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AUTHOR Black, Michael S.
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ABSTRACT

The objectives of this project were to determine (1) the basic dimensions of educational and career-related attitudes of black inner-city junior high school age students, and to compare these attitudes to those of their white counterparts, (2) how attitudes were related to the preference of educational programs expressed by these students, and (3) whether the public image of vocational education as perceived by these students was different from that of other programs. A Student Attitude Survey was devised which solicited students' opinions about specific educational programs, dropping out of school, occupations, occupational activities, school activities, and opinions about education and work generally. The survey was given to male ninth grade inner-city students in the public school system of Baltimore, Maryland. The findings imply that vocational education does not suffer from a poor public image in the socioeconomic levels studied, and that black students do not hold substantially different attitudes toward work and education than do white students. Fourteen supplementary tables and eight appendixes compose the majority of the document. The appendixes contain the sample letters to teachers, English teachers, parents, and respondents; the consent form; VARIPART Procedure; instructions from Student Opinion Survey, and sample confounded two-mode data matrices. (HD)

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Research and Development Series No. 114

STUDENT ATTITUDES TOWARD VOCATIONAL EDUCATION

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Michael S. Bird

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The Center for Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

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A Final Report
on a Project Conducted under
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FOREWORD

Determining how best to match vocational education programs to the needs of minority, socio-economically disadvantaged youth has been a recurring problem. Knowing more about the attitudes that this population holds toward vocational education will be of considerable help to vocational education teachers and administrators in such activities as improving public relations and recruitment programs, and making vocational education curricula more appealing.

The purposes of this project were to determine the basic attitude dimensions of black and white prevocational junior high school youth, and to determine the relationship between these attitudes and the students' choices of educational program for the following year.

We wish to thank Andrew J. Bush, Graduate Research Associate at The Center, for his assistance in developing the research design and the questionnaires used in the project, and for supervising the field staff. We are also indebted to H. Lawrence Hotchkiss, Research Specialist at The Center, for reviewing the report and offering many helpful suggestions.

Robert E. Taylor
Director
The Center for Vocational Education

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SUMMARY

One of the recurring problems in vocational education has been knowing how best to match vocational education programs to the needs of minority, socioeconomically disadvantaged youth. To facilitate the matching process, it is necessary to know what the attitudes of this population are toward vocational education.

The objectives of the project were to determine: (1) the basic dimensions of educational and career related attitudes of black, inner-city, junior high school age students, and to compare these attitudes to those of their white counterparts; (2) how attitudes were related to the preference of educational programs expressed by these students; and (3) whether the "public image" of vocational education as perceived by these students was different from that of other programs.

A Student Attitude Survey was devised which solicited students' opinions about specific educational programs, dropping out of school, occupations, occupational activities, school activities, and opinions about education and work generally. The survey was given to ninth-grade, inner-city students in the public school system of Baltimore, Maryland in May and June of 1975.

Three to six dimensions were found in each of the several sets of attitude items.

No substantial differences in attitudes were found between the black students and the white students. No substantial differences in "public image" between the vocational education program and other programs were found.

The attitudes were related to the students' preference for tenth-grade educational programs.

The findings imply that vocational education does not suffer from a poor public image in the socioeconomic levels studied, and that black students do not hold substantially different attitudes toward work and education than do white students. Programs directed toward further understanding and influencing students' attitudes should be useful for increasing their involvement with vocational education.

PROBLEM AND OBJECTIVES

One of the recurring problems in vocational education has been knowing how best to match vocational education programs to the needs of minority, socioeconomically disadvantaged youth. As Parsons (1967) points out, "During the present decade the topic of the education of the disadvantaged has been discussed in hundreds of articles, both popular and scholarly, and in books ranging from Harrington's *The Other American* (1962), . . . to Passow's *Education in Depressed Areas* (1963). . . ." Parsons along with Lockette and Davenport (1971) have reviewed the literature on vocational education research for the disadvantaged. The latter have also pointed out the growing concern for minority-group disadvantaged. One of the important areas of concern has been the educational and job-related attitudes of the disadvantaged. Riessman (1962) states that it is important for educators to understand the attitudes and values of the underprivileged, and Kapes (1971), in his excellent review of the literature on the determinants of vocational choice, emphasizes that at least one form of attitudes—values—is one of the important determiners.

Despite the apparent importance of studying the attitudes of minority-group disadvantaged and the determinants of vocational choice in that population, relatively little empirical research has been done on either subject, and, to the author's knowledge, none at all relating the two. Kapes (1971) studied a variety of characteristics of ninth-grade boys, and related these to their choice of a vocational or academic program in tenth grade. Most of the characteristics were not attitudes, such as interests and external influences, and the study was not especially concerned with either minority-groups or the socioeconomically disadvantaged. He found that occupational aspiration, interest and satisfaction, and perceived prestige were attitudes that were related to program choice. Dole (1964) found that satisfaction, advancement, and practicality predicted the choices among several unspecified programs in a general sample of sixth and ninth graders of both sexes. Bowles and Slocum (1968), in a study of high school juniors and seniors, found that interest in school work and satisfaction with school differentiated between those students who planned to take a post-secondary vocational education program, those who planned to attend college, and those who planned to terminate their education after high school graduation.

Campbell et al. (1969) studied the characteristics, including a large number of attitude variables, of socioeconomically disadvantaged junior high school students, and compared them with non-disadvantaged groups. The variables were first factor analyzed, resulting in four factors of the original 109 variables: Teacher-Student Relationship, Work and the Future, Family-Child Relationship, and Level of Difficulty with School Work. The first and fourth factors were found to distinguish between the disadvantaged and non-disadvantaged groups. Importantly, the 109 variables were generated from literature reviews and interviews with respondents, apparently in an attempt to generate a set of items which was representative of the universe of such items (Parsons, 1967). The factors obtained can therefore be assumed to span the universe of items. Another study that attempted to establish the dimensions of attitude among inner-city, junior high school students was that of Miller (1973). Miller factor analyzed an attitude survey which had been given to the specified population and found ten factors. The survey instrument contained only twenty-seven items and no information was provided about its development. Further, many of the factors loaded only one to two variables. Consequently, the results are of doubtful value.

Dole and Passons (1970) attempted to determine differences in a variety of characteristics, a few of them attitudes, between black and white high school seniors. He found that the black students intended to get more education, more often chose high-level occupations as a goal, and exhibited greater diversity of choice than the white students

Problem

It is apparent that little is known about the attitudes of minority-group, socioeconomically disadvantaged youth, and even less about how attitudes relate to educational program choice in that population. If such information were available, it should be possible to improve vocational education programs and services for that population. Such services as public relations programs, recruitment programs, and the development of more appealing curricula would all be expected to benefit.

Objectives

The present study was designed to explore the attitudes of black, inner-city, ninth-grade, male students and the relation of these attitudes to intended choices of educational program in the tenth grade. Similar information for white students was obtained in order to determine whether minority-group membership does effect attitudes and prediction of program choice. Black students were chosen as the minority group partly because that group is the largest, and partly because of availability for study. The ninth grade is a particularly important time in career development because it is at the beginning of tenth grade that, in most schools, the program becomes differentiated into vocational and college preparatory, and it is at the end of ninth grade that a choice of program must be made. Since it is likely that girls conceptualize career development differently than boys, only males were included in this study.

The study had four specific objectives. The first was to determine the basic dimensions of educational and career-related attitudes of the target population. Several sets of attitude items were included which were targeted at the vocational education program, the college preparatory program, the general program, dropping out of school, occupations, occupational activities, and school activities, respectively. A set of items concerned generally with education and work, but not targeted toward any single topic, was also included. It was intended to generate sets of items which would be representative of the universe of attitude items. A factor analytic procedure was used to determine the dimensions.

The second objective was to determine whether the vocational education program had a different "public image" from the other two programs; that is, whether attitudes toward the three programs differed systematically. For this purpose, two discriminant analyses were done within each race, one between the vocational education program and the college preparatory program, the other between the vocational education program and the general program. The attitude items targeted toward the respective programs were used as dependent (predictor) variables, with the programs themselves as independent (criterion) variables. (All three programs were rated on the same set of items.)

The third objective was to determine whether there were systematic differences in attitude between the black and the white students. For this purpose, a series of discriminant analyses were done, with race as the independent (criterion) variable and each of the sets of attitude items as dependent (predictor) variables, respectively.

The fourth objective was to determine the relationship between attitude and intended choice of educational program for the following year. Two different choice criteria were used. One, the Forced-Choice Criterion, was a single item asking the respondent which of several options (including "dropping out of school") he intended to choose. Mutual exclusivity of choice was thus forced. The other criterion, the Probability Criterion, consisted of a separate item for each option, asking the respondent to rate the likelihood of his choosing that option regardless of the likelihood of his choosing any other option. This criterion did not force mutual exclusivity, but allowed for uncertainty and possible "hybrid" choices. For each race separately, five multiple regression analyses were done, using in all cases the single-item Forced-Choice Criterion as the criterion variable. The predictor variables were the three sets of attitude items targeted toward the educational programs, the set targeted toward "dropping out of school," and the set of un-targeted general attitudes, respectively. Four canonical analyses were done within each race, using in all cases the four-item Probability Criterion as the criterion variables. The predictor variables were the same as in the multiple regression analyses, but without the general attitudes set.

METHOD

Respondents

The respondent sample consisted of male, ninth-grade students in selected inner-city schools in the Baltimore City Public Schools, Baltimore, Maryland. One hundred fifty-five black and 126 white students completed Form A of an attitude survey and 145 black and 80 white students completed Form B. The two forms contained different items. Although it was intended to have 150 students in each of the four categories, the low proportion of white students in inner-city schools in Baltimore made this impossible.

Baltimore, Maryland was selected as the field site because it is a large city with a population about evenly divided between blacks and whites (U.S. Department of Commerce, 1972), and because it was possible to make administrative arrangements with the city school system. Ideally, more than one field site should have been used, in order to increase the generality of the findings, but that was not possible within the resources available to the project.

The participating schools were selected jointly by the project staff and the school administration. The criteria used for selection were: (1) as closely as possible, the schools should contain equal proportions of black students and white students, (2) where not possible, pairs of predominantly black and predominantly white schools should be selected as geographically close to each other as possible, and (3) all schools should be located in the lower income sections of the city. A total of seven schools were selected for participation.

Several weeks prior to the beginning of data collection, a list of all ninth-grade male students in the participating schools was obtained. The list also contained a code indicating the race of the students, and the census tract in which the student lived. Three hundred fifty black students and 350 white students were selected from the list. Each selected student was given a one-page invitation to participate and explanation of the project. It was emphasized that participation was voluntary and that confidentiality of results would be maintained. The student was also given a consent form for his parents to sign if he wished to participate, (Appendices C-E).

Data collection began on May 1, 1975 at some schools while participants were still being obtained at others. About three weeks after data collection began, it became apparent that an insufficient number of the students initially selected were volunteering. At the same time, students not selected, having heard about the project, were volunteering without solicitation. It was decided at that time to accept the new volunteers to complete the sample. Data collection was completed by June 15. Each student was paid $3 for his participation.

Socioeconomic characteristics of the sample are found in Table 2. The sample is characterized by a high proportion of unskilled and skilled workers, a low proportion of professionals, and a low median income. The black sample contained a higher proportion of unskilled laborers and had a lower median income than did the white sample.

Instruments

Two instruments, both titled Student Opinion Survey, were devised. One was labeled Form A and the other Form B. Each contained a series of opinion statements together with a Likert-type rating scale next to it, anchored at each end by words or phrases of opposite meaning. Each statement contained a blank space. The respondents were instructed to rate the anchor points of the scale as to how well one or the other fit the blank. Each scale ranged from -3 to +3 with no zero point. For example:

Teachers explain things so students _____. Understand 3 2 1 | 1 2 3 Get Confused

The two instruments contained different items, since the total number of items was too many for any one respondent to rate.

Form A contained seven sections, and Form B contained four. Each section contained items concerning one area of interest. The formats of the several sections varied slightly, and will be explained with the description of each section. General instructions, and specific instructions for each section, were included. (Appendix G).

Section 1, Form A, Opinions of Job Activities 1, concerned the respondents' attitudes toward several activities that might be performed as a part of various jobs. At the top of each page of the section a job activity was named; for example: working with numbers. For any one respondent, the same job activity was repeated at the top of each page. The respondents were instructed to rate the activity on each of twenty-three items which followed. Seventy-five activities were evenly divided among 300 booklets. Thus, each activity was rated by approximately four respondents, and each respondent rated only one activity. (The first figure is approximate because it was not possible to obtain 300 respondents as originally planned.) This procedure of confounding raters with target being rated (job activities) was used because it would have been prohibitively time-consuming for each rater to rate every target on every scale.

Section 2, Opinions of Jobs 1, concerned the respondents' attitudes toward various jobs. The format was the same as for Section 1, except that one of fifty jobs, such as BOOKKEEPER, was listed at the top of each page for any one respondent, and thirty-two rating items followed. Thus, each job was rated by approximately six respondents and each respondent rated only one job.

Section 3, Opinions of School Activities 1, concerned the respondents' attitudes toward various activities that might be performed in school. The format was the same as for Section 1, except that thirty-five educational activities were used, each respondent rating only one. The rating items were identical.

The next three sections contained attitude items targeted specifically at three educational programs, respectively. In the Baltimore City Public Schools, the vocational education program is called the Job Preparatory Program.

Section 4, Opinions of Educational Program: College Preparatory, concerned the respondents' attitudes toward the college preparatory program. The format was the same as for Section 1, except that all respondents rated the college preparatory program. Forty rating items were used.

Sections 5 and 6, Opinions of Educational Program: Job Preparatory, and Opinions of Educational Program: General, respectively, were identical to Section 4, except for the program being rated.

Section 7, Opinions of Dropping Out of School, were the same as the three previous sections, except that each respondent rated the idea of "dropping out of school" on twenty-six rating items.

Sections 4-7 each contained an item requesting the respondent to rate the likelihood of his taking the specified program the following year. These four items jointly comprised the Probability Criterion defined in the Objectives section.

At the end of the booklet, each respondent was asked to select one of three options that he expected to choose for the following year: The College Preparatory Program, The Job Preparatory Program, or out of school. This item comprised the Forced-Choice Criterion described in the Objectives section. The General Program was not included as an option.

After data collection was completed, it was found that only four of the 506 respondents had chosen the dropping out of school option. These four were eliminated from the multiple regression analysis. Since the criterion now had only two options, it was possible to use multiple regression analysis instead of the more cumbersome discriminant analysis which had originally been planned.

Section 1 of Form B, Opinions of Job Activities 2, covered the same domain as its counterpart in Form A, but with a reversed format. Instead of each respondent rating one activity on all twenty-three items, each respondent rated all seventy-five activities, but on only one item. The opinion statement was placed at the top of each page, and its rating scale repeated down the pages seventy-five times, corresponding to each of the seventy-five activities. The twenty-three rating items were approximately evenly distributed over 300 booklets, so that each rating item was used by approximately thirteen to fourteen respondents.

Section 2, Opinions of Jobs 2, and Section 3, Opinions of School Activities 2, were the reverse-format forms of their respective counterparts in Form A.

Section 4, General Opinions, concerned the respondents' attitudes toward a variety of topics related to education and work. No consistent target was rated by all items, so that nothing "to be rated" appeared at the tops of the pages.

As on Form A, the last page asked the respondents to select the program that he expected to be in the following year.

Figure 1 summarizes the instrument organization.

Instrument Development Rationale and Procedures

The several sections of the instruments represent three different formats, one of which was the result of certain administrative problems inherent in the nature of the project.

The General Opinions section is simply a set of fifty-eight rating-scale items presenting no special problems. It can be factor analyzed, and used as a predictor battery for discriminant and regression analysis. The data matrix resulting from this section is a standard, two-mode, respondent x item matrix.

The Opinions of Educational Programs sections involve the rating of three targets on a common set of items. The resultant data matrix could be regarded as a three-mode, respondent x target x item matrix. Since the number of targets is small, it is practical for all respondents using Form A to rate all three targets on all items. That was the course chosen for this project. Since each target is of interest per se, the resultant data could also be regarded as three two-mode, respondent x item matrices. Each could then be factor analyzed, and entered into discriminant and regression analyses, separately. This, too, was the course chosen.

The remaining sections, however, involve a large number of targets each to be rated on a common set of items. The targets to be rated, (that is, the jobs or activities), are not of interest per se, but instead are representative samples of a domain of such targets. Thus, the resultant data can only be regarded as a three-mode, respondent x item x target matrix. Two sets of factors can be obtained from each such section, dimensions of attitudes, and dimensions of targets. (In both the two-mode and three-mode cases, it is also possible to obtain dimensions of respondents; however, this mode is not relevant to the purposes of the project.) Tucker (1964) has dealt extensively with the three-mode problem. However, there is a practical consideration which prohibited the use of three-mode factor analysis in this case: every respondent would have had to rate every target on every item. Each respondent would have had to make over 4000 ratings, instead of the 219 or 225 actually made. Obviously, this could not be done.

A compromise design was adopted. Half the respondents, (those using Form A), rated one target each on all items. From these respondents the dimensions of attitudes could be determined. The other half of the respondents, (those using Form B), rated all targets, but to some item each. From these, the dimensions of targets could be determined. This data cannot be entered as predictors into regression analyses against any external criteria, since the observations would not be commensurate. The criterion observations would consist of respondents, but the predictor observations would consist of respondent item combinations, or respondent target combinations. In future research, however, the dimensions determined in this project could be used to drastically reduce the number of targets needed to represent the domain thus making it possible for each respondent to rate all targets on all items. Procedures could then be worked out for using the data as predictors in regression analyses.

An example of a card-formatted data matrix and its corresponding reverse-format data matrix is found in Appendix H.

The attitude items selected for each section were intended to span the domain of possible items of concern to the respondent population. An initial pool of items was obtained by searching the literature for items used in previous research. To these were added items which the project staff and an advisory panel of educators felt were missing. This preliminary list of items was sent to twenty ninth-grade teachers in inner city schools in the Chicago Public Schools system (Appendix A). The teachers were asked to add any items they thought to be important but not included, and to indicate any included items that they thought were irrelevant or not appropriate. The final list of attitude items consisted of those obtained from all sources minus a few that the project staff agreed were inappropriate.

The list of attitude items was also sent to ten ninth-grade teachers of English in inner city schools in the Chicago Public Schools system (Appendix B). They were asked to review the items for appropriateness of reading difficulty. A few revisions were made in accordance with their suggestions, but mainly they agreed that the level of reading difficulty was appropriate for inner city ninth graders.

The list of jobs selected was intended to span the domain of commonly known jobs. The jobs were selected randomly from the Occupational Outlook Handbook (U.S. Department of Labor, 1974).

The lists of job and school activities were intended to span their respective domains of possible activities. Both lists were invented by project staff with additions suggested by an advisory panel of general and vocational educators.

Procedures

The respondents completed the instruments in one two-hour session. Sessions were scheduled during the school day at administratively convenient times. Twenty-five to fifty respondents participated in each session. Each session was conducted by two teachers in the public school system, one black and one white, but who were not from the participating schools.

As each respondent entered the room, he was asked his name and student identification number. His name and number were checked off against a master list to assure that the same student did not participate more than once. His student identification number was written on a booklet, he was handed the booklet and asked to take a seat. Fifty-two percent of the black sample received Form A and 48% Form B. Sixty percent of the white sample received Form A and 40% Form B. Because of differences in the instructions, any single session had to use either Form A or Form B exclusively.

The instructions printed in the instruments were read to the respondents by the session conductor. The respondents were encouraged to ask questions to clarify anything they didn't understand.

At the end of the session, each booklet was scanned for completeness, and each respondent given a chit which he could redeem for $3 at the school office.

Data Analysis

Demographic Characteristics. Prior to [illegible] of the data analyses related to the objectives of the project, a discriminant analysis between the black and white students was done using seven variables from the 1970 census (U.S. Department of Commerce, 1970) that are commonly associated with socioeconomic level. Since socioeconomic data were not available for individual respondents, each respondent was assigned a score on each variable corresponding to the census tract in which he lived. The sample was distributed over a total of 108 tracts. The seven variables used were: median school years completed, percent of civilian male labor force unemployed, percent of professional, technical, and kindred workers; managers, and administrators, percent of sales, clerical and kindred workers; percent of craftsmen, foremen, and kindred workers, and operatives; percent of laborers (except farm), service workers, and private household workers; median income.

The seven census variables discriminated quite strongly, with Eta-squared = .76. The high loading variables indicate that the black respondents lived primarily in tracts with a high percentage of laborers, a low percentage of sales workers and skilled craftsmen, and a lower median income than did the white respondents. Table 2 contains the mean values of the seven variables for the two races and the discriminant loadings.

Factor Analyses. In order to determine the major dimensions of attitude, each section was factor analyzed separately (Harman, 1967). Factors resulting from sections containing the same variables were compared using the Coefficient of Congruence (Ø) to determine whether the same factors were operating in each.

A technique devised by Ledyard Tucker[1], subsequently named the Varipart procedure by Black (1964), was used to handle the possibility that the factor structure might be different for the two races. A covariance matrix among the variables was generated for each race, and a weighted average of the two matrices was determined. The respective sample sizes were used as weights. This pooled covariance matrix was then factor analyzed, resulting in a least-squares best-fit solution to both matrices. After final rotation, the contribution of each race to the total variance of each factor was estimated, which was taken as an index of the predominance of each factor in each race. The correlations among the factors within each race were also estimated.

The pooled covariance matrix was not rescaled to a correlation matrix in order to allow the higher variance items to more strongly influence the factor structure than the lower variance items. Rescaling the pooled covariance matrix would have resulted in some convenience in interpreting the loadings, but at the loss of potentially meaningful differences in variance among the items.

For each pooled covariance matrix, the diagonal elements were replaced with communality estimates (the covariance analog of squared multiple correlation coefficients), and a number of principal-factors extracting equal to ¼ of the total number of variables. The scree test (Cattell, 1966) was used as an initial estimate of the number of factors to rotate. This is an approximate visual test made by graphing each factor against its corresponding eigenvalue. Starting from the smallest factor, the point is located at which the graph changes from a straight line to an accelerating curve. The factor number at this point is taken as an estimate of the smallest statistically significant and non trivial factor. A few factors more and less than indicated were rotated to the Binormamin criterion of oblique simple structure (Harman, 1967), and a final decision on the number to retain was made by inspection of the results. The Varipart procedure was then applied as described above (see Appendix F for a complete description). The Lawley-Maxwell test for the equivalence of covariance matrices (Lawley et al., 1963) was used to determine whether any differences between the races in variance contribution or factor intercorrelations were statistically significant.

Discriminant Analyses, Program vs Program. In order to determine whether the Job Preparatory Program had a different "public image" than the other two, four discriminant analyses were done. The first two compared Opinions of Educational Program: Job Preparatory against Opinions of Educational Program: College Preparatory, for each race separately. The second two compared Opinions of Educational Program: Job Preparatory against Opinions of Educational Program: General, for each race separately. The items of Form A, Sections 5 and 4, and Sections 5 and 6, were used as dependent (predictor) variables, respectively.

Discriminant Analyses, Black vs White. To determine whether there were systematic differences of opinion between black and the white samples, eleven discriminant analyses (Cooley and Lohnes, 1971) between the two samples were done, using in turn, each section of the survey instrument as dependent (predictor) variables.

Regression Analyses, Forced Choice Criterion. For each section containing complete data (that is, excluding those sections in which the respondent is confounded with either variable or target), a multiple regression analyses (Cooley and Lohnes, 1971), of the variables against the program selected for next year, the Forced Choice Criterion, was done. A separate analysis was run for each race. There were five such analyses for each race, using as predictor variables Form A, Sections 4, 5, 6, and 7, and Form B, Section 4, respectively.

Canonical Analysis, Probability Criterion. Four canonical analyses, using the Probability Criterion as the criterion variables, were run for each race. Sections 4, 5, 6, and 7 of Form A, excluding the criterion items, were used as predictor variables, respectively.

Figure 2 summarizes the data analyses.

[1] Tucker, L. Univ. of Ill., Dept. of Psychol., Urbana, Ill. *Personal communication*, 1963.

RESULTS

In the following reports of results, all correlations are reported in terms of the square of the appropriate coefficient, r squared or Eta squared. Although it is more traditional to report the coefficient itself, the author feels that the squared coefficient is more meaningful, since it represents the proportion of common variance between the predictor and the criterion. It also helps to counter the tendency to overestimate the relative strength of an effect, due to the fact that the coefficient is always numerically larger than the proportion of common variance that it represents. In the case of correlations between composite predictors and criteria, the reported squared coefficient is corrected for bias, that is, it is "shrunk" to a more reasonable estimate of the population value (Guilford, 1965). All results reported as statistically significant have a significance level of $< .05$.

Opinion Patterns (Factor Analyses)

The organization of attitudes was determined by factor analysis. For purposes of interpretation, a variable was considered to load highly on a factor if it directly contributed at least 40% of its variance to that factor, to load moderately if it contributed at least 20% of its variance, and to load marginally if it contributed at least 10% of its variance to the factor. Since the matrices factored were covariance matrices, the loading corresponding to each of the above three points could be different for each variable. Since it is not practical to calculate separate minimum loadings for every variable, the mean variance per variable was calculated for each matrix and those figures used as the basis for determining minimum loadings for that matrix. For any given matrix, the minimum loading needed to qualify as "high" was $\sqrt{.40}$ times the mean variance, to qualify as "moderate" was $\sqrt{.20}$ times the mean variance, and to qualify as "marginal" was $\sqrt{.10}$ times the mean variance. Interpretation was concentrated on the high and moderate loadings. Marginal loading variables were considered only where they provided clarification.

Tables 3 through 10 present the Primary Factor Patterns for each analysis. The three loading points as defined above are presented at the bottom of each table.

Opinions of Educational Programs: College Preparatory. Four factors were rotated as indicated by the screen tests, but only three were interpretable. The three factors were labeled Difficulty, Utility, and Enjoyability.

The salient variables on Factor 1, Difficulty, all have to do with how difficult and complex, or how simple and easy, the program is.

On Factor 2, Utility, the two highest loading variables are clearly concerned with the utility of the program for finding a job after graduation. The loadings drop off sharply after the first two, resulting in a large number of marginally loading variables.

The salient variables on Factor 3, Enjoyability, generally concern the aesthetic quality of the program: its "fun, exciting, I like it" vs. its "boring, dull, I dislike it."

Utility and Enjoyability are moderately correlated (r squared = .29). The respondents tend to see the program as more useful if they also see it as more enjoyable. The Varipart analysis was not

statistically significant (that is, the correlations between factors and the proportions of contributed variance were the same for both races).

Opinions of Educational Programs — Job Preparatory: Four factors were found in this section which were labeled Difficulty, Evaluation, Cleanness, and Aspiration.

Factor 1, Difficulty, appears to be the same as in the College Preparatory section (0.880), but the other three are different.

The salient variables on Factor 2, Evaluation, include enjoyability, but also include several concerns: parental approval, success, importance, and utility. Generally, it is concerned with the goodness or badness of the program.

Factor 3, Cleanness, emphasizes that the program is seen as "clean, safe, and quiet" vs. "dirty, dangerous, and noisy."

Factor 4, Aspiration, contains only three salient variables concerning the likelihood of succeeding in the program, the likelihood of getting into the program, and the perceived amount of work necessary in the program, in other words, whether the student feels that he can aspire to the program.

Evaluation is moderately correlated with Cleanness (r squared = .28) and with Aspiration (r squared = .32). Students tend to evaluate the program highly if they also see it as clean and believe that they can aspire to it.

The Varimax analysis produced very similar results.

Opinions of Educational Programs — General: Six factors were found in this section, labeled Evaluation, Difficulty, Enjoyability, Practicality, Aspiration, and Quality. Enjoyability is the same factor as in the College Preparation Programs (.880). Evaluation and Difficulty are the same factors as in the Job Preparation Programs (.880 and .888, respectively).

Factor 3, Aspiration, resembles the Aspiration factor in the Job Preparation Programs (r squared = .640). It includes the items "I could get in" and "I would do well in it" variables, but also includes peer approval and does not include the perceived amount of work necessary in the program.

Factor 4, Practicality, loads four salient variables which concern a combination of the safety and quietness of the program together with whether the program would be a good use of the respondent's time and skills. Marginally, it also loads the ease of getting a job after completion.

Factor 5, Quality, loads six salient variables, all of which concern the quality of the program relative to the other programs. At the positive end, the teachers, classrooms, books, etc., are all better than in other programs. It also loads the ease of finding a job after completion.

Enjoyability and Utility are moderately correlated with Aspiration (r squared = .35).

The Varimax analysis was not significant.

Opinions of Dropping Out of School: Only three factors were found in this section, all of which are considerably to highly intercorrelated. The factors were labeled Value, Enjoyability, and Peer Approval.

Factor 3, Enjoyability, appears to be the same as those previously found. No congruence coefficient could be computed, since the variables in this section were not the same as in the previous group.

Factor 4, Value, loads a large number of subjective variables which center around the theme of how valuable, or valueless, it is to drop out of school.

Factor 5, Peer Approval, loads highly on peer approval and whether friends will drop out of school. It also loads, at a lower level, on students' desirability and ability to drop out of school, and his likelihood of doing so.

The squared correlation coefficients among the factors are: .07 for Value/Enjoyability, .42 for Value/Peer Approval, and .09 for Enjoyability/Peer Approval.

The large sample analysis indicated a significant difference between the blacks and the whites. The proportion of variance contributed to each factor appears to be the same for both races, but two of the factor intercorrelations are higher among the whites. For Value/Peer Approval, r squared is .38 among the blacks and .55 among the whites. For Enjoyability/Peer Approval, r squared is .32 among the blacks and .63 among the whites.

General Opinions: Four factors were found in the General Opinions battery: Importance of School and Work, Quality of School, Occupational Certainty, and Relevance of School.

Factor 1, Importance of School and Work, loads a large number of variables all centering around how important it is for a youth to get a good education and to "get ahead in living." Parental concern also loads heavily on this factor, being positively related to perceived importance of school and work.

Factor 2, Quality of School, also loads a large number of variables. The common theme among these is mainly the ability and concern of the teachers.

Factor 3, Occupational Certainty, loads only two variables: "I know don't know what kind of job, or any I want to get," and "I know don't know what kind of work I want to do." Both concern the degree of certainty that the respondent has concerning his future occupational plans.

Factor 4, Relevance of School, loads variables which seem primarily concerned with how relevant school is perceived after finishing school. At the negative end, school involves too many rules, too much to do, covers the same old things day after day, and many even good jobs are easy to find, and finding and succeeding on one is a function of non-school factors.

None of the factors are substantially intercorrelated.

The Varimax analysis indicated a significant difference between the races. Importance of School and Work is a more prominent factor among the blacks, accounting for 30% of the total factor variance, than among the whites, where it accounts for only 12%. On the other hand, the Occupational Certainty factor is more prominant among the whites, accounting for 36% of the variance, than among the blacks, where it accounts for 22%.

The factors remain uncorrelated for both races.

Opinions of Job Activities 2 and Opinions of School Activities 1: Since the factor structure is the same for both sections, both are reported together. Four factors are involved here: Value, Activity Enjoyability, and Complexity.

Factor 1, Value, loads variables which concern how worthwhile, or not worthwhile, it is to do the activities being rated.

Factor 2, Activity, loads variables which specify the amount of activity or passivity involved in doing the activities being rated.

Factor 3, Enjoyability, loads variables concerned with how much fun and excitement is involved, and how much the respondent likes doing the activities being rated.

Factor 4, Complexity, loads variables indicating how easy and simple, or how difficult and complex, the activities are.

Overall, there are no substantial intercorrelations among the factors. The Varipart analysis was significant for the Opinions of School Activities 1 section. The results indicate that, among the whites only, Complexity and Enjoyment are moderately correlated (r squared = .31), and Complexity and Value are moderately correlated (r squared = .30).

Opinions of Jobs 1. Six factors emerged from this section, all substantially uncorrelated. The Varipart analysis was not significant.

Factor 1, Difficulty, loads variables which indicate how easy or hard the job is.

Factor 2, Enjoyability, is similar to the other enjoyability factors which have appeared; that is, how much fun the job is.

Factor 3, Cleanliness, loads variables which indicate that the job is either safe, quiet, and clean or dangerous, noisy, and dirty.

Factor 4, Evaluation, loads adjectives which appear to be the positive or negative [illegible] involved; that is, the general "goodness" or "badness" of the job.

Factor 5, Prestige, loads adjective variables [illegible] prestigious and [illegible] jobs.

Factor 6, External Approval, loads [illegible] which are applicable by parents, teachers, and friends for the respondents doing the rated job.

Opinions of Job Activities 2. Five factors were found in this section. These factors are driven sorts of job activities across the opinion domain, rather than dimensions of opinions across the job domain as in the case in the obverse section Opinions of Job Activities 1. They can best be regarded as dimensions of perceived similarity of job activities across an assortment of opinions.

Factor 1 was labeled Executive Activities because the salient variables are mainly the sorts of things one would expect a supervisor, foreman, or other "boss" to do.

Factor 2 was labeled Field Activities. All are done "in the field" rather than at a single location, such as in an office or at one's desk.

Factor 3, Public Activities, loads variables which emphasize working with the public, such as, "meeting the public," "selling things," and "finding buyers."

Factor 6, Machinery Activities, loads variables which involve the operation of some sort of machinery or equipment.

Factor 5, Routine Activities, emphasizes dull, repetitive activities done alone and in one place.

None of the factors are substantially correlated. The Varipart analysis was not significant.

Opinions of School Activities - Five factors were found which were different than those found in the analogous job activities section.

Factor 1, Manual Activities, loads variables which emphasize working with one's hands.

Factor 2, Passive Activities, loads only four variables - sitting, sitting quietly, studying alone and reading, all of which are quite passive.

Factor 3, Student Government Activities, loads two variables very highly - running for student office, and assisting school officials. Three other moderately loading variables are concerned with ancillary, clerical type activities - reciting, keeping records, and taking notes.

Factor 4, Cognitive Activities, emphasizes rather traditional academic activities requiring "brain power," such as working with numbers, reading, studying, taking tests, and solving problems.

Factor 5 is somewhat unclear, but the salient variables appear to emphasize those activities that a good student should do - concentrating, staying clean, taking tests, listening, not acting (acting out?), and not getting dirty. It was labeled "Good Student" Activities.

The factors are substantially uncorrelated, and the Varipart analysis was not significant.

Subgroups of Jobs - The factors [illegible] discriminations of jobs across the spectrum of [illegible].

[illegible]

Factor 3, [illegible] Occupations, [illegible] college degree.

Factor 2, Machinery Occupations, [illegible] the operation of some [illegible] machinery.

Factor 3, White Collar Occupations, [illegible] traditionally considered white collar non professional.

Factor 4, Skilled Craft Occupations was less clear than the others. The salient jobs appear, however, to be forms of skilled labor.

The factors are uncorrelated. The Varipart analysis was not significant.

Program Image Comparison (Discriminant Analyses)

Three of the four discriminant analyses comparing the educational programs were statistically significant. For the Job Preparation Program vs. the College Preparation Program, Eta squared is .29

in the black sample and .14 in the white sample. The high-loading variables indicate that the blacks tend to perceive the Job Preparatory Program as easier and simpler than the College Preparation Program. Discrimination in the white sample is very weak, but to the extent that it does occur, the Job Preparation Program is seen as dirty, dangerous, and noisy, but easy, compared to the College Preparatory Program.

For the Job Preparatory Program vs the General Program, discrimination is significant only in the white sample, with Eta-squared = .20. The job Preparatory Program is seen as more useful and rewarding, but also as more difficult than the General Program. The blacks apparently have no difference of opinion about the two programs.

Opinion Differences Between Blacks and Whites (Discriminant Analyses)

None of the sections of the survey instruments discriminated significantly between the two races.

Program Choice Prediction: Forced Choice Criterion (Regression Analyses)

The Forced-Choice Criterion did not significantly predict choice of 10th grade educational program.

Program Choice Predictors: Probability Criterion (Canonical Analyses)

In all three Opinions of Educational Programs sections, and in the Opinions of Dropping Out of School section, 1 canonical variate was significantly related to the Probability Criterion. In a few cases, a second canonical variate was found to be statistically significant, all of which were regarded as trivial and not reported. The canonical correlations were either extremely weak or the salient variable loadings were very low.

Tables 11-14 present the [illegible]

Opinions of Educational Programs: College Preparatory. The opinion battery was significantly related to probability of choice for both populations, but in somewhat different manners. In both samples only the probability of taking the College Preparatory Program loaded on the canonical variate on the criterion side.

In the black sample, R squared = .20. The salient predictor variables indicate that respondents who like the program, think it is fun, rewarding, and exciting, and would be a good use of their skills are more likely to take the program. The strength of the relationship is, however, barely at a moderate level.

In the white sample, the relationship was stronger (r squared = .34). However, only one predictor variable loaded: the extent to which the respondent likes the program.

Opinions of Educational Program: Job Preparatory. In both samples, the opinion battery was related to probability of program choice, but differently among the two races.

In the black sample, a combination of perceived high prestige, enjoyability, parental approval, and usefulness to students is related to a high probability of being in both the Job Preparation Program and the General Program. R squared = .37.

In the white sample, all of the above variables plus peer approval was related to a high probability of taking the Job Preparation Program and a low probability of taking the College Preparation Program. R squared = .35.

Opinions of Educational Program - General. In both samples the opinion battery is related to probability of program choice. Among the whites, the degree of relationship is stronger than in the two previous sections.

In the black sample, a combination of enjoyability, usefulness of the program, approval by parents, teachers, and peers, and perceived ease of getting into the program is related to a high probability of being in all three programs. R squared = .34.

In the white sample, a combination of enjoyment, usefulness of the program, the prestige of the program, and approval by parents, teachers, and peers is related to a high probability of taking the program. R squared = .55, which is a fairly strong relationship.

Opinions of Dropping Out of School

In both samples the battery is very strongly related to the probability of dropping out of school. R squared = .63 for the black sample and .74 for the white sample. In both samples, all the predictor variables but one (if I dropped out of school I would have to work few many hours) loaded on the canonical variate. It appears that a generally positive attitude toward dropping out of school is related to a high probability of doing so.

DISCUSSION AND CONCLUSIONS

Constraints On Interpretation of the Results

From the discriminant analysis of demographic variables, it is clear that the black and the white respondents cannot be considered to belong to the same socioeconomic level. This fact must be considered in interpreting any findings which indicate differences between the black and the white students. The confounding of race and socioeconomic level is not an artifact; it is a real characteristic of the Baltimore population and of other large cities. Differences between the black and the white students in this project cannot be attributed to either race or socioeconomic group per se, nor is there any need to do so. The purpose of the project was to examine attitudes of two existing sub-populations of large cities, one of which is both black and belongs to the lowest socioeconomic level, the other of which is both white and belongs to the next higher socioeconomic level. Any differences found between these two groups are empirically meaningful. Attribution of these differences to race or socioeconomic level per se is not at issue.

Since Baltimore, Maryland was the only field site for the study, the results cannot be statistically generalized to other cities. Only logical inference is possible. To the extent that other cities are similar to Baltimore, it can be inferred that similar results would be expected.

[illegible]

[illegible] of the [illegible] accounted for by the common factors ranged from .20 to .63 with a mean of .41. Assuming the reliability of the data to be about .80 of the total variance (a reasonable figure for rating scales in general), then the factors represent about .51 of the reliable

[illegible] attitudes of the students are fairly well organized.

The [illegible] highly organized, with four six factors in each set accounting for about .58 of the reliable variance. The factors indicate that students tend to construe both job related and school related activities in terms of (1) how valuable the activity is, (2) how active one must be in performing the activity, (3) how enjoyable the activity is, and (4) how complex the activity is. Among the whites only and for school related activities only, there is a tendency for the more complex tasks to be seen as the more enjoyable and valuable.

When construing jobs themselves a different and more differentiated organization seems to be operating. There are six instead of four factors. Jobs tend to be construed in terms of (1) how difficult they are, (2) how enjoyable they are, (3) how "clean" they are, (4) how "good" they are, in a very general sense, (5) how prestigious they are, and (6) how well approved they are by parents.

teachers, and friends. Only difficulty (which is similar to complexity), and enjoyability are the same dimensions as found when rating activities. The sixth dimension confirms the general belief that external approval is an important concern for junior high school age youth.

The obverse dimensions, those among the activities and jobs themselves, are a bit less highly organized, four five factors accounting for about 46 of the reliable variance. Job activities tend to be construed according to (1) whether they are done by the boss, (2) whether they are done in the field, (3) whether they involve dealing with the public, (4) whether they involve working with machinery, and (5) the extent to which they are dull and repetitive. School activities tend to be construed according to whether (1) they involve working with one's hands, (2) how much action is involved, (3) whether they involve student government, (4) how cognitive they are, and (5) how much they reflect doing what is expected of "good" students. With the exception of the cognitive dimension of school activities, there appears to be no a priori reason to have expected these dimensions to have emerged, but all appear to be reasonable from a student's point of view.

Jobs themselves tend to be construed along dimensions corresponding approximately to conventional classifications: Professional Occupations, Machinery (blue collar) Occupations, White Collar Occupations, and Skill Craft (skilled labor) Occupations.

The degree of organization of opinions about specific educational programs is also reasonably good: three six factors accounting for about 49 of the reliable variance. The three programs are construed along somewhat different dimensions. The difficulty of the program appears to be the one dimension common to all three. Enjoyability is common to both the College Preparatory Program and the General Program, but apparently is not an issue when thinking about the Job Preparatory Program. Evaluation is common to the Job Preparatory Program and the General Program, but not the College Preparatory Program. The other dimensions are all unique to one educational program. The cleanness of the program and whether one can aspire to it are considerations for the Job Preparatory Program; the utility of the College Preparatory Program is an issue, and practicality and quality are concerns about the General Program as well as a variant of being able to aspire to it.

Opinions about developing one's self in a program are also construed one probably emotionally, [illegible] good or bad. Although there are three factors, they are moderately to highly correlated, more so among the whites than the blacks. The whites are more prone to see drop-out as all good or all bad; blacks are more inclined to see it in terms of three different but nevertheless related dimensions.

The General Concerns Set in the Total Explanatory Space: Four factors accounting for only about 33 of the reliable variance. Two thirds of the reliable variance seems to be unique. The common factors that do occur, however, are nonetheless interesting. The Importance of School and Work factor appears to reflect the theme of the television commercials that exhort people to get a good education in order to get a good job. The Relevance of School factor confirms the existence of an issue commonly believed to exist.

The Potential Image of Vocational Education

The generally weak discrimination between the Job Preparatory Program on the one hand and the College Preparatory and General Programs on the other, indicates that there are no substantial systematic differences in the attitudes of the students toward the three programs. Such differences as there are tend to be trivial. About the only differences seem to be a weak tendency to see the Job Preparatory Program as easier than the College Preparatory Program, and more useful and rewarding

than the General Program. The relative public image of vocational education, to the extent that it has one at all, appears to be positive.

The Prediction of Choice of Educational Program

The most striking finding of the multiple regression analyses against the Forced Choice Criterion and the canonical analyses against the Probability Criterion is the complete failure of the former to produce any significant results and the success of the latter in producing a number of significant results. The primary difference between the two criteria was that the former guaranteed mutual exclusivity of choice, but at the cost of not allowing for uncertainty and "hybrid" programs. The latter criterion had, of course, the reverse characteristics, and apparently those characteristics were crucial.

The Forced Choice Criterion may have represented an unrealistic task. In the Baltimore City Public Schools, the distinction between programs is quasi official. Students are counseled in terms of preparing themselves for either college or a job, and the terms "Job Preparatory Program" and "College Preparatory Program" are used in counseling, but no formalized curriculum for each exists, and the student does not make a formal choice in the sense of marking one or the other on a registration form. The Probability Criterion may therefore be more realistic, or the results may reflect actual uncertainty about ultimate choice.

The relationship of attitude to probability of choice is weakest for the College Preparatory Program. The predictors come exclusively from the Utility and Enjoyability factors, and one from the uniqueness. Program difficulty is not related.

For the Job Preparatory Program the predictors come almost entirely from the Evaluation factor, except that in the white sample there is also one from the Aspiration factor and one from the uniqueness. Generally, the probability of taking the program is a function of how "good" or "bad" one perceives the program to be.

For all groups of students, the [illegible] factors, Difficulty and Practicality, are not related. Evaluation, Enjoyability, Practicality, and Aspiration are.

The fact that [illegible] are related to the probability of dropping out of school goes along with the previous finding, that students tend to view this option in a very global, poorly differentiated way.

Obviously, it is not possible to make any definitive statements about what attitudes are related to probability of program choice. The attitudes that predict probability of choice are different for each program, and to some extent for each race.

Attitude Differences Between Black Students and White Students

Many educators hold the opinion that black students have different attitudes and perceptions of education than do white students, and therefore need to be given separate consideration. This position is not supported by the evidence presented here. There were no significant differences in attitude between the black students and the white students. There were some slight differences in the organization of attitudes, but they are of marginal importance. Among the factors of Opinions of Dropping Out of School and Opinions of School Activities I there were some small differences in

the intercorrelations among the factors, and among the factors of General Opinions, there was a small difference in the relative predominance of two factors. In the prediction of the probability of program choice, there were some noticeable differences in the variables that enter into the predictions, but these were not extreme. The major conclusion, however, must be that the attitudes of the black students and white students are extremely similar.

Implications for Vocational Education

The finding that the Job Preparatory Program does not suffer from an overall negative public image, as some have feared, suggests that there is little need for programs directed at counteracting a poor public image of vocational education in the socioeconomic levels studied here.[2] If anything, that image is already somewhat positive. On an individual basis, however, it is clear that students' impressions of vocational education are quite variable, and that this variation of opinion is related to the students' reported probability of taking the vocational education program.

Students who perceive the Job Preparatory Program as useful, enjoyable, and prestigious, and whose parents and peers approve, are the more likely to take the program. The appearance of external approval as a predictor indicates that the students' choices are not based entirely on their own opinions, but are influenced by external forces. This implies that any programs designed to increase the involvement of students with vocational education should be aimed not only at influencing the attitudes of the students, but those of their parents as well.

There appears to be little need to consider black students separately from white, since their attitudes are the same and the prediction functions for program choice are only marginally different.

Further research in this area probably should be directed toward determining the attitudes of parents toward vocational education, determining the reasons for individuals holding the attitudes that they do, determining how best to change those attitudes where they are negative, and strengthening those that are positive.

[2] This does not mean that further enhancement is unnecessary or undesirable.

TABLES

TABLE 1

Discriminant Patterns

Educational Programs

		Job Preparate Program[1] vs College Prepare Program Black Sample
1. I would ___ being in this program. program.	(like) (dislike)	
2. Being in this program would make me look ___.	(good) (bad)	
3. I would make ___ money being in this program.	(a lot of) (little)	
4. This program would be ___ for my health.	(good) (bad)	
5. The work in this program is ___.	(easy) (hard)	.66
6. Before I could be in this program, I would need a ___ period of training.	(short) (long)	.35
7. Being in this program would be ___.	(fun) (boring)	
8. Being in this program would be ___.	(exciting) (dull)	
9. This program is ___.	(important) (unimportant)	
10. Being in this program would be ___.	(useful) (useless)	
11. This program is ___	(looked up to) (looked down upon)	
12. Being in this program would be ___.	(rewarding) (not rewarding)	
13. I would be ___ to be in this program.	(proud) (ashamed)	
14. If I were in this program, I would be doing ___.	(many different things) (the same old thing over and over)	

TABLE 1 (Cont.)

		Job Preparatory Program[1] vs. College Preparatory Program Black Sample	Job Preparatory Program[1] vs. College Preparatory Program White Sample	Job Preparatory Program[1] vs. General Program White Sample
15. Being in this program would be ___.	(good) (bad)			
16. The work in this program would be ___.	(simple) (complex)	.44	.38	-.39
17. Being in this program ___ give me a feeling of success.	(would) (would not)			.50
18. The work in this program is ___.	(clean) (dirty)		-.60	
19. The work in this program is ___.	(quiet) (noisy)		-.42	
20. If I were in this program I would be ___.	(moving around) (keeping still)		.38	
21. The work in this program is ___.	(fast paced) (slow and relaxed)			
22. Being in this program would be ___.	(safe) (dangerous)		-.48	
23. If I were in this program, I would be ___ my skills.	(using) (wasting)			.33
24. If I were in this program, I would be ___ my time.	(making good use of) (wasting)			.43
25. In this program I would have to work ___ hours.	(few) (many)			-.34
26. If I take this program, it will be ___ for me to get a good job.	(easier) (harder)			
27. Most of my friends will ___ this program.	(take) (stay out of)	.39	.44	
28. The teachers in this program are ___ than in other programs.	(better) (worse)			

TABLE 1 (Cont.)

	Job Preparatory Program[1] vs. College Preparatory Program Black Sample	Job Preparatory Program[1] vs. College Preparatory Program White Sample	Job Preparatory Program[1] vs. General Program White Sample
29. The buildings and classrooms in this program are __ than in other programs. (better) (worse)			
30. If I take this program, it will be __ for me to get the kind of job I want. (easier) (harder)			.36
31. The books and equipment used in this program are __ than in other programs. (in better shape) (in worse shape)			
32. This program is __ organized than other programs. (better) (worse)			
33. This program meets the needs of the students in it __ than other programs. (better) (worse)			.31
34. It is __ that I will be in this program next year. (likely) (not likely)			
35. If I wanted to be in this program, it is __ that I could get into it. (likely) (not likely)			
36. If I were in this program, I would __ in it. (do well) (do poorly)			
37. My friends would __ of my being in this program. (approve) (not approve)			
38. My parents would __ of my being in this program. (approve) (not approve)			
39. My teachers would __ of my being in this program. (approve) (not approve)			

[1]The Job Preparatory Program is at the low end of the discriminant function in all three cases.

TABLE 2

Discriminant Patterns and Means
Demographic Variables

	Discriminant Patterns		Means[1] (Forms A and B combined)	
	Form A Sample	Form B Sample	Black Sample	White Sample
1. Median school years completed.			8.8	8.8
2. % of male civilian labor force unemployed.	-.41	-.64	7	5
3. % professional, technical, and kindred workers, managers and administrators.			9	10
4. % sales workers, clerical and kindred workers.	.82	.67	17	27
5. % craftsmen, foremen and kindred workers and opetatives.	.74	.82	35	46
6. % laborers, service workers, and private household workers	-.94	-.93	51	18
7. Median Income	.57	.71	$5842	$8289

[1]Source: U.S. Bureau of the Census, 1970 Census of Population and Housing: Census Tracts. Data reported are the means for all tracts in white respondents lived. Each tract was weighted by its sample size.

TABLE 3

Primary Factor Patterns

Opinions of Educational Programs

		College Preparatory Program			Job Preparatory Program				General Program					
		1	2	3	1	2	3	4	1	2	3	4	5	6
1. I would ___ being in this program.	(like) (dislike)			.99		.88			.93		.64			
2. Being in this program would make me look ___.	(good) (bad)										.62			
3. I would make ___ money being in this program.	(a lot of) (little)					.66								
4. This program would be ___ for my health.	(good) (bad)													
5. The work in this program is ___.	(easy) (hard)		1.23			.95				.93				
6. Before I could be in the program, I would need a ___ period of training.	(short) (long)		.75			.89				.97				
7. Being in this program would be ___.	(fun) (boring)			1.26		.83					1.05			
8. Being in this program would be ___.	(exciting) (dull)			1.23		.67					1.11			
9. This program is ___.	(important) (unimportant)					.57			.59					
10. Being in this program would be ___.	(useful) (useless)						.57		.55					
11. This program is ___.	(looked up to) (looked down upon)													
12. Being in this program would be ___.	(rewarding) (not rewarding)													
13. I would be ___ to be in this program.	(proud) (ashamed)													

TABLE 3 (Cont.)

		College Preparatory Program			Job Preparatory Program				General Program					
		1	2	3	1	2	3	4	1	2	3	4	5	6
14. If I were in this program, I would be doing __.	(many different things) (the same old thing over and over)													
15. Being in this program would be __.	(good) (bad)					.52			.64					
16. The work in this program would be __.	(simple) (complex)	1.10			.96					.80				
17. Being in this program __ give me a feeling of success.	(would) (would not)					.61			.91					
18. The work in this program is __.	(clean) (dirty)						.91							
19. The work in this program is __.	(quiet) (noisy)						.76					.63		
20. If I were in this program I would be __.	(moving around) (keeping still)												.68	
21. The work in this program is __.	(fast paced) (slow and relaxed)													
22. Being in this program would be __.	(safe) (dangerous)						.77					.68		
23. If I were in this program, I would be __ my skills.	(using) (wasting)								.71			.81		
24. If I were in this program, I would be __ my time.	(making good use of) (wasting)								.64			.64		
25. In this program I would have to work __ hours.	(few) (many)	1.20			.83		.59			.81				
26. If I take this program, it will be __ for me to get a good job.	(easier) (harder)			.79										.52
27. Most of my friends will __ this program.	(take) (stay out of)													

TABLE 3 (Cont.)

	College Preparatory Program			Job Preparatory Program				General Program					
	1	2	3	1	2	3	4	1	2	3	4	5	6
28. The teachers in this program are ___ than in other programs. (better) (worse)		.64											.72
29. The buildings and classrooms in this program are ___ than in other programs. (better) (worse)													.62
30. If I take this program, it will be ___ for me to get the kind of job I want. (easier) (harder)		.92											.79
31. The books and equipment used in this program are ___ than in other programs. (in better shape) (in worse shape)						.65							.75
32. This program is ___ organized than other programs. (better) (worse)													.92
33. This program meets the needs of the students in it ___ than other programs. (better) (worse)					.60			.70					
34. It is ___ that I will be in this program next year. (likely) (not likely)			.78		.85			.92					
35. If I wanted to be in this program, it is ___ that I could get into it (likely) (not likely)						.74						.81	
36. If I were in this program, I would ___ in it (do well) (do poorly)						.75						.77	
37. My friends would ___ of my being in this program (approve) (not approve)												.72	
38. My parents would ___ of my being in this program. (approve) (not approve)					03			.76				.49	
39. My teachers would ___ of my being in this program (approve) (not approve)								.55				.50	
	σ^2 = 1.80 High = .85 Mod. = .60 Marg. = .42			σ^2 = 1.64 High = .82 Mod. = .57 Marg. = .40				σ^2 = 1.91 High = .87 Mod. = .62 Marg. = .44					

TABLE 4

Primary Factor Pattern

Opinions of Dropping Out of School

			1	2	3
1.	I would ___ doing this.	(like) (dislike)		1.41	.78
2.	Doing this would make me look ___.	(good) (bad)		1.11	
3.	I would make ___ money doing this.	(a lot of) (little)		1.17	
4.	Doing this would be ___ for my health.	(good) (bad)		1.03	
5.	Doing this would be ___.	(fun) (boring)		1.36	
6.	Doing this would be ___.	(exciting) (dull)		1.57	
7.	Doing this is ___ to me.	(important) (unimportant)	.82	.94	
8.	Doing this would be ___.	(useful) (useless)		1.14	
9.	Doing this is ___.	(looked up to) (looked down upon)	1.47		
10.	Doing this would be ___.	(rewarding) (not rewarding)	1.34		
11.	I would be ___ to do this.	(proud) (ashamed)	.92		
12.	Doing this would be ___.	(good) (bad)	.94		
13.	Doing this would get ___ feeling of ___.	(success) (failure)	1.28		
14.	Doing this would be ___.	(safe) (dangerous)			

TABLE 4 (Cont.)

			1	2	3
15.	If I did this, I would be ___ my skills.	(using) (wasting)	1.07		
16.	If I did this, I would be ___ my time.	(making good use of) (wasting)	.94		
17.	If I did this, I would have to work ___ hours.	(few) (many)			.78
18.	If I did this, it would be ___ for me to get a good job.	(easier) (harder)	1.06		
19.	Most of my friends ___ do this.	(will) (will not)			1.37
20.	If I did this, it would be ___ for me to get the kind of job I want.	(easier) (harder)	.71		
21.	It is ___ that I will do this next year.	(likely) (not likely)		.76	.67
22.	If I wanted to do this, it is ___ that I could.	(likely) (not likely)		.97	.78
23.	My friends would ___ if I did this.	(approve) (not approve)			1.23
24.	My parents would ___ if I did this.	(approve) (not approve)			
25.	My teachers would ___ if I did this.	(approve) (not approve)			

$\bar{x}$ = 2.75
High = 1.05
Mod. = .74
Marg. = .52

TABLE 5

Primary Factor Pattern

General Opinions

		1	2	3	4
1.	The longer you stay in school, the ___ it is to get a good job.	(easier)	(harder)		
2.	The things I am learning in school now will be ___ in my job when I finish school.	(useful)	(useless)	.44	
3.	I ___ what kind of job training I want to get.	(know)	(don't know)		1.23
4.	Working hard is ___ important than getting breaks.	(more)	(less)		
5.	Special training will ___ for getting most of the jobs in the future.	(be needed)	(not be needed)	.42	
6.	There will be ___ jobs available in the future.	(many)	(few)		.47
7.	It will be ___ for me to get a job after I finish high school.	(easy)	(tough)		.49
8.	Anyone who tries to find a job is ___ to find one.	(likely)	(not likely)		
9.	Anyone who tries to ___ get the kind of job he wants	(likely)	(not likely)		.52
10.	Working hard is ___.	(fun)	(boring)		

TABLE 5 (Cont.)

		1	2	3	4
11. Keeping a job is ___.	(important) (not important)				
12. What other people will think about my future job is ___.	(important) (not important)				.63
13. It is ___ that my future job is useful to other people.	(important) (not important)				
14. I ___ what kind of work I want to do in the future.	(know) (don't know)			1.22	
15. A person with ability and willingness to work hard will be ___.	(a success) (a failure)		.41		
16. Most jobs require ___ work.	(too much) (too little)				
17. Working is ___.	(useful) (a waste of time)				
18. It is ___ to work hard.	(smart) (dumb)				
19. It is ___ to my why I have to work.	(clear) (not clear)		.45		
20. Getting a job after I finish school is ___ to me.	(important) (not important)		.69		
21. Getting a job right now is ___ important to me than staying in school.	(more) (less)		-.82		.55
22. It's ___ important for a job to offer a chance to get ahead than steady work.	(more) (less)				.41

TABLE 5 (Cont.)

			1	2	3	4
23.	Success on a job is ___ a matter of who you know than what you know.	(more) (less)	-.48			.46
24.	It is ___ that my future job be interesting.	(important) (not important)	.56			
25.	It is ___ that my future job pay a lot of money.	(important) (not important)	.52			
26.	Schools have ___ rules.	(too many) (too few)				.66
27.	I have ___ to do in school.	(too much) (too little)				.57
28.	I feel that I ___ belong in my school.	(do) (do not)	.44	.42		
29.	I really ___ what we do in school.	(like) (dislike)		.77		
30.	School is ___.	(easy) (hard)				
31.	School is ___ my time.	(worth) (a waste of)		.45		
32.	Staying in school is ___.	(smart) (dumb)	.41			
33.	What we learn in school now will be ___ later on.	(useful) (useless)				
34.	School is ___.	(fun) (boring)		.59		
35.	It is ___ to me why we do things in school.	(clear) (not clear)		.44		
36.	We ___ the same things in school day after day.	(do) (don't do)	-.44			.60

TABLE 5 (Cont.)

		1	2	3	4
37. What I learn in school is ___ to me.	(useful) (useless)	.46			
38. I really ___ the idea of staying in school many more years.	(like) (dislike)		.68		
39. Teachers try to ___.	(help me get ahead) (keep me back)		.60		
40. Most teachers ___ students' problems.	(understand) (don't understand)		.76		
41. Teachers explain things so students ___.	(understand) (get confused)		.64		
42. Teachers are ___.	(friendly) (mean)		.60		
43. Teachers think that students are ___ most of the time.	(right) (wrong)	-.46	.90		
44. Teachers are usually ___.	(fair) (unfair)		.81		
45. Teachers usually ___ know what they are talking about.	(do) (do not)		.70		
46. Most of my teachers want me to ___ school.	(finish) (quit)				
47. Most teachers ___ about students.	(care) (don't care)		.81		
48. My parents ___ about what kind of grades I get.	(care) (don't care)	.60			
49. My parents think that school is ___.	(important) (not important)	.41			

TABLE 5 (Cont.)

		1	2	3	4
50. My parents think that getting more education after high school is ___.	(important) (not important)				
51. My parents think that finishing high school is ___.	(important) (not important)	.61			
52. My parents ___ about how hard I work in high school	(care) (don't care)				
53. My parents ___ about what kind of job I will get.	(care) (don't care)	.69			
54. It is ___ that I will become the kind of person I most want to be.	(likely) (not likely)				
55. It is ___ to plan ahead for the future.	(important) (not important)	.46			
56. My future looks ___.	(good) (bad)				
57. It is ___ to want to get ahead in life.	(smart) (dumb)				
58. I ___ control my future.	(can) (cannot)				

$\bar{U}^2$ = 1.66
High = .81
Mod. = .58
Marg. = .41

TABLE 6

Primary Factor Patterns

		Opinions of Job Activities				Opinions of School Activities				
		1	2	3	4	1	2	3	4	5
1. I would __ doing this activity.	(like) (dislike)			.56			1.26			
2. Doing this activity would make me look __.	(good) (bad)									.62
3. I would make __ money doing this activity.	(a lot of) (little)	.73								
4. This activity would be __ for my health.	(good) (bad)									.96
5. Doing this activity is __.	(easy) (hard)				1.03	1.38				
6. Before I could do this activity I would need a __ period of training.	(short) (long)				1.00	1.00				
7. Doing this activity would be __.	(fun) (boring)			1.15			1.38			
8. Doing this activity would be __.	(exciting) (dull)			1.10			1.33			
9. This activity is __.	(important) (unimportant)	.65						1.18		
10. Doing this activity would be __.	(useful) (useless)	.69						1.22		
11. This activity is __.	(looked up to) (looked down upon)									
12. Doing this activity would be __.	(rewarding) (not rewarding)	.65						.85		
13. I would be __ to do this activity.	(proud) (ashamed)	.73								
14. Doing this activity would be __.	(good) (bad)									
15. Doing this activity would be __.	(simple) (complex)				1.19	1.36				
16. Doing this activity __ give me a feeling of success.	(would) (would not)	.94						.81		
17. This activity is __.	(clean) (dirty)									.94
18. This activity is __.	(quiet) (noisy)		.96						-.79	
19. If I were doing this activity I would be __.	(moving around) (keeping still)		-1.12						1.16	

TABLE 6 (Cont.)

		Opinions of Job Activities				Opinions of School Activities 1				
		1	2	3	4	1	2	3	4	5
20. This activity is ___.	(fast paced) (slow and relaxed)		-.71						1.40	
21. Doing this activity would be ___.	(safe) (dangerous)		.81						.66	
22. If I were doing this activity I would be ___ my skills.	(using) (wasting)	.95						.98		
23. If I were doing this activity I would be ___ my time.	(making good use of) (wasting)	.70						.95		
		$\bar{d}^2$ = 2.20 High = .94 Mod. = .66 Marg. = .47				$\bar{d}^2$ = 2.49 High = 1.00 Mod. = .71 Marg. = .50				

TABLE 7

Primary Factor Pattern

Opinions of Jobs 1

			1	2	3	4	5	6
1.	I would ___ doing this job.	(like) (dislike)		1.11				
2.	Doing this job would make me look ___.	(good) (bad)						
3.	I would make ___ money doing this job.	(a lot of) (little)	-.55					
4.	This job would be ___ for my health.	(good) (bad)				.58		
5.	Doing this job is ___.	(easy) (hard)	1.24					
6.	Before I could do this job I would need a ___ period of training.	(short) (long)	1.11					
7.	Doing this job would be ___.	(fun) (boring)		1.20				
8.	Doing this job would be ___.	(exciting) (dull)		1.32				
9.	This job is ___.	(important) (unimportant)					.61	
10.	Doing this job would be ___.	(useful) (useless)				.58	.61	
11.	This job is ___.	(looked up to) (looked down upon)					.72	
12.	Doing this job would be ___.	(rewarding) (not rewarding)				.64		
13.	I would be ___ to do this job.	(proud) (ashamed)					.75	

TABLE 7 (Cont.)

			1	2	3	4	5	6
14.	If I did this job, I would be doing __.	(many different things) (the same old thing over and over)				.80		
15.	Doing this job would be __.	(good) (bad)						
16.	Doing this job would be __.	(simple) (complex)	1.25					
17.	Doing this job __ give me a feeling of success.	(would) (would not)						
18.	This job is __.	(clean) (dirty)			1.02			
19.	This job is __.	(quiet) (noisy)			1.10			
20.	If I were doing this job, I would be __.	(moving around) (keeping still)				.78		
21.	The work on this job is __.	(fast paced) (slow and relaxed)						
22.	Doing this job would be __.	(safe) (dangerous)			1.19			
23.	If I were doing this, I would be __ my skills.	(using) (wasting)					.72	
24.	If I were doing this job, I would be __ my time.	(making good use of) (wasting)				.50	.61	
25.	In this job I would have to work __ hours.	(few) (many)	.63					
26.	I would __ to be one.	(like) (dislike)		.98				
27.	It is __ that I will be one someday.	(likely) (unlikely)	.53	.79				

TABLE 7 (Cont.)

		1	2	3	4	5	6	
28.	If I wanted to be one, it ___ is that I could be one.	(likely)					(unlikely)	
29.	If I were to become one, I would be ___ at it.	(good)					(bad)	.64
30.	My friends would ___ of my being one.	(approve)					(not approve)	.71
31.	My parents would ___ of my being one.	(approve)					(not approve)	.76
32.	My teachers would ___ of my being one.	(approve)					(not approve)	.92

ρ^2 = 2.37
High = .97
Mod. = .69
Marg. = .49

TABLE 8

Primary Factor Pattern

Opinions of Job Activities 2

	1	2	3	4	5
1. Working with your hands.					
2. Working indoors.					
3. Working sitting down.					
4. Working with people.					
5. Working with numbers.					
6. Telling people what to do.					
7. Working for hourly pay.					
8. Being told exactly what to do.					
9. Using your muscles.					
10. Talking about ideas.	.95				
11. Working with machines.				.82	
12. Doing only a few things.					.89
13. Working with money.					
14. Making decisions.	.82				
15. Meeting the public.			.99		
16. Talking with people.					
17. Getting and working with information.					
18. Writing.	.75				
19. Traveling.		.68			
20. Doing dangerous work.				.93	
21. Working with animals.					

TABLE 8 (Cont.)

	1	2	3	4	5
22. Working in a hot place.					
23. Writing down facts.	.72				
24. Doing paperwork.		-.71			
25. Checking other people's work.					
26. Talking people into things.					
27. Making drawings.					
28. Working with ideas and plans.					
29. Buying things.					
30. Doing the same thing all the time.					.90
31. Working dressed up.					
32. Working on the personal appearance of others (hair cutting, clothes designing, etc.).					
33. Giving facts to others					
34. Finding buyers			.87		
35. Getting facts to the public.			.89		
36. Running motor vehicles (cars, buses, trains, planes).		.75		.65	
37. Checking equipment.				.89	
38. Thinking up new ideas.	1.01				
39. Working outdoors.		1.02			
40. Working alone					.95
41. Getting paid commissions.					
42. Figuring out what has to be done.	.90				
43. Using your brains	.82				

TABLE 8 (Cont.)

		1	2	3	4	5
44.	Working with electronic equipment.				.98	
45.	Working with fine detail.					
46.	Working in one place.					.67
47.	Working with written materials.	.73				
48.	Working in a cold place.					
49.	Selling things.			.94		
50.	Doing many different things.		.80			
51.	Working in everyday clothes.					
52.	Making up new ways to do things.					
53.	Working for a salary.					
54.	Protecting the safety of others.					
55.	Finding valuable objects.					
56.	Figuring out the value of things.					
57.	Planning and giving tests.					
58.	Following plans.					
59.	Giving advice.					
60.	Putting equipment [illegible].				1.20	
61.	Adjusting equipment.				1.14	
62.	Finding out why things aren't working right.					
63.	Figuring out the price of things.					
64.	Showing people how to do something.					

TABLE 8 (Cont.)

		1	2	3	4	5
65.	Playing musical instruments.					
66.	Speaking for others.				.79	
67.	Working with plants.					
68.	Working in the daytime.				.73	
69.	Keeping records.					
70.	Working with pictures.					
71.	Reading gauges, dials, or meters.					
72.	Getting advice.					
73.	Working at night.					
74.	Helping others with problems.					
75.	Memorizing.					

$\bar{x}$ = 2.45
High = .99
Mod. = .70
Marg. = .49

TABLE 9

Primary Factor Pattern

Opinions of School Activities 2

	1	2	3	4	5
1. Reading.		.51			
2. Writing.				.85	
3. Drawing.					
4. Solving problems.				.51	
5. Listening.					.52
6. Acting.					-.84
7. Reciting.			.97		
8. Making things.		1.18			
9. Sitting.		1.61			
10. Moving around.				.69	
11. Watching films.					.61
12. Getting hurt.					.44
13. Physical action.		.76			
14. Planning projects.					
15. Working alone.			.0	.68	
16. Running for student office.			1.17		
17. Working with numbers.				.93	
18. Playing musical instrument.		.99			
19. Keeping records.			.96		
20. Playing sports.		.79			

TABLE 9 (Cont.)

		1	2	3	4	5
21.	Talking.					
22.	Assisting school officials.			1.08		
23.	Joining clubs.					
24.	Staying clean.					.76
25.	Studying with others.					
26.	Going to school activities.					
27.	Running machines.					
28.	Taking notes				.77	
29.	Competing for grades.		1.27			
30.	Working with mechanical or electrical instruments.		1.46			
31.	Sitting quietly.			1.44		
32.	Concentrating.					.77
33.	Taking tests				.55	.55
34.	Memorizing					
35.	Reviewing for tests					

$\bar{\sigma}$ = 2.57
High = 1.01
Mod. = .72
Marg. = .51

TABLE 10

Primary Factor Pattern

Opinions of Jobs 2

	1	2	3	4
1. Machinist		1.00		
2. Printer				.76
3. Bookbinder				.76
4. Automobile painter				.90
5. Boilermaker				1.16
6. Furniture upholsterer				.57
7. Photographer				
8. Welder			.57	
9. Bookkeeper			1.09	
10. [illegible]			.93	
11. Bank vice-president		1.00		
12. Insurance agent		.85	.66	
13. Accountant		.64	.77	
14. Advertising worker			.86	
15. Barber			.76	
16. Building contractor			.41	
17. Real estate salesman			1.08	
18. Wholesale salesman			1.35	
19. Cement mason				.76
20. Electrician		.85	1.00	
21. Bulldozer operator			.99	

TABLE 10 (Cont.)

		1	2	3	4
22.	Plasterer				1.02
23.	Stone mason				.90
24.	Ship captain			.67	
25.	Airline ticket agent				
26.	Railroad fireman		.58		.59
27.	Railroad stationmaster				.53
28.	Electrical engineer	.89	1.07		
29.	Mining engineer		.72		
30.	Biologist	.99			
31.	Statistician	.76			
32.	Astronomer	.94			
33.	Chemist	.90			
34.	Truck mechanic		1.11		
35.	Tailor			.66	
36.	Locksmith			.67	
37.	Motorcycle mechanic		1.19		
38.	TV and radio repairman		.74		
39.	Dentist				
40.	Doctor	.16			
41.	Veterinarian (vet, animal doctor)	.73			
42.	Cook				
43.	Clergyman (minister, priest, rabbi, preacher)				
44.	Social worker			.63	

TABLE 10 (Cont.)

		1	2	3	4
45.	Artist				
46.	Interior decorator				
47.	Florist				.63
48.	Farm hand	-.82			
49.	Newspaper reporter			.64	
50.	Sheet metal worker		1.03		

$\bar{x}$ = 2.85
High = 1.07
Mod. = .75
Marg. = .53

TABLE 11

Canonical Patterns

Educational Programs

		Predictors	
		College Preparatory Program Black Sample	College Preparatory Program White Sample
1. I would being in this program.	(like) (dislike)	.54	.59
2. Being in this program would make me look	(good) (bad)		
3. I would make money being in this program.	(a lot of) (little)		
4. This program would be for my health.	(good) (bad)		
5. The work in this program is	(easy) (hard)		
6. Before I could be in this program, I would need a period of training.	(short) (long)		.39
7. Being in this program would be	(fun) (boring)	.51	
8. Being in this program would be	(exciting) (dull)	39	
9 This program is	(important) (unimportant)		
10 Being in this program would be	(useful) (useless)		
11 This program is	(looked up to) (looked down upon)		
12 Being in this program would	(rewarding) (not rewarding)	48	

TABLE 11 (Cont.)

		College Preparatory Program Black Sample	College Preparatory Program White Sample	Job Preparatory Program Black Sample	Job Preparatory Program White Sample	General Program Black Sample	General Program White Sample
13. I would be ___ to be in this program.	(proud) (ashamed)				.45	.46	.38
14. If I were in this program, I would be doing ___.	(many different things) (the same old thing over and over)						
15. Being in this program would be ___.	(good) (bad)					.58	.57
16. The work in this program would be ___.	(simple) (complex)						
17. Being in this program ___ give me a feeling of success.	(would) (would not)			.40	.44	.59	.57
18. The work in this program is ___.	(clean) (dirty)						
19. The work in this program is ___.	(quiet) (noisy)						
20. If I were in this program I would be ___.	(moving around) (keeping still)						
21. The work in this program is ___.	(fast paced) (slow and relaxed)						
22. Being in this program would be ___.	(safe) (dangerous)						
23. If I were in this program, I would be ___ my skills.	(using) (wasting)	.41			.47		.49
24. If I were in this program, I would be ___ my time.	(making good use of) (wasting)					.41	.51
25. In this program I would have to work ___ hours.	(a few) (many)						
26. If I [illegible] it will be ___ for me to get a [illegible] job.	[illegible]						.61
27. [illegible] prepare [illegible]	[illegible]						

TABLE 11 (Cont.)

		College Preparatory Program Black Sample	College Preparatory Program White Sample	Job Preparatory Program Black Sample	Job Preparatory Program White Sample	General Program Black Sample	General Program White Sample
28. The teachers in this program are __ than in other programs.	(better) (worse)						
29. The buildings and classrooms in this program are __ than in other programs.	(better) (worse)						
30. If I take this program, it will be __ for me to get the kind of job I want.	(easier) (harder)					.45	.49
31. The books and equipment used in this program are __ than in other programs.	(in better shape) (in worse shape)						
32. This program is __ organized than other programs.	(better) (worse)						.49
33. This program meets the needs of the students in it __ than other programs.	(better) (worse)		.63			.61	.50
35. If I wanted to be in this program, it is __ that I could get into it.	(likely) (not likely)					.61	
36. If I were in this program, I would __ in it.	(do well) (do poorly)						
37. My friends would __ of my being in this program.	(approve) (not approve)				.43	.51	.46
38. My parents would __ of my being in this program.	(approve) (not approve)			.46	.60	.46	.55
39. My teachers would __ of my being in this program	(approve) (not approve)					.43	.47

TABLE 12

Canonical Patterns

Educational Programs

Criteria

		College Preparatory Program Black Sample	College Preparatory Program White Sample	Job Preparatory Program Black Sample	Job Preparatory Program White Sample	General Program Black Sample	General Program White Sample
1. It is ___ that I be in the College Preparatory Program next year.	(likely) (not likely)	.96	.86		-.57	.67	
2. It is ___ that I will be in the Job Preparatory Program next year.	(likely) (not likely)			.89	.73	.62	
3. It is ___ that I will be in the General Program next year.	(likely) (not likely)			.66		.85	.96
4. It is ___ that I will drop out of school next year.	(likely) (not likely)						

TABLE 17

Canonical Patterns

Dropping Out of School

Predictors

		Black Sample	White Sample
1. I would ___ doing this.	(like) (dislike)	.83	.87
2. Doing this would make me look ___.	(good) (bad)	.71	.78
3. I would make ___ money doing this.	(a lot of) (little)	.64	.77
4. Doing this would be ___ for my health.	(good) (bad)	.59	.59
5. Doing this would be ___.	(fun) (boring)	.68	.61
6. Doing this would be ___.	(exciting) (dull)	.68	.68
7. Doing this is ___ to me.	(important) (unimportant)	.47	.61
8. Doing this would be ___.	(useful) (useless)	.66	.84
9. Doing this is ___.	(looked up to) (looked down upon)	.53	.77
10. Doing this would be ___.	(rewarding) (not rewarding)	.64	.83
11. I would be ___ to do this.	(proud) (ashamed)	.67	.78
12. Doing this would be ___.	(good) (bad)	.67	.92
13. Doing this would give me a feeling of ___.	(success) (failure)	.65	.85
14. Doing this would be ___.	(safe) (dangerous)	.48	.62
15. If I did this, I would be ___ my skills.	(using) (wasting)	.68	.79

TABLE 13 (Cont.)

		Black Sample	White Sample
16. If I did this, I would be ___ my time.	(making good use of) (wasting)	.61	.81
17. If I did this, I would have to work ___ hours.	(few) (many)		
18. If I did this it would be ___ for me to get a good job.	(easier) (harder)	.68	.75
19. Most of my friends ___ do this.	(will) (will not)	.61	.59
20. If I did this, it would be ___ for me to get the kind of job I want.	(easier) (harder)	.80	.80
22. If I wanted to do this, it is ___ that I could.	(likely) (not likely)	.75	.59
23. My friends would ___ if I did this.	(approve) (not approve)	.74	.58
24. My parents would ___ if I did this.	(approve) (not approve)	.71	.75
25. My teachers would ___ if I did this.	(approve) (not approve)	.72	.65

TABLE 14

Canonical Patterns

Dropping Out of School

Criteria

		Black Sample	White Sample
1. It is _____ that I will be in the College Preparatory Program next year.	(likely) (not likely)		
2. It is _____ that I will be in the Job Preparatory Program next year.	(likely) (not likely)		
3. It is _____ that I will be in the General Program next year.	(likely) (not likely)		
4. It is _____ that I will drop out of school next year.	(likely) (not likely)	.98	.99

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APPENDICES

APPENDIX A

—Letter to Teachers

THE CENTER FOR VOCATIONAL EDUCATION
The Ohio State University • 1960 Kenny Road • Columbus, Ohio 43210
Tel: (614) 486-3655 Cable: CTVOCEDOSU/Columbus, Ohio

November 26, 1974

Dear Teacher:

The attached questionnaire is a preliminary version of one of several to be administered to a sample of ninth grade inner-city students in Baltimore, Maryland. The questionnaires are designed to measure the attitudes of students toward various aspects of work and education. It is important, therefore, that the items included in the questionnaires adequately "cover the field" of the matters that ninth-graders are concerned about. Because of your familiarity with ninth grade students, we would appreciate it if you would take a few minutes of your time to help us assure the adequacy of the questionnaires.

Please review the attached questionnaire. On the end are two pages labeled "Additional Items" and Comments". On the former page, please list any items that were omitted that you think may be important to ninth graders. It is not necessary to draw number lines or precisely word the items. Any indication of the missing concepts will do. On the latter page, we would appreciate any general comments you would care to make about the questionnaire. We are particularly interested in any ways that the questionnaire might be inappropriate for use with ninth grade inner-city students, and any suggestions that you might have for improvements.

Thank you very much for your time and assistance.

Sincerely,

Michael S. Black

Michael S. Black, Ph.D.
Project Director

APPENDIX B

Letter to English Teachers

THE CENTER FOR VOCATIONAL EDUCATION
The Ohio State University • 1960 Kenny Road • Columbus, Ohio 43210
Tel: (614) 486-3655 Cable: CTVOCEDOSU/Columbus, Ohio

November 26, 1974

Dear English Teacher:

The attached questionnaire is a preliminary version of several to be administered to a sample of ninth-grade, inner-city students in Baltimore, Maryland. The questionnaires are designed to measure the attitudes of students toward various aspects of work and education. It is important to assure, among other things, that the readibility and comprehension level of the questionnaires are appropriate to the sample. Because of your familiarity with ninth-grade students, we would appreciate it if you would take a few minutes of your time to help us assure that appropriateness.

Please review the attached questionnaire and place a check mark to the left of any lines that you consider to be generally too difficult, and above any specific words that you consider to be too difficult. Suggestions for alternative phrases or words would be appreciated. On the "Comments" page at the end of the questionnaire, we would appreciate any general comments you would care to make about the questionnaire. We are particularly interested in any words that the questionnaire might be inappropriate for use with ninth-grade, inner-city students, and any suggestions that you might have for improvements.

Thank you very much for your time and assistance.

Sincerely,

Michael S. Black

Michael S. Black, Ph.D.
Project Director

APPENDIX C

"Letter to Parents

THE CENTER FOR VOCATIONAL EDUCATION
The Ohio State University • 1960 Kenny Road • Columbus, Ohio 43210
Tel: (614) 486-3655 Cable: CTVOCEDOSU/Columbus, Ohio

Dear Parents:

The Center for Vocational Education, in cooperation with the Baltimore City Public Schools, is preparing a student opinion questionnaire to explore the work and education attitudes of ninth grade students in large cities. Your son has an opportunity to be one of the six hundred students in Baltimore to answer the questionnaire. If he participates, he will be paid $3.00. It is our hope that the results will provide information that will help bring job conditions and school programs more closely in line with the expectations and desires of young people.

If you are willing for your son to participate, please sign the attached consent form and have him deliver it to the principal's office. Only the first six hundred students to register will be able to participate in the study.

The questionnaire will be filled out at school in a session about two hours long. Your son will be notified of the time and room.

Needless to say, your son's answers will be used for research purposes only and will be held strictly confidential.

APPENDIX D

Letter to Respondents

THE CENTER FOR VOCATIONAL EDUCATION
The Ohio State University • 1960 Kenny Road • Columbus, Ohio 43210
Tel: (614) 486-3655 Cable: CTVOCEDOSU/Columbus, Ohio

Dear Student:

The Center for Vocational Education, with the help of the Baltimore City Public Schools, is interested in finding out what young people think about work and education. We hope that this information can be used to make school programs and job conditions more like what young people need and want.

We are looking for 600 ninth-grade male volunteers to spend about two hours one afternoon after school filling out a questionnaire for us. Volunteers will be paid $3.00 for the job.

There are no embarassing questions on the questionnaire; we just want your opinions about jobs and school. Your answers will be confidential. Your teachers and school officials will not see your answers; only the CVE research staff will see them. You will not be identified in any reports of results.

Your name was picked at random from a list of all ninth-grade male students in your school. A short meeting will be held within the next few days to explain more about the project to you.

Your teacher will tell you when and where the meeting will be held. If you are interested, please come to the meeting and bring these papers with you. PARTICIPATION IS VOLUNTARY. IF YOU ARE NOT INTERESTED, YOU DON'T HAVE TO COME TO THE MEETING. IF YOU COME TO THE MEETING, YOU CAN STILL DECIDE NOT TO PARTICIPATE. IF YOU WANT TO PARTICIPATE, YOU WILL BE TOLD WHAT TO DO NEXT AT THE MEETING.

Michael S. Black, Ph.D.
Project Director

Andrew J. Bush, M.Ed.
Associate Project Director

APPENDIX E

Consent Form

THE CENTER FOR VOCATIONAL EDUCATION
The Ohio State University • 1960 Kenny Road • Columbus, Ohio 43210
Tel: (614) 486-3655 Cable: CENVOCEDOSU/Columbus, Ohio

RESEARCH INVOLVING HUMAN SUBJECTS

AUTHORIZATION FOR A MINOR TO SERVE AS A SUBJECT IN RESEARCH

I authorize the service of _____

as a subject in the research investigation entitled Student Attitudes Toward Work and Education.

The nature and general purpose of the experimental procedure have been explained to me. I understand that _____

will be given a pre-service explanation of the research and that he may decline to serve. Further, I understand that he may terminate his service in this research at any time he so desires.

Signed _____
(parent or guardian)

Date _____

APPENDIX F

"VARIPAIR" Procedure

Given a sample of subjects consisting of a number of distinct groups, it is often desirable to derive a set of factors applicable to all groups, determine the variance contribution of each group to each factor, and determine the intercorrelations among the factors for each group. This can be accomplished as follows:

1. A matrix of covariances among items is computed for each group.
2. Each matrix is multiplied by the group sample size, the matrices are added, and the summed matrix divided by the total sample size.
3. The mean matrix thus obtained is factor analyzed by any desired method, and the resulting factors rotated to any desired criterion.
4. The following matrix operations are performed on the rotated factor matrix:
   a. A = rotated factor matrix.
   b. C_p = covariance matrix of group p.
   c. D_j = diagonal elements of C_j arranged as a column vector.
   d. $I = A(A'A)^{-1}$
   e. $V = VA'$.
   f. $S_p = VC_pV$.
   g. D_j = diagonal elements of S_j arranged as a column vector.
   h. $W_j = (S_jS_j)^{-1}(C_j - D_j)$, where $W = [w_{ij}]$
   i. D_j arranged as a diagonal matrix.
   j. $R_p = V'(S_p - D_p)V$
5. R_p is a matrix of variances and covariances among factors for group p.

6. The intercorrelations among factors for each group are obtained by dividing each covariance by the square root of the product of the corresponding variances.

7. The estimated variance contributions of each group to any one factor (diagonal elements of G_g), are scaled such that the mean variance contribution of all groups to any one factor is near 1.00.

8. As a check on the above computations, the mean covariance matrix (C_m) may be substituted for the G_g matrices in the above equations. The resultant G_m matrix should equal the mean of all the G_g matrices.

APPENDIX G

Instructions: Form Student Opinion Survey

Forms A and B

The purpose of this questionnair
of ninth grade students in large citi
The information that you give may hel
improve job conditions and educationa
make this possible by answering all o
as you can.

You can be sure that your answer
except the research staff. The total
hours long and there will be a break

DIRECTIONS

At the top of each page is the name of an activity that might be done on a job. The same activity is at the top of each page.

Example

Activity: SHARPENING PENCILS

On each page there are some statements about the activity. Each statement contains a blank space.

Example

The activity is ____.

To the right of each statement there is a number line with different words or phrases at each end.

Example

Good 3 2 1 1 2 3 Bad

For each statement, pick one of the words or phrases on the number line that you think belongs in the blank. Do not choose both.

After making your choice, decide how well your choice fits each statement. Then circle either the 1, 2, or 3 on the same side of the number line as your choice. The better you think your choice fits, the higher the number you should circle.

Use these rules for picking which number to circle:

Circle 3 if you feel that your choice fits the statement very well

Circle 2 if you feel that your choice fits the statement fairly well

Circle 1 if you feel that your choice fits the statement just barely

In this example, if you think that SHARPENING PENCILS is good, you would circle a number on the left side of the number line.

If you feel that good fits the statement very well, circle the number 3 on the left side, like this:

Good (3) 2 1 | 1 2 3 Bad

If you feel that good fits the statement fairly well, circle the number 2 on the left side, like this:

Good 3 (2) 1 | 1 2 3 Bad

If you feel that good fits the statement just barely, circle the number 1 on the left side, like this:

Good 3 2 (1) | 1 2 3 Bad

What if you think that SHARPENING PENCILS is bad? In that case, use the numbers on the right side.

If you feel that bad fits the statement very well, circle the number 3 on the right side, like this:

Good 3 2 1 | 1 2 (3) Bad

If you feel that bad fits the statement fairly well, circle the number 2 on the right side, like this:

Good 3 2 1 | 1 (2) 3 Bad

If you feel that bad fits the statement just barely, circle the number 1 on the right side, like this:

Good 3 2 1 | (1) 2 3 Bad

Now let's try another example.

Activity: CARD PLAYING

I think that it is ____ to do this activity. Honest 3 2 1 | 1 2 3 Dishonest

Suppose you think that CARD PLAYING is honest. Which side of the number line will you put your circle on? If you said the left side, you are catching on. OK. Now if you feel that honest fits the statement very well, which number will you circle? 3 is the correct choice, like this:

Honest (3) 2 1 | 1 2 3 Dishonest

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Suppose you feel that honest fits the statement just barely, which number will you circle? 1 is correct, like this:

Honest 3 2 (1) | 1 2 3 Dishonest

But, suppose you had chosen dishonest as the word that belonged in the blank and felt that it fit the statement fairly well. Which side of the number line would you put your circle on? The right side is correct. Which number would you circle? 2 is correct, like this:

Honest 3 2 1 | 1 (2) 3 Dishonest

ANY QUESTIONS?

any questions, please raise your hand.

REMEMBER!!

Look at the activity at the top of the page.

Read the first statement about the activity.

Look at the number line to the right of the statement.

Decide which of the two words or phrases on the number line you think belongs in the blank space.

Decide how well that word or phrase fits the statement.
Circle

3 if very well

2 if fairly well

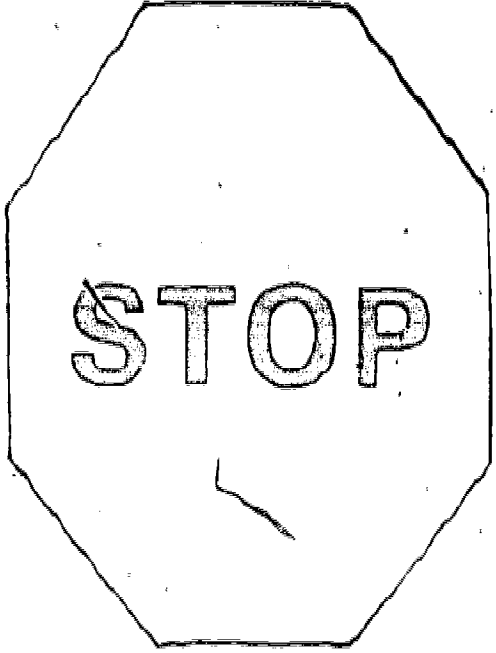
1 if just barely

Go on to the other statements and number lines on the page.

Go on to the rest of the pages until you come to a yellow page that says STOP. Then follow the directions on that page.

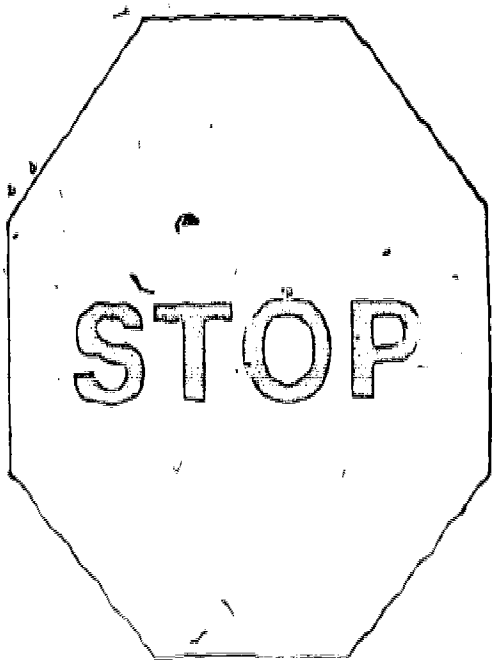
There are no right or wrong answers. Your own opinion is always the proper answer.

REMEMBER!! FEEL FREE TO ASK QUESTIONS IF YOU DON'T UNDERSTAND.



READ THIS PAGE BEFORE GOING ON!!!

The next set of statements are about a certain job. Be sure you read the top of each page to find out what job the statements are about. Complete your answers just like you have been doing. When you're ready, go on.



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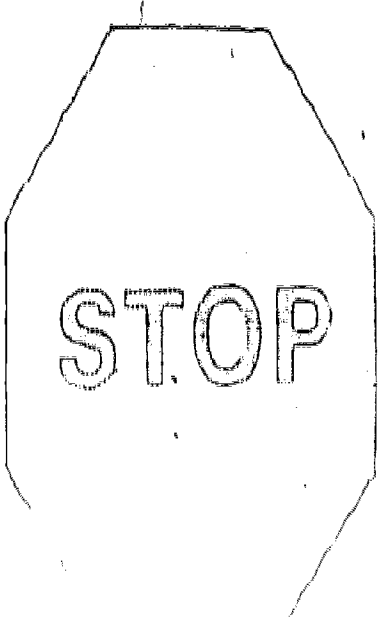


READ THIS PAGE BEFORE GOING ON!!!

[illegible]

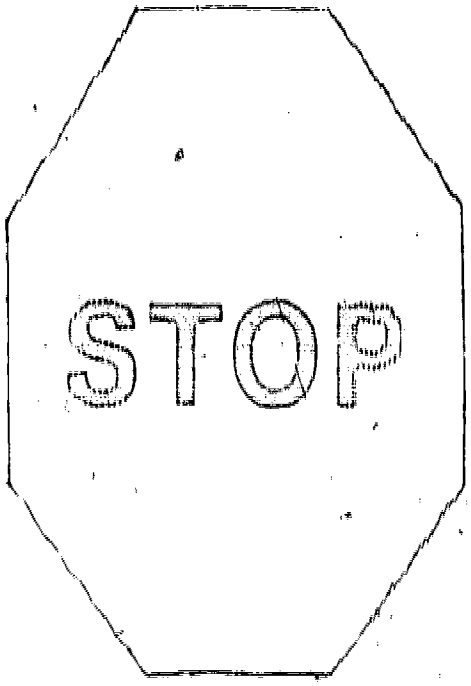
[illegible]

The College Preparatory Program is a curriculum [illegible] during your first college or university. Examples: College Preparatory Curriculum, Advanced College Preparatory [illegible], Special College Preparatory Courses, Regular college preparatory curriculum.

The Job Preparatory Program is a curriculum [illegible] you to take a job after graduation. Examples: Vocational Technical Curriculum, Business Curriculum, Technology Curriculum, General Vocational curriculum, Distributive Education Curriculum.

The general program is a curriculum [illegible] general education. [illegible] Curriculum.

[illegible]



READ THIS PAGE BEFORE GOING ON!!!

[illegible] statements are about [illegible] educational program[illegible] people [illegible] which program the statements are about. [illegible] same answer [illegible] before. When you're [illegible]

BE SURE TO ANSWER THIS LAST QUESTION!!

Circle a, b, or c. Choose only one. Do not circle more than one.

Next year I will be:

a. in the [illegible] program.

b. new in the College Preparatory Program.

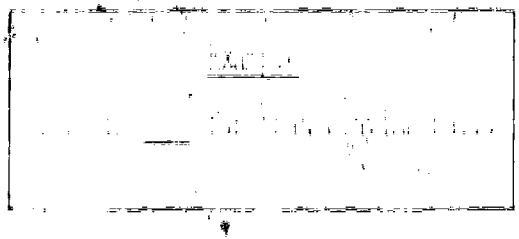
c. new to school.

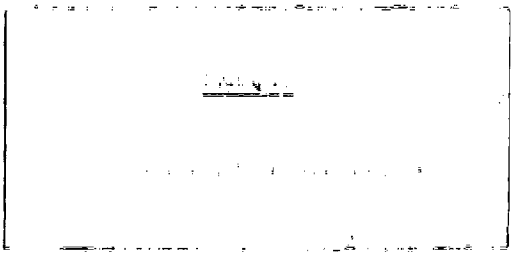
Thank you for helping with this research. In about a year, a complete report will be published telling about the results. A copy of the report will be made available to your school so that you can read it, if you want to. The report will contain only summaries and not the answers of any individual students. Again, thank you for your cooperation.

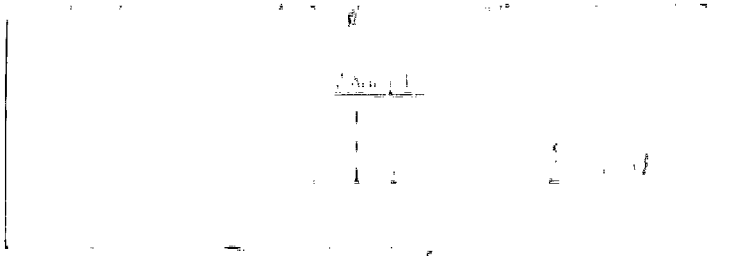
The purpose of this questionnaire is to explore the attitudes [illegible] in large cities toward work and education. The information that you supply may help employers and schools improve job conditions and educational programs. You can help make this possible by answering all of the questions as accurately as you can.

You can be sure that your answers will not be seen by anyone except the research staff. The total session will be about two hours long and there will be a break in the middle.

DIRECTIONS:







If you feel that less fits the statement just barely, circle the number 1 on the right side, like this:

More 2 . 1 | (1) 2 3 Less

Now let's try another example.

I think that it is ____ to do this activity.

Not Playing 3 . 2 . 1 | 1 . 2 . 3 Playing

Suppose you think that card playing is honest. Which side of the number line will you put your circle on? If you said the left side, you are catching on OK. But if you feel that honest fits the statement very well, which number will you circle? 3 is the correct choice, like this:

Dishonest 1 . 2 . 3 | (3) Honest

Suppose you feel that honest fits the statement just barely, which number will you circle? 1 is correct, like this:

Dishonest 1 . 2 . (1) | 1 . 2 . 3 Honest

Now suppose you think that honest is the word that belongs in the space but feel that it fits the statement fairly well. Which side of the line would you put your circle on? The right side is correct. Which number will you circle? 2 is correct, like this:

Dishonest 1 . 2 . 1 | 1 . (2) . 3 Honest

ANY QUESTIONS?

have any questions, please raise your hand.

REMEMBER!

1. Look at the [illegible] at the top of [illegible] page.

2. Read the first sentence.

3. [illegible]

4. Decide which [illegible] word or phrase [illegible] the number line you [illegible] to [illegible] the blank space in the statement at the top of the page.

5. Decide [illegible] word or phrase [illegible] the statement.
Circle:

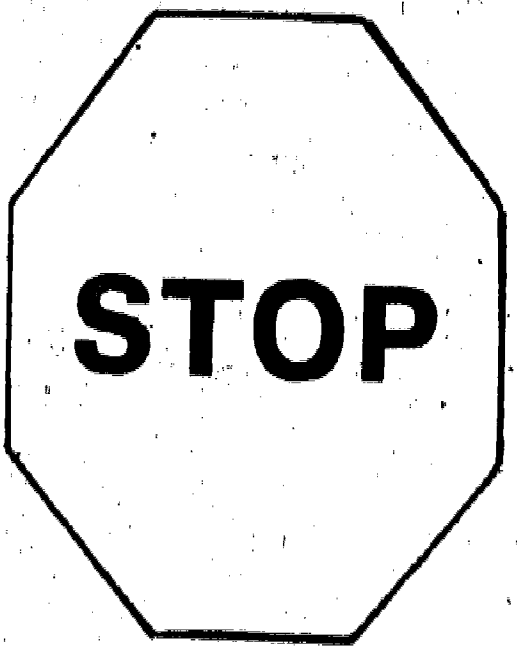
2 if [illegible]
2 if [illegible]
1 if [illegible]

6. [illegible]

7. [illegible]

8. [illegible]

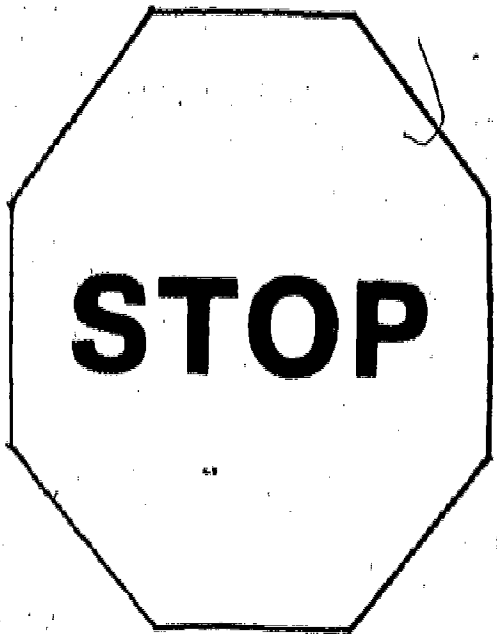
REMEMBER! [illegible] DON'T UNDERSTAND.



READ THIS PAGE BEFORE GOING ON!!!

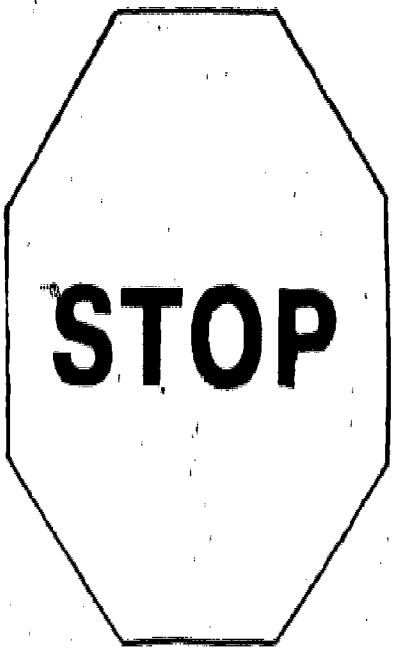
The next set of items are jobs. Be sure to read the top of each page to find out what is written about the job. Then pick your answers just like you have been doing. When you are ready, go on.

121



READ THIS PAGE BEFORE GOING ON!!

The next set of items are activities you might do in school. Be sure to read the top of each page to find out what statement is written about the activities. Then pick your answers just like you have been doing. When you are ready, go on.



READ THIS PAGE BEFORE GOING ON!!!

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This time, there are many different statements about many different things, listed on each page.

Example

The later you stay up, the ____ it is to get up in the morning.

Easier 3 2 1 | 1 2 3 Harder

Read the statements and then pick the answers just like you have been doing. When you are ready, go on.

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BE SURE TO ANSWER THIS LAST QUESTION!!

Circle a, b, or c. Choose only one. Do not circle more than one.

Next year I will be:

a. in the Job Preparatory Program.

b. in the College Preparatory Program.

c. out of school.

Thank you for helping with this research. In about a year, a complete report will be published telling about the results. A copy of the report will be made available to your school so that you can read it if you want to. The report will contain only summaries and not the answers of any individual students. Again, thank you for your cooperation.

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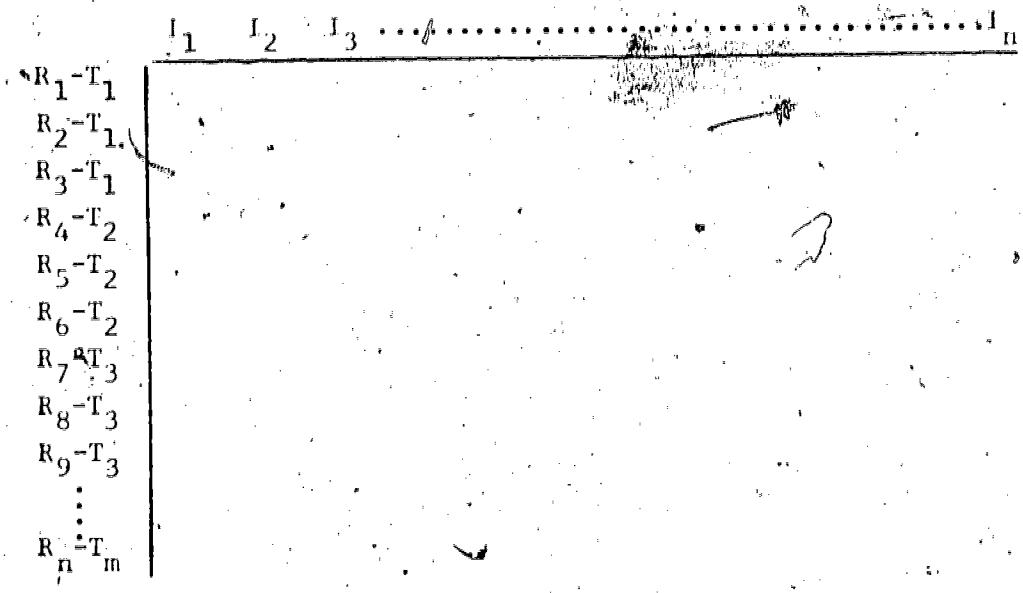
APPENDIX H

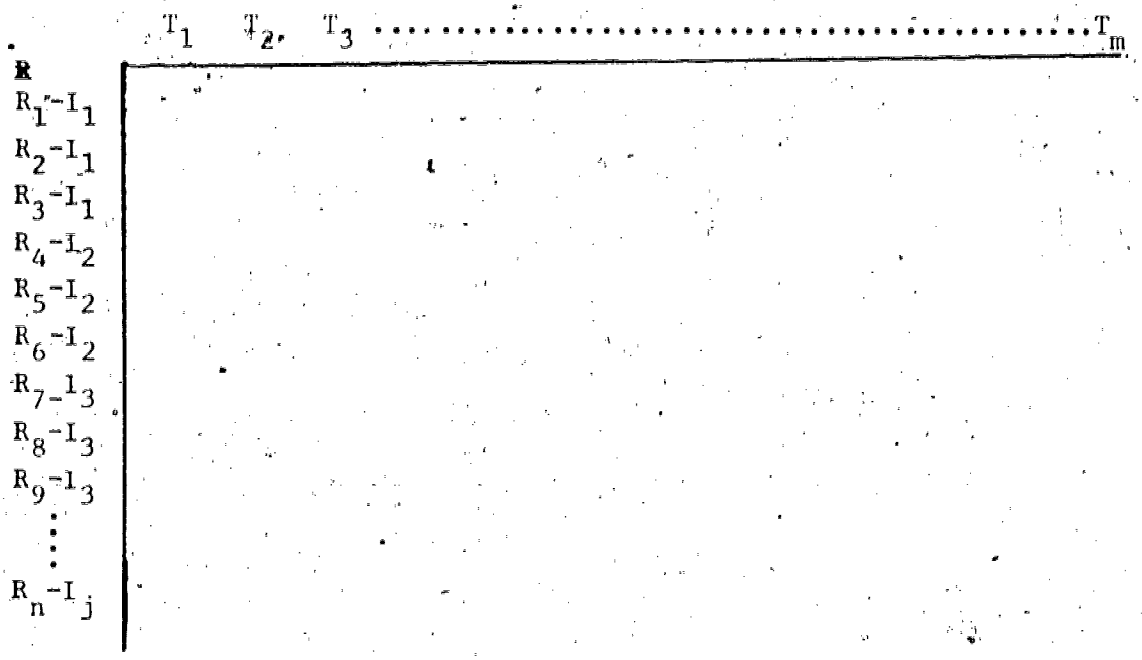
Sample Confounded Two-Mode Data Matrices

Confounded Two-Mode Data Matrix
Obverse Format



R=respondent
I=item
T=target

Confounded Two-Mode Data Matrix
Reverse Format



R= respondent
I=item
T=target