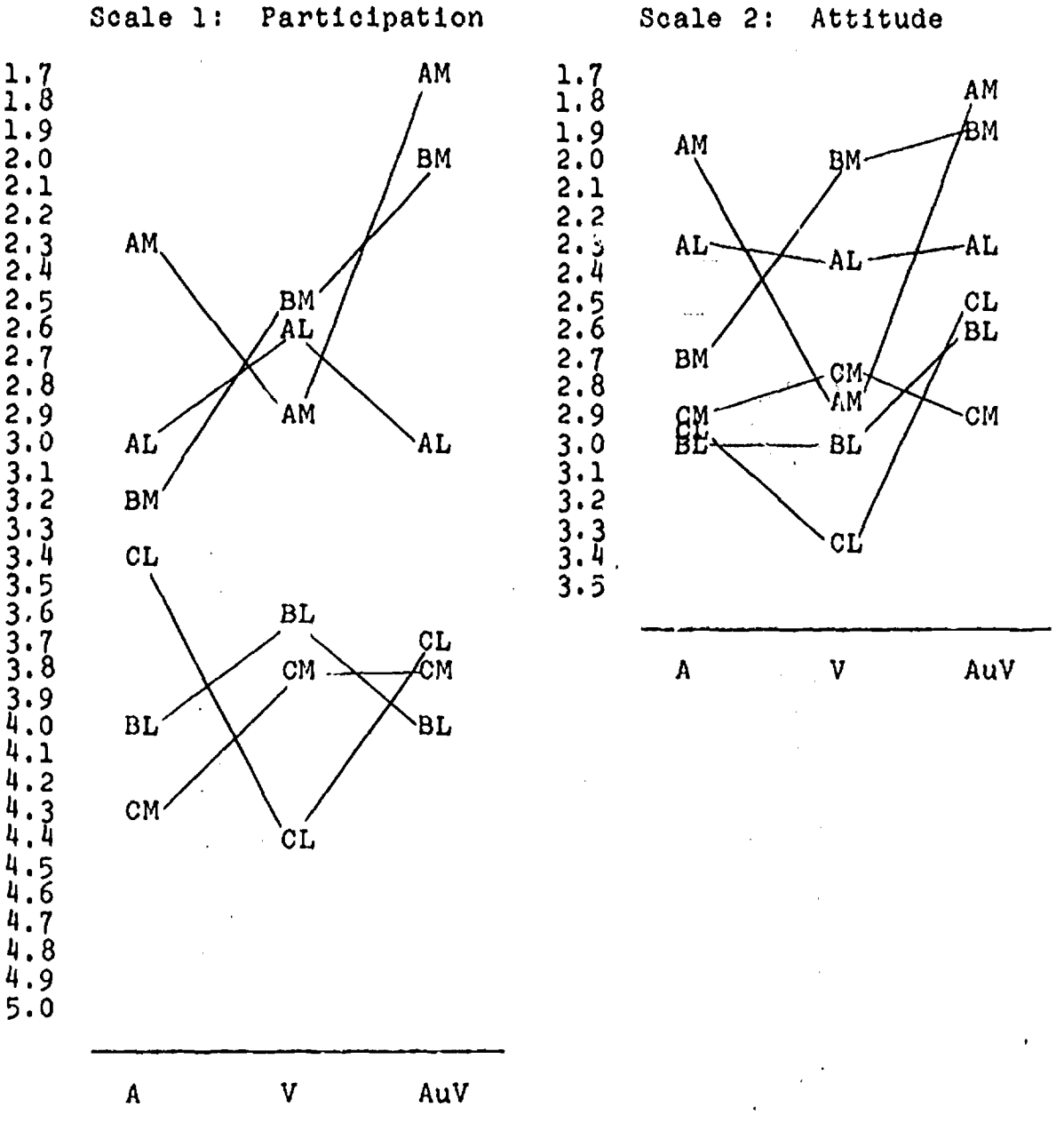


FIGURE 8

TRIPLE INTERACTIONS

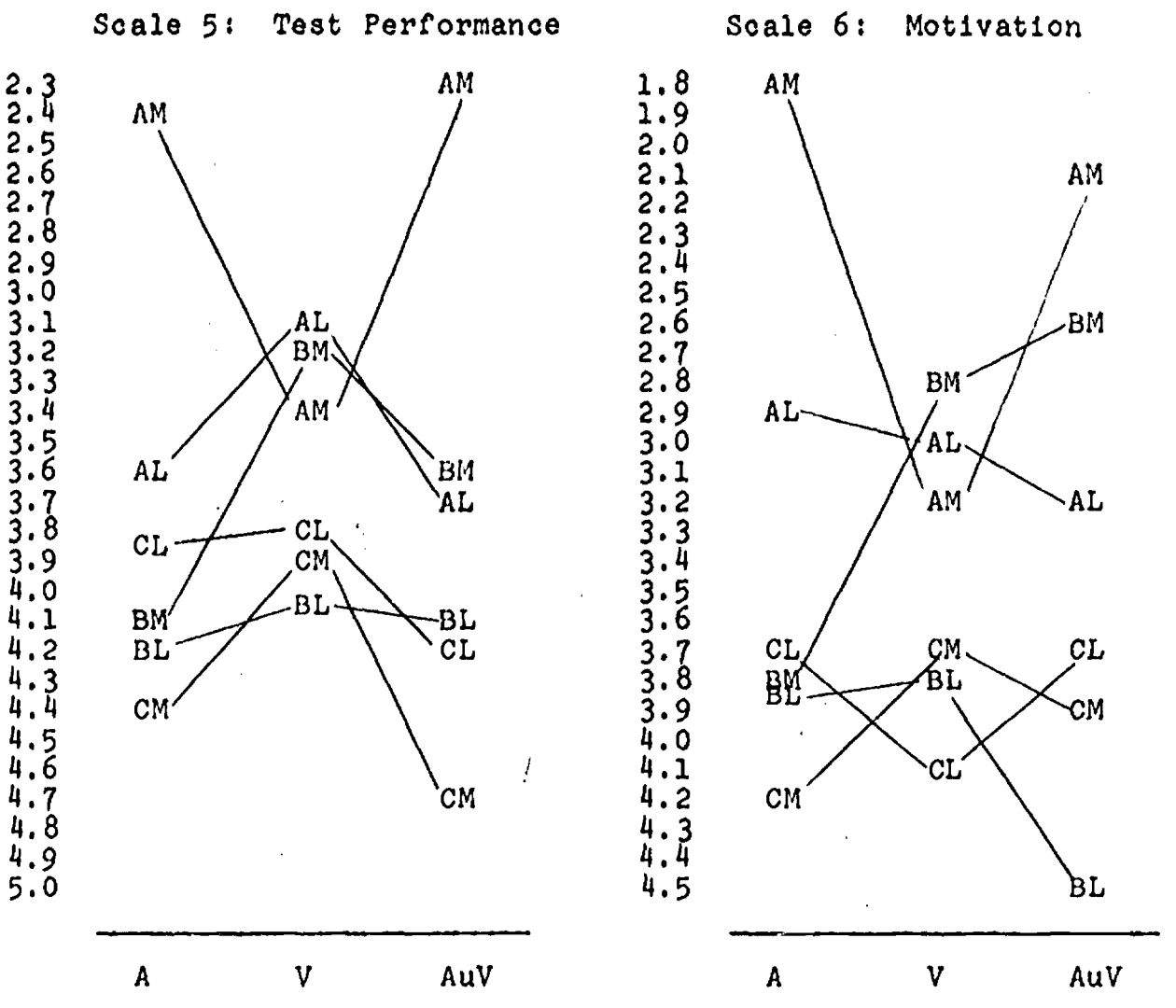


FIGURE 8 (continued)

TRIPLE INTERACTIONS

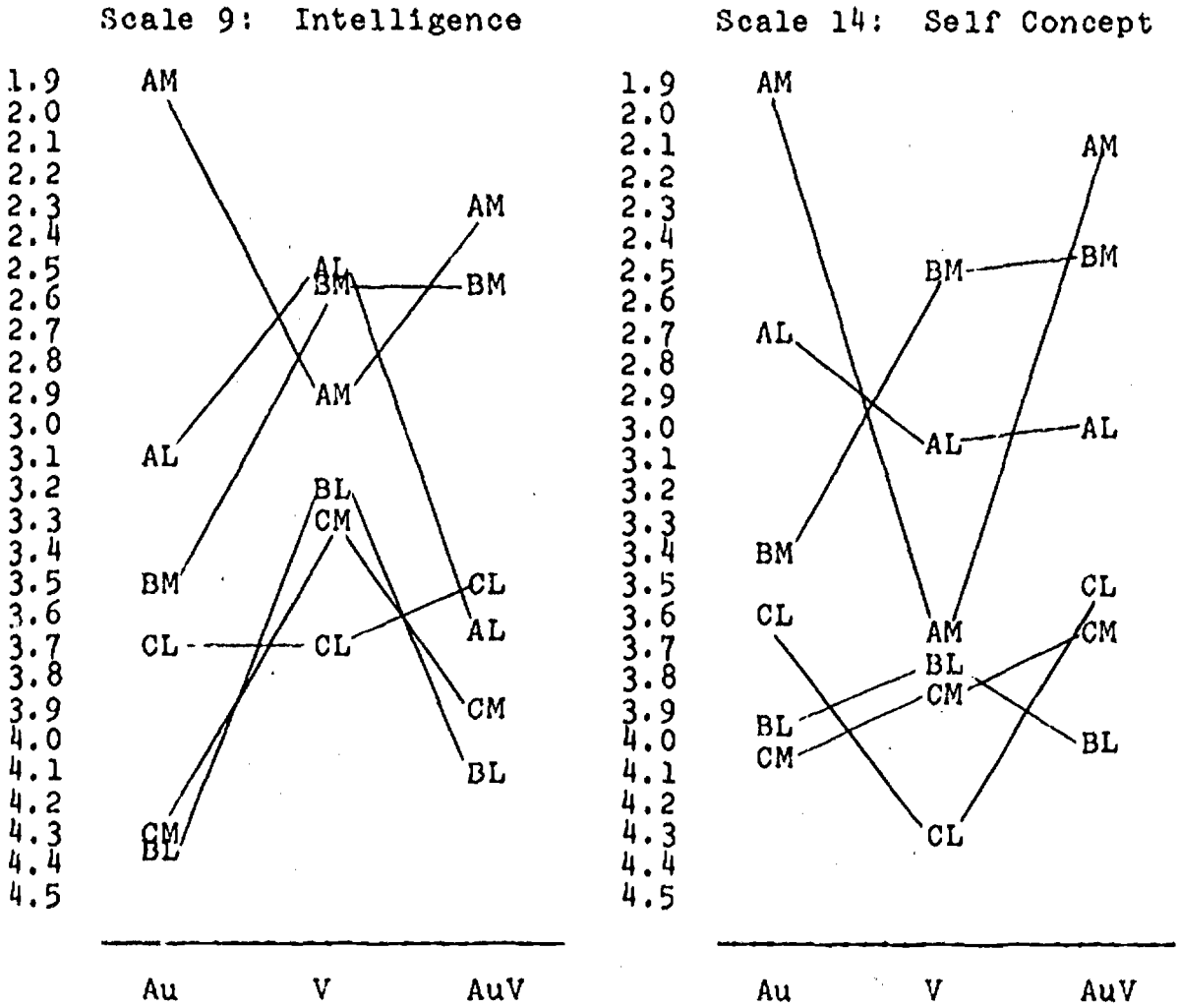


FIGURE 8 (continued)

TRIPLE INTERACTIONS

Visual Chicano Lower Class.

In the Audio and Audio-Visual conditions, roughly the same order appeared, except there was a wider range of ratings. On scales 5: Test Performance and 6: Motivation, Black Middle Class was evaluated similarly to Black Lower Class, Chicano Middle Class, and Chicano Lower Class in the Audio Mode.

For scales 1: Participation, 2: Attitude, and 14: Self Concept, there was approximately equal range of ratings from one mode of presentation to another. This may indicate that cues for these scales were distributed among both audio and visual modes. For instance, nonverbal postural and attentiveness cues (such as eye contact and nodding) may be equally as potent as paralinguistic cues (e.g., rate of speech, and pitch) for these judgments.

Looking at how the ratings are ordered within modes, approximately the same patterns emerged as on scales 5, 6, and 9 discussed previously. Anglo Middle Class, Anglo Lower Class, and Black Middle Class generally received higher ratings across all modes of presentation than Black Lower Class, Chicano Middle Class, and Chicano Lower Class. Black Middle Class received the highest ratings in the Visual mode, while Chicano Lower Class received the lowest ratings in the Visual mode. Anglo Middle Class received the highest ratings in the Audio and Audio-Visual modes again, while Black Lower Class

and Chicano Middle Class shared lowest ratings in these modes.

Scale 15: Neatness did not share patterns found in other scales. Mode of presentation seemed to be the most important factor in judging neatness of students. In all cases but one, Audio Anglo Middle Class, students in visual conditions (Visual and Audio-Visual) received higher ratings than students in the Audio condition. This is probably because a large component of neatness is based upon a visual-spatial judgment. It may also be a function of the fact that all students were neatly dressed for the interviews. There were no significant differences for ratings in the Visual mode. The addition of audio to visual cues affected the range of ratings, but did not significantly alter their order. All differences but one in the Visual and Audio-Visual modes were nonsignificant. The findings for Scale 15: Neatness suggest that neatness is less subject to stereotyping than other scales and that judgments of neatness are made primarily from visual inputs.

## CONCLUSIONS

This study suggests that stereotypes are multi-dimensional in nature, that is, stereotypes are elicited by a number of cues, each weighted for relevance by the perceiver. Both ethnic and class dimensions are employed by teachers for

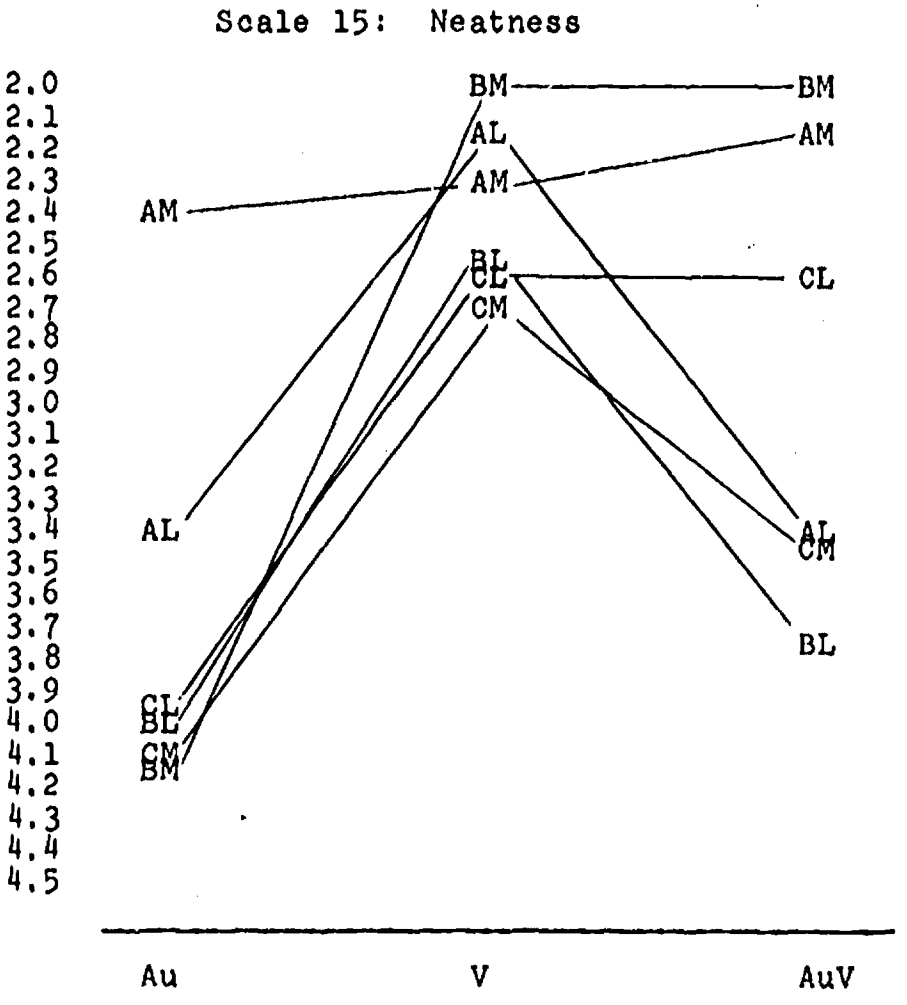


FIGURE 9

TRIPLE INTERACTION

evaluating students on classroom criteria. Furthermore, how the cues are transmitted affects ratings based upon those cues.

Anglo students are rated more positively than Black students; Black students are rated more positively than Chicano students.

Class interacts with ethnicity in the ratings such that Anglo Middle class students are rated more positively than Anglo Lower class students and Black Middle class students are rated more favorably than Black Lower class students. Anglo Middle class, Anglo Lower class, and Black Middle class students as a group are rated more favorably than Chicano Middle class, Chicano Lower class, and Black Lower class students. Ratings for Chicanos are among the lowest received and do not vary with class.

Mode of presentation influences how students of different ethnic and social classes are perceived. Black students are rated much better in the Visual and Audio-Visual conditions. Anglo Lower class students are rated lower in the Audio than Visual modes, while Anglo Middle class students are rated higher in the Audio modes. Thus, for anglos and blacks, audio cues are important indicants of class.

Mode of presentation, like class, has little effect on the ratings for Chicanos--they are evaluated at the low end of the scales regardless of the mode. For chicanos,

ethnicity is more important than class or mode of presentation in eliciting negative stereotypes.

Finally, concerning mode of presentation, for most judgments, audio cues seem to contain more information than visual cues.

## IMPLICATIONS

The implications of this study are as follows. First, the evidence presented confirms results of other studies which found that teachers differentially evaluate students on ethnic and class dimensions. In addition, how these cues are transmitted affects teachers' evaluations of students.

This study offers evidence that teachers employ social stereotypes to evaluate students. These stereotypes may produce different expectations for academic achievement for students from varying ethnic and social class backgrounds. It is the subtle communication of these differential evaluations and expectations which set up cycles of negative self-fulfilling prophecies so that students from different ethnic and social class backgrounds, in effect, have an un-equal opportunity for school achievement.

It has been suggested (Hidde, 1973) that while stereotypes affect initial evaluations of students, their effects are mitigated over time as teachers receive a variety of cues from students. Even if this is so, psychological folklore

indicates that having to continually overcome negative stereotypic images is both unfair and can be devastating to the student.

Stereotypes are socially learned. Those involved with teacher training programs may wish to counteract stereotypes before they affect classroom interaction. This study suggests that such efforts cannot be directed toward single variables if they are to be effective. Rather, they must be focused upon different combinations of ethnicity and social class, as well as upon the paralinguistic properties of speech. Results also suggest that less information is carried visually than vocally.

Finally, ratings for anglos and blacks were a function of perceived social class. The fact that middle class blacks were evaluated at the positive end of the scales along with anglos may be a result of the civil rights strategies in the sixties which emphasized similarity of class values and beliefs. If this is so, then ethnic minorities in general may be more favorably received if they emphasize class similarities rather than ethnic differences.

The results of this study point to some interesting directions for further research in the area of teacher stereotyping. First, how much of the variance in an individual's ratings can be attributed to stereotyping, ethnocentrism and the social dominance theory? Is stereotyping a

manifestation of ethnocentrism and social dominance, or is it only another way people categorize and thus simplify their world?

Second, why are class cues important for the evaluation of anglos and blacks, but not for chicanos? Along this line, why doesn't the mode of presentation alter ratings for chicanos as it does for anglos and blacks?

Concerning mode of presentation, what types of judgments are made primarily on the basis of audio cues and what types of judgments are made using visual cues? In the classroom, where students have little chance to interact verbally, how do teachers utilize audio and visual cues for student evaluation?

Finally, what is the effect of time on teachers' stereotypes and expectations? How long must a student emit cues before he overcomes a stereotypic image? What are the effects on students of having to overcome stereotypes? The answers to these questions should contribute not only to our understanding of the stereotyping phenomena, but should also increase our ability to mitigate against the undesirable effects stereotypes may produce.

This study confirms results from previous studies which showed that teachers stereotype on the basis of ethnic and social class cues. It also confirms earlier findings that ethnic and social class cues are transmitted through

both the audio and visual modes, and that the audio mode provides more information for making judgments. The study extends previous findings to the classroom and confirms their applicability to teachers' evaluations of students on classroom criteria. We know that stereotyping exists and that it exists in the classroom. Further research efforts should now concentrate on the behavioral correlates of stereotyping and their effects upon students.

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# APPENDIX A

Dear Teacher:

You have been randomly selected from a list of APS teachers to participate in a study approved by Special Services. As part of a project being completed in the Department of Speech at the University of New Mexico, we are hoping to develop a rating form which would be appropriate for use in educational settings.

We would very much appreciate your help in this project. On the enclosed, self-addressed post card, please list as many of the different criteria you use to evaluate your students as possible. Include criteria for both scholastic performance and classroom behavior (if used). For example, you might list

intelligence
follows directions
examination scores
is uncooperative
etc.

Be sure to include both positive and negative criteria and to list as many different items as you think are important

Please return your list prior to May 12th.

Thank you very much for taking these few minutes to help.

Sincerely,

Mary Jensen
Lawrence Rosenfeld

# APPENDIX B

# CONCEPTS GENERATED BY APS TEACHERS FOR EVALUATING STUDENTS

respects the opinion of others
performance in subject fields (2)*
uses self control (3)
accepts guidance (2)
courteous (4)
works well with others (2)
plays well with others (3)
uses good judgment
cooperative (8)
thinks for himself
assumes responsibility (2)
takes care of materials
finishes work on time (2)
works quietly
works independently (3)
attendance (8)
observes safety rules
cares for property
makes good use of time (2)
works neatly (3)
is a good listener (4)
follows directions
class participation
discussion in class (3)
excessive tardies (2)
test scores (8)
scholastic performance
creativity (2)
originality (5)
curiosity
pride in work
imagination (2)
behavior
self direction (2)
openness
resourcefulness
respect for others
initiative (2)
intelligence (4)
attention span
self-discipline (3)
motor coordination (3)
interest (2)
self-concept (2)
tries his best
works at grade level
quizes (3)
effort (2)
attitude (3)
dressing out
skill
inquisitiveness
motivation (2)
honesty
inventive
performance
consideration
work habits (2)
disturbs others (2)
innovation
generous
self confidence
determination
relaxed or tense
easily distracted
enthusiasm
health problems
wants attention
carefulness
cleanliness
manual
artistic
academic
disposition (happy, sad, friendly)
ingenuity
talks with me, with others
vandalizing
lying
stealing
fighting
logical thought
accuracy
perceptual abilities
social behavior
thinking, analysis, application
readiness maturity
maturity
concern for living things

ability to set standards, limits
weight
health
language (standard, vulgar)
sex preoccupation (normal, abnormal)
exam scores (2)
ability to concentrate for short time
classwork
homework
asking appropriate questions
ability to grasp concepts
extra work done
height
ability to interact with others satisfactorily
ability to initiate a course of study on something which interests him
thought and original application of information as illustrated in class discussion and essays
writing techniques in essays
they are to try and learn to think
being prepared mentally and physically (supplies, materials)
improvement over initial performance (2)
promptness in turning in assignments
oral and written work (organization, coherence, unity, clearness of presentation)
physical and emotional maturity
individualized worksheets for self-evaluation
ability to solve problems independently
transfer thoughts by written word and orally
tell events in sequence after reading material
ability to complete tasks in a reasonable time limit
contributes to the activities of the group (3)

* number in parentheses indicates the number of identical responses

# APPENDIX C

# FINAL INSTRUMENT

## INTRODUCTION

Many research studies have shown that reliable judgments can be made about people on the basis of vocal and visual cues. For example, listeners can accurately identify a speaker's age from cues given off in his speech. Unfortunately, we do not yet understand which cues, vocal or visual, contribute most to the accurate identification of personal characteristics. This study attempts to deal with this question.

You will see videotapes of six different students and will be asked to make hypothetical judgments about them. The students are approximately the same ages and all are responding to similar interview questions dealing with students' favorite television shows or games. You will see each student for approximately two minutes, then you will fill out the response sheet for that student.

Your responses will be completely confidential and private. In no way will individual respondents be identified, and only the researchers will have access to the response booklets. The total time required to participate in the study is approximately 45 minutes.

Your help in this project is very much appreciated.

# RESPONDENT INFORMATION SHEET

Instructions: Please complete this form by checking the appropriate boxes and filling in blanks where indicated.

1. Sex
   ( ) Male ( ) Female

2. Marital status
   ( ) Single ( ) Married ( ) Widow(er) ( ) Separated or Divorced

3. Age
   ( ) 20-29 years ( ) 30-39 years ( ) 40-49 years

   ( ) 50-59 years ( ) 60-69 years

4. Ethnic background (if you desire)
   ( ) Anglo ( ) Black ( ) Chicano ( ) Indian ( ) Other

5. Present position (specify as indicated)
   ( ) Elementary teacher (please specify grade _____)

   ( ) Secondary teacher (subject(s) _____)

   ( ) Other (please specify position _____)

6. Experience as an educator (as of the end of this academic year)
   _____ years as a teacher

   _____ years as a principal, supervising principal, or superintendent

   _____ years as a guidance counselor

   _____ years, other (please specify position _____)

7. Amount of education
   ( ) Less than Bachelor's degree

   ( ) Bachelor's degree

   ( ) Bachelor's degree plus additional credits

   ( ) Master's degree

   ( ) Master's degree plus additional credits

   ( ) Doctor's degree

# INSTRUCTIONS

The rating instrument which follows is called a semantic differential. It consists of a series of scales like this one:

active __:__:__:__:__:__:__ passive

You will be asked to evaluate six students on a set of 15 scales. A separate set of scales is provided for each student. Notice that the adjectives at each end of the scale are polar opposites. Also notice that the scales and their polarities are randomly ordered on the response sheets.

Using the scale above as an example, if you think the student is very active, you would place a check mark in the space next to "active" as follows:

active ✓:__:__:__:__:__:__ passive

If you think the student is active, but not very active, check the space as follows:

active __:✓:__:__:__:__:__ passive

If you think the student is only slightly active, check as follows:

active __:__:✓:__:__:__:__ passive

It may be difficult to make some of the judgments. However, it is extremely important that you mark each of the scales. If you find a scale to be <u>completely irrelevant</u>, or judge the student as <u>completely neutral</u> on a particular scale, then check the middle space. Try to avoid checking the middle space as much as you can.

active __:__:__:✓:__:__:__ passive

Important:

Be sure you place your check marks in the middle of the spaces, not on the boundaries.

Be sure you check every scale for every student. <u>Do not omit any scales</u>.

* * * * *

Now turn the page and familiarize yourself with the scales to be used in this study. Remember, there are <u>no</u> correct answers. Your first impressions should enable you to complete each page within the time allowed.

THIS STUDENT PROBABLY. . .

| | | |
|---|---|---|
| does not participate in class | __:__:__:__:__:__:__ | participates in class |
| has a poor attitude | __:__:__:__:__:__:__ | has a good attitude |
| exerts a great deal of effort | __:__:__:__:__:__:__ | exerts no effort |
| is frequently absent | __:__:__:__:__:__:__ | attends regularly |
| per-forms well on tests | __:__:__:__:__:__:__ | per-forms poorly on tests |
| is highly motivated | __:__:__:__:__:__:__ | lacks motivation |
| is cooperative | __:__:__:__:__:__:__ | is not cooperative |
| does not work well independently | __:__:__:__:__:__:__ | works well independently |
| is not intelligent | __:__:__:__:__:__:__ | is very intelligent |
| follows directions | __:__:__:__:__:__:__ | does not follow directions |
| is irresponsible | __:__:__:__:__:__:__ | is responsible |
| is not courteous | __:__:__:__:__:__:__ | is courteous |
| is very creative | __:__:__:__:__:__:__ | lacks creativity |
| has a good self concept | __:__:__:__:__:__:__ | has a poor self concept |
| is sloppy | __:__:__:__:__:__:__ | is neat |

THIS STUDENT PROBABLY. . .

| | | |
|---|---|---|
| is very intelligent | __:__:__:__:__:__:__ | is not intelligent |
| is frequently absent | __:__:__:__:__:__:__ | attends regularly |
| is sloppy | __:__:__:__:__:__:__ | is neat |
| participates in class | __:__:__:__:__:__:__ | does not participate in class |
| does not follow directions | __:__:__:__:__:__:__ | follows directions |
| exerts no effort | __:__:__:__:__:__:__ | exerts a great deal of effort |
| performs well on tests | __:__:__:__:__:__:__ | performs poorly on tests |
| is courteous | __:__:__:__:__:__:__ | is not courteous |
| is highly motivated | __:__:__:__:__:__:__ | lacks motivation |
| is responsible | __:__:__:__:__:__:__ | is irresponsible |
| does not work well independently | __:__:__:__:__:__:__ | works well independently |
| has a good attitude | __:__:__:__:__:__:__ | has a poor attitude |
| lacks creativity | __:__:__:__:__:__:__ | is very creative |
| has a poor self concept | __:__:__:__:__:__:__ | has a good self concept |
| is cooperative | __:__:__:__:__:__:__ | is not cooperative |

THIS STUDENT PROBABLY. . .

| | | |
|---|---|---|
| has a poor attitude | __:__:__:__:__:__:__ | has a good attitude |
| is highly motivated | __:__:__:__:__:__:__ | lacks motivation |
| performs well on tests | __:__:__:__:__:__:__ | performs poorly on tests |
| is courteous | __:__:__:__:__:__:__ | is not courteous |
| follows directions | __:__:__:__:__:__:__ | does not follow directions |
| exerts no effort | __:__:__:__:__:__:__ | exerts a great deal of effort |
| works well independently | __:__:__:__:__:__:__ | does not work well independently |
| has a poor self concept | __:__:__:__:__:__:__ | has a good self concept |
| lacks creativity | __:__:__:__:__:__:__ | is very creative |
| is frequently absent | __:__:__:__:__:__:__ | attends regularly |
| does not participate in class | __:__:__:__:__:__:__ | participates in class |
| is very intelligent | __:__:__:__:__:__:__ | is not intelligent |
| is sloppy | __:__:__:__:__:__:__ | is neat |
| is cooperative | __:__:__:__:__:__:__ | is not cooperative |
| is irresponsible | __:__:__:__:__:__:__ | is responsible |

THIS STUDENT PROBABLY. . .

| | | |
|---|---|---|
| does not follow directions | __:__:__:__:__:__:__ | follows directions |
| is neat | __:__:__:__:__:__:__ | is sloppy |
| is very intelligent | __:__:__:__:__:__:__ | is not intelligent |
| works well independently | __:__:__:__:__:__:__ | does not work well independently |
| exerts a great deal of effort | __:__:__:__:__:__:__ | exerts no effort |
| is not cooperative | __:__:__:__:__:__:__ | is cooperative |
| lacks creativity | __:__:__:__:__:__:__ | is very creative |
| has a good self concept | __:__:__:__:__:__:__ | has a poor self concept |
| is responsible | __:__:__:__:__:__:__ | is irresponsible |
| is highly motivated | __:__:__:__:__:__:__ | lacks motivation |
| is courteous | __:__:__:__:__:__:__ | is not courteous |
| performs poorly on tests | __:__:__:__:__:__:__ | performs well on tests |
| is frequently absent | __:__:__:__:__:__:__ | attends regularly |
| does not participate in class | __:__:__:__:__:__:__ | participates in class |
| has a poor attitude | __:__:__:__:__:__:__ | has a good attitude |

THIS STUDENT PROBABLY. . .

| | | |
|---|---|---|
| is courteous | __:__:__:__:__:__:__ | is not courteous |
| is sloppy | __:__:__:__:__:__:__ | is neat |
| works well independently | __:__:__:__:__:__:__ | does not work well independently |
| has a good attitude | __:__:__:__:__:__:__ | has a poor attitude |
| does not follow directions | __:__:__:__:__:__:__ | follows directions |
| is not intelligent | __:__:__:__:__:__:__ | is very intelligent |
| performs well on tests | __:__:__:__:__:__:__ | performs poorly on tests |
| is cooperative | __:__:__:__:__:__:__ | is not cooperative |
| attends regularly | __:__:__:__:__:__:__ | is frequently absent |
| exerts no effort | __:__:__:__:__:__:__ | exerts a great deal of effort |
| is irresponsible | __:__:__:__:__:__:__ | is responsible |
| is very creative | __:__:__:__:__:__:__ | lacks creativity |
| participates in class | __:__:__:__:__:__:__ | does not participate in class |
| has a poor self concept | __:__:__:__:__:__:__ | has a good self concept |
| lacks motivation | __:__:__:__:__:__:__ | is highly motivated |

THIS STUDENT PROBABLY. . .

| | | |
|---|---|---|
| is responsible | __:__:__:__:__:__:__ | is irresponsible |
| is cooperative | __:__:__:__:__:__:__ | is not cooperative |
| attends regularly | __:__:__:__:__:__:__ | is frequently absent |
| is highly motivated | __:__:__:__:__:__:__ | lacks motivation |
| performs poorly on tests | __:__:__:__:__:__:__ | performs well on tests |
| exerts a great deal of effort | __:__:__:__:__:__:__ | exerts no effort |
| does not participate in class | __:__:__:__:__:__:__ | participates in class |
| is not courteous | __:__:__:__:__:__:__ | is courteous |
| has a poor self concept | __:__:__:__:__:__:__ | has a good self concept |
| is not intelligent | __:__:__:__:__:__:__ | is very intelligent |
| has a poor attitude | __:__:__:__:__:__:__ | has a good attitude |
| works well independently | __:__:__:__:__:__:__ | does not work well independently |
| is very creative | __:__:__:__:__:__:__ | lacks creativity |
| does not follow directions | __:__:__:__:__:__:__ | follows directions |
| is sloppy | __:__:__:__:__:__:__ | is neat |

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you personally. Circle either T or F.

T F 1. Before voting I thoroughly investigate the qualifications of all the candidates.

T F 2. I never hesitate to go out of my way to help someone in trouble.

T F 3. It is sometimes hard for me to go on with my work if I am not encouraged.

T F 4. I have never intensely disliked anyone.

T F 5. On occasion I have had doubts about my ability to succeed in life.

T F 6. I sometimes feel resentful when I don't get my way.

T F 7. I am always careful about my manner of dress.

T F 8. My table manners at home are as good as when I eat out in a restaurant.

T F 9. If I could get into a movie without paying for it and be sure I was not seen, I would probably do it.

T F 10. On a few occasions, I have given up doing something because I thought too little of my ability.

T F 11. I like to gossip at times.

T F 12. There have been times when I felt like rebelling against people in authority even though I knew they were right.

T F 13. No matter who I'm talking to, I'm always a good listener.

T F 14. I can remember "playing sick" to get out of something.

T F 15. There have been occasions when I took advantage of someone.

T F 16. I'm always willing to admit it when I make a mistake.

T F 17. I always try to practice what I preach.

T F 18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

T F 19. I sometimes try to get even, rather than forgive and forget.

T F 20. When I don't know something I don't at all mind admitting it.

T F 21. I am always courteous, even to people who are disagreeable.

T F 22. At times I have really insisted on having things my own way.

T F 23. There have been occasions when I felt like smashing things.

T F 24. I would never think of letting someone else be punished for my wrongdoings.

T F 25. I never resent being asked to return a favor.

T F 26. I have never been irked when people expressed ideas very different from my own.

T F 27. I never make a long trip without checking the safety of my car.

T F 28. There have been times when I was quite jealous of the good fortune of others.

T F 29. I have almost never felt the urge to tell someone off.

T F 30. I am sometimes irritated by people who ask favors of me.

T F 31. I have never felt that I was punished without cause.

T F 32. I sometimes think when people have a misfortune they only got what they deserved.

T F 33. I have never deliberately said something that hurt someone's feelings.

# APPENDIX D

# TEACHER BACKGROUND INFORMATION*

1. Sex
   (49) Male (107) Female

2. Marital Status
   (24) Single (117) Married (2) Widow(er)
   (13) Separated or Divorced

3. Age
   (63) 20-29 years (31) 30-39 years (30) 40-49 years
   (26) 50-59 years (6) 60-69 years

4. Ethnic Background
   (6) no answer (131) Anglo (0) Black
   (13) Chicano (0) Indian (6) Other

5. Present Position
   (0) Elementary teacher
   (150) Secondary teacher
   (6) Guidance Counselor

6. Average years experience in teaching
   9.08 years

7. Amount of Education
   (3) Less than a BA
   (20) Bachelor's degree
   (65) Bachelor's degree plus additional credits
   (14) Master's degree
   (52) Master's degree plus additional credits
   (2) Doctor's degree

* N = 156

# APPENDIX E

## THE NEUMAN-KEULS COMPARISON PROCEDURE*

A significant F ratio for an analysis of variance indicates that at least two cell means differed significantly from each other in an overall analysis of the variances of all cell means. Multiple comparison procedures are used to find out the location of these significant differences. The Neuman-Keuls procedure is one of several multiple comparison procedures which can be used to extract the specific locations of significant differences.

The Neuman-Keuls test is based upon a layered or stairstep approach to significant tests. The critical value for significance varys, depending upon how many steps are between rank ordered means used in the contrasts. According to Kirk, "It provides a protection level lower limit of 1-alpha for all ordered sets of means regardless of how many steps apart the means are . . . . Thus error rate is seen to apply neither on an experimentwise nor on a per comparison basis [p. 91]."

The difference that a comparison must exceed, Wr, is given by the formula,

$$W_r = q_{ra;\, r,\, v} \sqrt{\frac{\text{MS error}}{n}}$$

where q is obtained from the distribution of the studentized

*This discussion draws heavily upon Games (1972) and Kirk (1968).

range statistic, and r equals the number of steps separating rank ordered means, and v equals degrees of freedom for experimental error.

The following table of means and table for all pairwise contrasts are presented as an example of the Neuman-Keuls procedure. Note that the contrasts are performed in stepwise order, that is, all contrasts for means six steps apart are done first, contrasts for means five steps apart are done second; and so on. The "CRITICAL VALUE OF T" corresponds to $W_r$ in the formula above and is the value which must be equalled or exceeded by the "OBTAINED T STATISTIC" for significance at the .01 level. "DF VALUE" is equal to N - k. (Kirk, 1968, presents a step by step explanation for hand computations.)

TABLE OF MEANS

| Rank | Group | N | Mean | Variance Estimate* |
|---|---|---|---|---|
| 1 | 1 (AM) | 156 | 2.3910 | 2.35983 |
| 2 | 2 (AL | 156 | 2.6474 | 2.35983 |
| 3 | 3 (BM) | 156 | 2.9359 | 2.35983 |
| 4 | 5 (CM) | 156 | 3.4038 | 2.35983 |
| 5 | 6 (CL) | 156 | 3.5192 | 2.35983 |
| 6 | 4 (BL) | 156 | 3.7949 | 2.35983 |

*based upon MS error

TABLE OF PAIRWISE CONTRASTS

| Mean Contrast T | Mean Contrast T | Difference | Obtained T Statistic | DF Value | Critical Value of T |
|---|---|---|---|---|---|
| 4 | 1 | 1.4038 | 8.071 | 306 | 3.44 |
| 4 | 2 | 1.1474 | 6.597 | 306 | 3.33 |
| 6 | 1 | 1.1282 | 6.486 | 306 | 3.33 |
| 4 | 3 | 0.8590 | 4.938 | 306 | 3.18 |
| 6 | 2 | 0.8718 | 5.012 | 306 | 3.18 |
| 5 | 1 | 1.0128 | 5.823 | 306 | 3.18 |
| 4 | 5 | 0.3910 | 2.248 | 306 | 2.97 |
| 6 | 3 | 0.5833 | 3.354 | 306 | 2.97* |
| 5 | 2 | 0.7564 | 4.349 | 306 | 2.97 |
| 3 | 1 | 0.5449 | 3.133 | 306 | 2.97 |
| 4 | 6 | 0.2756 | 1.585 | 306 | 2.62 |
| 6 | 5 | 0.1154 | 0.663 | 306 | 2.62 |
| 5 | 3 | 0.4679 | 2.690 | 306 | 2.62 |
| 3 | 2 | 0.2885 | 1.658 | 306 | 2.62 |
| 2 | 1 | 0.2564 | 1.474 | 306 | 2.62 |

For a verbal description of these results, see Chapter III, Results, for Scale 4 (Ethnicity x Class).