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RESEARCH REPORT

# WORK VALUES OF COLLEGE BOUND AND OTHER HIGH SCHOOL STUDENTS

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Abstract

This study identified the salient work values of college bound and noncollege bound high school students from their perceptions of occupations. Multidimensional scaling analyses of the students' judgments about the similarity of occupations extracted three factors in the college bound sample and seven in the noncollege bound sample. The same blue collar dimension appeared in both samples; additional dimensions in the noncollege bound sample were fragments of the broader dimensions in the college bound sample. These results indicate that the perceptions were more differentiated for the noncollege bound students than for the other students, but did not reflect different aspects of occupations, implying that the same work values were salient for both groups.

Work values, the importance or worth that people attach to different kinds of occupational activities, are major determinants of occupational choice and job satisfaction, and hence play a key role in vocational guidance (see reviews by Katzell, 1979; Mannheim, 1988; Rhodes, 1983; Zytowski, 1970). Although this topic has been the focus of extensive theorizing and empirical research, most of those efforts have been devoted to White middle class people and may not be applicable to minority or working class people (Dillard, 1980; Leong, 1991; Osipow, 1975). One of the critical issues that has been neglected concerns the structure of work values. It is conceivable that work values may differ qualitatively for middle class and minority and working class people, with certain values being salient for one group but entirely irrelevant for another group. The existence of quantitatively different kinds of values for minority or working class people would bring into question the applicability to members of these groups of vocational guidance efforts, including assessment devices, that rest on theorizing and research with middle class people.

Data on this issue are limited, particularly for adolescents. The sparsity of data for adolescents is especially important because they are major recipients of vocational guidance as well as the population used to develop and validate tests of work values. The most relevant studies of work values concern people's perceptions of occupations, as reflected in their judgments of the similarity of the occupations, when the individuals are completely free to judge similarity on whatever basis that they wish (see the review by Rounds & Zevon, 1983). The resulting clustering or dimensionality of occupations identified from these similarity judgments can be interpreted as reflecting commonalities in the salient work values that these occupations are seen as satisfying (e.g., Gonyea, 1961; Gonyea & Lunneborg, 1963).

Several studies of this kind are most pertinent. Grunes (1957) did cluster analyses of American high school students' similarity judgments. She found that students with higher socioeconomic status distinguished between different kinds of business and professional occupations while students with lower socioeconomic status perceived these jobs as similar. Reeb (1971, 1974) did two multidimensional scaling studies of similarity judgments. In the first (Reeb, 1971), with English high school students, he found the same two dimensions for students from schools in a working class area and students from schools in a middle class suburb. In the second study (Reeb, 1974), with Israeli eighth grade students, he found that the similarity judgments were highly correlated for students in school from upper-middle class, middle class, and working class areas. All of this research is between two and four decades old, and only one was carried out in the United States. Hence, it is unclear whether the results are applicable to the United States today.

Accordingly, the aim of the present study was to delineate the work values of college bound and noncollege bound high school students in the United States, using multidimensional scaling analyses of their judgments about the similarity of occupations, as well as their ratings of these occupations on a comprehensive set of work values, to assess their perceptions.

## Method

### Overview

College bound and noncollege bound high school students judged the similarity of a set of occupations and also rated the occupations for the extent to which the occupations satisfied a variety of work values. Multidimensional scaling analyses of the similarity judgments were carried out for each sample. To assist in interpreting the psychological meaning of the resulting factors, the ratings of the work values were correlated with the factors. This analysis evaluated

the overlap between the factors and existing work values, i.e., the extent to which the perceived similarity in occupation titles is attributable to common work values that they are seen as satisfying. In addition, experts on occupational characteristics made independent interpretations of the factors.

Sample

The sample consisted of 11th and 12th grade students in six public high schools in New Jersey suburbs or cities. They were recruited from intact college preparatory or vocational education courses, or from the general student body. A total of 187 students participated. The 134 students with usable data were included in the analysis: 88 who reported that they were planning to attend a four-year college after leaving high school and 46 who reported that they were planning to attend a community or a junior college, attend a vocational or technical school, get a job, join the armed services, or were undecided. Fifty-three were excluded from the analysis: 23 because of a large number of missing ratings or patterns of responses in the ratings indicative of poor motivation in participating in the study, 20 for other missing data, and 10 for a large number of Don't Know responses in the ratings. The characteristics of all the students in the analysis and all of those excluded from it, as well as the characteristics of the college bound and noncollege bound students in the analysis, are summarized in Table 1. The students included or excluded from the analysis were similar in sex, school grade, and high school attended, but differed in their post high school plans (34.0% of the excluded students did not report their plans). The college bound and noncollege bound students were similar in sex, school grade, and high school attended.

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Insert Table 1 about here.

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Measures

A set of 58 occupation titles were selected or adapted from those listed in the major occupational groups used in the 1980 and 1990 Census (U.S. Bureau of the Census, 1982, 1992). Occupations were selected because they appeared to be readily understood and relatively common (drawn from Stricker, 1988); they did not overlap with other occupations that were chosen; and they had been used in a national survey of the prestige of occupations (Reiss, 1961), wherever possible, and did not have 5% or more Don't Know responses in that study. In a few instances, occupation titles were added to describe sets of related occupations (e.g., factory machine operator) or reworded for clarity (e.g., assembly line worker). The occupations are listed in Table 2, categorized by major occupational group.

Seventeen values from the 21 on the Values Scale (Super & Nevill, 1989) were selected; the values on this inventory were drawn from 23 values identified as important by an international panel (Super, 1982). Three values from the Values Scale were not included because they were not concerned with the job (Life Style, Personal Development, and Social Relations), and a fourth (Physical Prowess) was not included because it was similar to another value (Physical Activity). The values are listed in Table 3.

Sorting occupation titles. The 58 occupation titles were printed on 3" x 5" cards and arranged in random order. Students were given these written instructions for making judgments of the similarity of the occupation titles, adapted from Stricker, Jacobs, and Kogan (1974):

We would like you to know how similar you think a number of jobs are. Different people judge things in different ways. Two jobs that seem very similar to one person may seem very different to another person. We are interested in finding out what you think about these jobs.

Each job is written on a card. Go through the cards and sort into piles the jobs that seem similar. For example, "Kitchen Worker" and "Counter Attendant" might belong in one pile. "Typist" and "Office Machine Operator" might belong in another pile. And "Dentist" and "Teacher" might belong in a third pile.

Use as many piles as you want. And put as many jobs in a pile as you want. Put jobs that don't seem to belong in any pile in a "Miscellaneous" pile.

When you finish, put a rubber band around the cards in each pile. If you have a miscellaneous pile, write "MISCELLANEOUS" on the top card in that pile.

Rating values. The 58 occupation titles, arranged in the same order as in the sorting task, were administered in a questionnaire, with the following instructions:

We would like to know what else you think about the jobs. Remember that people differ in how they judge things, and we are interested in what you think about these jobs.

Several questions about these jobs are in this booklet. Answer each question by checking the box for A Lot, Some, A Little, or Not at All next to the jobs. Check the box for Don't Know if you can't answer.

The 17 values were randomly assigned to six sets of three (one value was duplicated), the sets were arranged in spiraled order (1...6), and each student rated the three values in only one

set. The values were rated on a four-point scale (A Lot = 4 to Not at All = 1). The descriptions of the values used in the questionnaire appear in Table 3.

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Insert Tables 2 and 3 about here.

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Procedure

The sorting and rating tasks were group administered, with the sorting preceding the rating. Students were also asked about their sex, school grade, and the name of their high school. The tasks were done anonymously.

Analysis

Parallel analyses were carried out for the college bound and noncollege bound samples. The proportion of instances in which each pair of occupation titles were put into the same pile in the sorting task was tabulated (e.g., Miller, 1969; Rosenberg, Nelson & Vivekananthan, 1968). The square roots of these proportions were calculated to obtain "vector products", which can be analyzed like correlation coefficients (Nunnally, 1978). A principal components analysis of the matrix of vector products was carried out. This "proportion square root analysis" is a form of multidimensional scaling (Andrews & Ray, 1957; Nunnally, 1978). (The same analysis was used in a previous study of college students' perceptions of occupations; Gonyea, 1961.) Alternative number of factors (1 to 15) suggested by the scree test (Cattell, 1966) were rotated by the Varimax procedure (Kaiser, 1958), and the decision about the number of factors was based on the rule that each factor must have at least three occupation titles that have salient ($\geq .30$) loadings on it but on no other factor (Gorsuch, 1983). Factors were matched by the coefficient of congruence (Gorsuch, 1983) and visual inspection.

Product-moment correlations were computed between the occupation titles' factor loadings and the mean ratings on each of the 17 values and the mean number of Don't Know ratings for the 17 values. (The data for the duplicated value were excluded.)

Three experts on occupational characteristics were given the list of occupation titles with salient loadings in each analysis (≥ .30 on a factor and < .30 on all other factors) and asked to interpret the factors:

> Several sets of occupations are shown on the enclosed table.... The sets do not overlap and do not include all of the occupations listed in the table. Please look at each set and try to determine what the occupations in it have in common that distinguish them from the occupations in other sets or in no sets at all. Summarize your impressions about each set on the form that follows the table.

## Results

### Factor Analyses

The rotated factor loadings for the item sorting data for the two samples appear in Table 4.

Three factors were identified in the college bound sample. The factors accounted for 56% of the total variance, ranging from 19% for Factor I to 18% for Factor III.

Factor I was personal service (e.g., barber), Factor II blue collar (e.g., factory machine operator), and Factor III white collar/ medical (e.g., lawyer).

Seven factors were identified in the noncollege bound sample. The factors accounted for 41% of the total variance, ranging from 8% for Factor I to 4% for Factor VII. Factor I was blue collar (e.g., machinist), Factor II white collar (e.g., legal assistant), Factor III protective (e.g.,

police officer), Factor IV caretaker (e.g., gardener), Factor V personal service (e.g., telephone operator), Factor VI social interaction (e.g., entertainer), and Factor VII medical (e.g., physician).

Some factors matched in the two samples: Factor II (Blue Collar) in the college bound sample with Factor I (Blue Collar) in the noncollege bound sample, and Factor III (White Collar/Medical) in the college bound sample with Factor II (White Collar) and, to a lesser extent, with Factors III (Protective) and VII (Medical) in the noncollege bound sample. Factor I (Personal Service) in the college bound sample partially matched Factors III (Protective), IV (Caretaker), V (Personal Service), and VI (Social Interaction) in the noncollege bound sample.

In short, several factors were identified in both samples. The factors were more differentiated for the noncollege bound students and accounted for appreciably less variance in the similarity judgments. A blue collar factor was identical in the two samples, and additional factors in the noncollege bound sample represented fragments of the broader factors for the college-bound students.

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Insert Table 4 about here.

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Experts' Interpretations of Factors

The experts' interpretations of the factors in the two samples are summarized in Table 5. In general, these interpretations were consistent with each other, as well as with the initial interpretations of the factors. The greatest disagreement among the experts' interpretations concerned two factors for the college bound sample and one factor for the noncollege bound sample. The two factors in the college bound sample were I (Personal Service) and III (White Collar/Medical). The interpretations for I (Personal Service) were independent (Expert A),

service (Expert B), and personal service/entertainment (Expert C); for III (White Collar), the interpretations were white collar/services (Expert A), interaction/involvement with people (Expert B), and white collar/health (Expert C). The factor in the noncollege bound sample was IV (Caretaker); the interpretations were natural world (Expert A), caretaker (Expert B), and indirect services (Expert C).

In sum, the interpretations of the factors by the experts were generally consistent with each other and agreed with the previous interpretations of the factors.

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Insert Table 5 about here.

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Correlations of Value Ratings with Factors

The correlations of the ratings for the 17 values with the factor loadings appear in Table 6 for the two samples.

For the college-bound sample, the ratings of the values had an extensive pattern of generally substantial correlations with the factor loadings. The correlations ranged from .59 for Cultural Identity to -.71 for Advancement for Factor I (Personal Service), from .56 for Cultural Identity to -.77 for Social Interaction for Factor II (Blue Collar), and from .81 for Prestige to -.88 for Cultural Identity for Factor III (White Collar/Medical). The Don't Know ratings had moderate correlations with Factor II (Blue Collar), .41, and Factor III (White Collar/Medical), -.43.

For the noncollege bound sample, the ratings of the values had sparse and usually moderate correlations with the factor loadings. The correlations ranged from .47 for Risk to -.56 for Social Interaction for Factor I (Blue Collar), from .59 for Prestige to -.61 for Physical

Activity for Factor II (White Collar), from .49 for Authority to -.29 for Creativity for Factor III (Protective), from .33 for Autonomy to -.49 for Advancement for Factor IV (Caretaker), from -.47 for Economic Rewards to -.27 for Physical Activity for Factor V (Personal Service), from .49 for Creativity to -.34 for Risk for Factor VI (Social Interaction), and from .53 for Altruism to .27 for Aesthetics for Factor VII (Medical). The Don't Know ratings had a moderate correlation with one factor, Factor IV (Caretaker), .38.

In short, the associations between the values and the factors were more extensive for the college-bound sample but the pattern was generally similar for the two samples, except for the markedly different relationships for Cultural Identity--substantial and negative for the college bound students and minimal for the noncollege bound students. The Don't Know ratings were extensively related to the factors for the college bound students. All in all, the associations were congruent with the initial interpretations of the factors as well as the experts' interpretations.

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Insert Table 6 about here.

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Intercorrelations of Value Ratings

The intercorrelations of the ratings for the values in the two samples appear in Table 7; the corresponding means and standard deviations are reported in Table 8.

For the college bound sample, the intercorrelations were generally positive and appreciable, with the marked exception of consistently negative and appreciable correlations with Cultural Identity. Prestige, Advancement, and Ability Utilization had generally substantial correlations with the other values. The Don't Know ratings had moderate correlations with most

of the values, all positive correlations with the exception of a negative correlation for Cultural Identity (.38).

For the noncollege bound sample, the intercorrelations were also generally positive and appreciable, including those for Cultural Identity. Again, Prestige, Advancement, and Ability Utilization had generally substantial correlations with the other values. The Don't Know ratings were minimally associated with most values, except for Respect (.32) and Advancement (.40).

The corresponding ratings of the same value in the two samples generally correlated highly (.80 to .95), except for a near-zero (.02) correlation for Cultural Identity. The corresponding Don't Know ratings were substantially correlated (.67).

In short, the values were generally related in both samples, and the patterns of correlations were roughly similar, except for Cultural Identity. This value had materially different relationships with the other values--appreciable and negative for the college bound students and minimal for the noncollege bound students, and the ratings for this value did not agree in the two samples.

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Insert Tables 7 and 8 about here.

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## Discussion

### Perceptions of Occupations

A major finding was that the perceptions of occupations were more differentiated for the noncollege bound students than for the college bound students but did not reflect different aspects of occupations. This outcome suggests that the same work values were salient for both groups.

This greater differentiation for the noncollege bound students cannot be directly compared with previous results. However, it is incongruent with both the Grunes (1957) finding of more clusters of occupations for students with higher socioeconomic status as well as the contradictory finding by Reeb (1971) of similar dimensions for working class and middle class English students. Differences among all of these investigations, including the present one, in the analytic methods and samples of occupations used make it impossible to account for these discrepancies (Coxon & Jones, 1974; Rounds & Zevon, 1983). It is noteworthy, though, that the small number of dimensions identified for college bound students in the present study was also observed in previous investigations of college students (Burton, 1972; Gonyea, 1961; Gonyea & Lunneborg, 1963; Shubsachs & Davison, 1979).

The reason for the greater differentiation for noncollege bound students is uncertain. Most of the differentiation involves factors made up of occupations with lower status, raising the possibility that greater familiarity with these occupations by students with lower socioeconomic status plays a role, consistent with the notion that people make finer distinctions among occupations close to their social position (e.g., Davis, Gardner, & Gardner, 1941). This possibility gets mixed support from the findings for the Don't Know ratings. On the one hand, the level of Don't Know ratings over the 58 occupations was similar for the two samples (the means were .07 for the noncollege bound sample and .08 for the college bound sample, $t = 1.79$, $p > .05$), and the pattern of Don't Know ratings was also similar for the two samples ($r = .67$). On the other hand, Don't Know ratings generally had substantially higher correlations with the factors for the college bound sample. Familiarity with occupations is known to be related to the educational level--and presumably the socioeconomic status--of adult respondents (e.g., Reiss, 1961): the better educated are more knowledgeable. But this relationship may not bear on the

situation in the present study, where the two samples have the same amount of education, but presumably differ in socioeconomic status.

Other aspects of the Don't Know results are of interest. The negative correlations of Don't Know ratings with the White Collar/Medical factor and the positive correlations with the Blue Collar factor for the college bound students imply that these students were more familiar with white collar occupations than with blue collar occupations. The generally negative correlations of the Don't Know ratings with most values, for both samples (especially the college bound students), suggest that relatively unknown occupations were seen as having undesirable characteristics.

The extent of these findings about Don't Know ratings is striking in view of efforts made to minimize Don't Knows: choosing well-known occupations and excluding from the analysis students with an unusual number of Don't Know ratings. These outcomes underscore the importance of such steps in studies of people's reactions to occupations.

Socioeconomic status, ethnicity, and sex are naturally confounded with post-high school plans. Further research on this topic might benefit from disentangling these variables to assess their separate influences on work values. In this connection, it would be especially interesting to study working class students who are directly entering the work force after high school. Efforts in this area might also benefit from using other methods to assess values in order to triangulate the findings. Examples of such methods, already used to investigate perceptions of occupations, include Osgood and Tannenbaum's (1957) semantic differential, used by Osipow (1962); Kelly's (1955) role concept repertory test, used by Katz (1995); and Ericsson and Simon's (1984) think aloud technique, employed by Coxon and Jones (1978; 1979a; 1979b). Complementary studies of the construct validity of measures of work values, such as the Values Scales (Super & Nevill,

1989), System of Interactive Guidance and Information (SIGI; SIGI Plus for Windows, 1996); and Minnesota Importance Questionnaire questionnaire (Gay, Weiss, Hendel, Dawis, & Lofquist, 1971), for these same subgroups would also be useful.

Functioning of Cultural Identity Value

The results concerning the Cultural Identity value were unusual, unexpected, and potentially significant. The pervasive associations of this work value with the factors and the other values for college bound students and its negligible relationships for noncollege bound students suggest that this value had a salient role in college bound students' perceptions of occupations and little or no role in the perceptions of other students. The college bound students appeared to believe that occupations open to everyone tend to be blue collar or service and have undesirable characteristics.

An obvious question is whether the differences between the two samples concerning this value are attributable to their ethnic composition, with a greater proportion of the noncollege bound students being Black and Hispanic. Unfortunately, data on the ethnic make up of the samples are unavailable. One conjecture is that the Cultural Identity value is a negligible factor in the minority students' perceptions because they saw little difference among occupations in their openness to everyone and believed that occupations are less open. This hypothesis is supported by the data for the Cultural Identity rating. (The standard deviations of this rating over the 58 occupations were .30 for the noncollege bound sample and .40 for the college bound sample, $t = 2.27$, $p < .05$, and the corresponding means were 2.87 and 3.39, $t = 8.03$, $p < .05$, $d = 1.48$.) Another speculation is that the openness of occupations to members of minority groups influenced the perceptions of White students, leading them to view jobs as undesirable simply because they are open to minorities--being open to minorities was not a desirable work

value for these students. Still a third possibility, reversing the causal sequence in the previous conjecture, is that White students' perceptions were veridical: minorities tend to predominate in occupations with undesirable characteristics. If this is so, though, then the minority students' perceptions must be inaccurate, and for reasons that are unknown.

No evidence is available from previous research to support any of these speculations. Ethnic group differences in the average level of work values of high school students have been documented in two studies (Thomas, 1974; McCall & Lawler, 1976), but ethnic group differences in the structure of work values have not been investigated. It is of interest that an investigation of the work values of high school students with different post high school plans found that college-bound students placed less importance on occupations being open to minorities than did other students (Ace, Graen, & Dawis, 1972).

Another feature of the findings about the Cultural Identity value is equally noteworthy: the complete lack of agreement in this value for the two samples. This outcome again underscores the marked differences in the involvement of this value in the perceptions of the two samples and raises further questions about the reasons for the differences in their reactions to this value.

The present findings clearly need to be followed up with a systematic comparison of White and minority group students to sort out the reasons for the striking group differences associated with this work value.

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## Footnotes

[1] The matrices of vector products for the two samples are available from the author. The vector products for the college bound sample ranged from .00 (i.e., a proportion of .00, e.g., garbage collector and legal assistant) to .95 (i.e., a proportion of .91, e.g., crane operator and fork-lift operator); the vector products for the noncollege bound sample ranged from .00 (i.e., a proportion of .00, e.g., school principal and crane operator) to .66 (i.e., a proportion of .43, e.g., barber and beauty shop manager).

Table 1

Sample Characteristics

| | Students Included in Analysis | | | | | | Students Excluded from Analysis (N = 53) | |
|---|---|---|---|---|---|---|---|---|
| | College Bound (N = 88) | | Noncollege Bound (N = 46) | | Total (N = 164) | | | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Sex | | | | | | | | |
| Male | 41 | 46.6 | 29 | 63.0 | 70 | 52.2 | 25 | 47.2 |
| Female | 47 | 53.4 | 17 | 37.0 | 64 | 47.8 | 28 | 52.8 |
| School grade | | | | | | | | |
| 11 | 18 | 20.5 | 7 | 15.2 | 25 | 18.7 | 15 | 28.3 |
| 12 | 70 | 79.5 | 39 | 84.8 | 109 | 81.3 | 38 | 71.7 |
| High school | | | | | | | | |
| Ewing | 13 | 14.8 | 12 | 26.1 | 25 | 18.7 | 7 | 13.2 |
| Columbia (Maplewood) | 16 | 18.2 | 3 | 6.5 | 19 | 14.2 | 13 | 24.5 |
| Hunterdon County Regional | 13 | 14.8 | 10 | 21.7 | 23 | 17.2 | 14 | 26.4 |
| Perth Amboy | 21 | 23.9 | 15 | 32.6 | 36 | 26.9 | 13 | 24.5 |
| North Brunswick | 21 | 23.9 | 3 | 6.5 | 24 | 17.9 | 4 | 7.5 |
| South Brunswick | 4 | 4.5 | 3 | 6.5 | 7 | 5.2 | 2 | 3.8 |

Table 1 (Continued)

| | Students Included in Analysis | | | | | | Students Excluded from Analysis (N = 53) | |
|---|---|---|---|---|---|---|---|---|
| | College Bound (N = 88) | | Noncollege Bound (N = 46) | | Total (N = 164) | | | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Post high school plans | | | | | | | | |
| Armed services | | | 5 | 10.9 | 5 | 3.7 | | |
| Job | | | 8 | 17.4 | 8 | 6.0 | 5 | 9.4 |
| Four-year college | 88 | 100.0 | | | 88 | 65.7 | 15 | 28.3 |
| Community college | | | 19 | 41.3 | 19 | 14.2 | 9 | 17.0 |
| Junior college | | | 1 | 2.2 | 1 | .7 | | |
| Vocational school | | | 6 | 13.0 | 6 | 4.5 | | |
| Other | | | | | | | 2 | 3.8 |
| Undecided | | | 7 | 15.2 | 7 | 5.2 | 4 | 7.5 |
| Not ascertained | | | | | | | 18 | 34.0 |

Note. Percentages may not add to 100.0 because of rounding error.

Table 2

Occupations, Classified by Census Major Occupational Group

| |
|---|
| Executive, administrative, and managerial |
| Accountant |
| School principal |
| Undertaker |
| Professional specialty |
| Athlete |
| Entertainer |
| Lawyer |
| Pharmacist |
| Physician |
| Social worker |
| Technicians and related support |
| Airline pilot |
| Computer programmer |
| Dental hygienist |
| Legal assistant |

Table 2 (Continued)

| |
|---|
| Sales |
| Insurance agent |
| Newspaper deliverer |
| Salesperson in store |
| Administrative support |
| Bank teller |
| Mail carrier |
| Meter reader |
| Office clerk |
| Secretary |
| Telephone operator |
| Private household |
| Housekeeper in private home |
| Protective service |
| Fire fighter |
| Police officer |
| Prison guard |
| Private investigator |

Table 2 (Continued)

| |
|---|
| Service |
| Barber |
| Bartender |
| Beauty shop manager |
| Exterminator |
| Hospital attendant |
| Janitor |
| Restaurant cook |
| Farming, forestry, and fishing |
| Farmer |
| Gardener |
| Zoo keeper |
| Precision production, craft, and repair |
| Automobile mechanic |
| Bricklayer |
| Carpenter |
| Locksmith |
| Machinist |
| Miner |
| Tailor |
| Telephone operator |
| Watch Repairer |

Table 2 (Continued)

| |
|---|
| Machine operators, assemblers, and inspectors |
| Assembly line worker |
| Factory machine operator |
| Welder |
| Transportation and material moving |
| Crane operator |
| Fork-lift operator |
| Parking lot attendant |
| Railroad engineer |
| Taxi driver |
| Handlers, equipment cleaners, helpers, and laborers |
| Car washer |
| Construction laborer |
| Garbage collector |
| Military |
| Military officer |

Table 3

Values and Their Descriptions Used in Questionnaires

| |
|---|
| Ability utilization: How much does this job require skill and ability? |
| Achievement: How much does this job offer a sense of accomplishment? |
| Advancement: How much does this job offer a good chance of advancement? |
| Aesthetics: How much does this job involve things that are beautiful? |
| Altruism: How much does this job benefit society? |
| Authority: How much does this job involve supervising others? |
| Autonomy: How much does this job offer freedom to decide how to do the work. |
| Creativity: How much does this job involve creative work? |
| Culture Identity: How much is this job open to people of every race and religion? |
| Economic Rewards: How much does this job offer good pay? |
| Economic Security: How much does this job offer steady employment, with little chance of layoffs? |
| Environment: How much does this job have pleasant working conditions? |
| Physical Activity: How much does this job involve physical work? |
| Prestige: How much is this job respected by people? |
| Risk: How much does this job involve taking risks? |
| Social Interaction: How much does this job involve contact with people? |
| Variety: How much does this job involve doing many different kinds of things? |

Table 4

Rotated Factor Loadings for Occupations, College Bound Sample and Noncollege Bound Samples

| Occupation | College Bound Sample (N = 88) Factor I | II | III | Noncollege Bound Sample (N = 46) Factor I | II | III | IV | V | VI | VII |
|---|---|---|---|---|---|---|---|---|---|---|
| School principal | | | .68 | | | .34 | | | .47 | |
| Restaurant cook | .64 | | | | | | | .38 | .36 | |
| Garbage collector | .59 | .45 | | .33 | | .38 | .39 | | | |
| Crane operator | | .90 | | .67 | | | | | | |
| Entertainer | .44 | | | | | | | | .66 | |
| Housekeeper in private home | .62 | | | | | | .48 | | | |
| Telephone operator | .30 | .47 | .33 | | | | | .64 | | |
| Parking lot attendant | .67 | | | | | .36 | | | | |
| Factory machine operator | | .92 | | .48 | | | | | | |
| Prison guard | .41 | | .30 | | | .58 | | | | |
| Gardener | .70 | | | | | | .68 | | | |
| Social worker | | | .70 | | | | | | .39 | |
| Barber | .72 | | | | | | | .31 | .45 | |
| Assembly line worker | | .84 | | .50 | | | | | | |
| Bricklayer | .41 | .72 | | .53 | | | | | | |

Table 4 (Continued)

| Occupation | College Bound Sample (N = 88) Factor I | II | III | Noncollege Bound Sample (N = 46) Factor I | II | III | IV | V | VI | VII |
|---|---|---|---|---|---|---|---|---|---|---|
| Insurance agent | | | .79 | | .59 | | | | | |
| Legal assistant | | | .86 | | .62 | | | | | |
| Hospital attendant | | | .63 | | | | | | | .57 |
| Mail carrier | .68 | | | | | .36 | | | | |
| Office clerk | | | .67 | | .54 | | | | | |
| Athlete | .38 | | | .30 | | | | | .54 | |
| Taxi driver | .67 | .31 | | | | .46 | | | | |
| Accountant | | | .85 | | .61 | | | | | |
| Miner | .32 | .82 | | .35 | | | | | | |
| Firefighter | .40 | .31 | .32 | | | .64 | | | | |
| Farmer | .63 | | | | | | .64 | | | |
| Dental hygenist | | | .72 | | | | | | | .66 |
| Salesperson in store | .56 | | .37 | | | | | .53 | | |
| Pharmacist | | | .74 | | | | | | | .59 |
| Telephone installer | .36 | .62 | | | | | | .43 | | |
| Secretary | | | .68 | | .52 | | | | | |
| Private investigator | | | .62 | | | .53 | | | | |

Table 4 (Continued)

| Occupation | College Bound Sample (N = 88) Factor I | II | III | Noncollege Bound Sample (N = 46) Factor I | II | III | IV | V | VI | VII |
|---|---|---|---|---|---|---|---|---|---|---|
| Zoo keeper | .61 | | | | | | .63 | | | |
| Exterminator | .56 | .41 | | | | | .55 | | | |
| Construction laborer | .84 | | | .54 | | | | | | |
| Welder | | .84 | | .48 | | | | | | |
| Automobile mechanic | | .78 | | .41 | | | | | | |
| Carpenter | .40 | .65 | | .52 | | | | | | |
| Lawyer | | | .86 | | .58 | | | | | |
| Military officer | | | .57 | | .34 | .52 | | | | |
| Undertaker | .52 | | | | | | .48 | | | |
| Fork-lift operator | | .92 | | .57 | | | | | | |
| Railroad engineer | | .74 | .30 | .53 | | | | | | |
| Machinist | | .89 | | .80 | | | | | | |
| Bartender | .68 | | | | | | | | .62 | |
| Tailor | .67 | | | | | | | .41 | | |
| Locksmith | .56 | .43 | | | | | | .36 | | |
| Computer programmer | | .32 | .72 | | .55 | | | .31 | | |
| Police officer | | | .53 | | | .75 | | | | |

Table 4 (Continued)

| Occupation | College Bound Sample (N = 88) Factor I | II | III | Noncollege Bound Sample (N = 46) Factor I | II | III | IV | V | VI | VII |
|---|---|---|---|---|---|---|---|---|---|---|
| Meter reader | .59 | .32 | | | | .58 | | | | |
| Janitor | .68 | .36 | | .39 | | | .34 | | | |
| Watch repairer | .57 | .45 | | | | | .42 | .53 | | |
| Beauty shop manager | .59 | | .34 | | | | | .48 | .53 | |
| Car washer | .70 | .30 | | .43 | | | .43 | .33 | | |
| Physician | | | .77 | | .42 | | | | | .78 |
| Airline pilot | | .35 | .63 | | .55 | .37 | | | | .33 |
| Bank teller | .32 | | .64 | .30 | .63 | .30 | | .41 | | |
| Newspaper deliverer | .70 | | | | | .32 | | | .35 | |

Note. Only factor loadings of ± .30 or greater are shown.

Table 5

Summary of Experts' Interpretations of Factors, College Bound Sample and Noncollege Bound Sample

---

College Bound Sample

Factor I:

Expert A: More independent, in terms of supervision or having to interact with co-workers. Less affected by new technology.

Expert B: Perform a service. Moderately strenuous. Moderate prestige. Does not require a high level of education.

Expert C: Personal service and entertainment.

Factor II:

Expert A: Use large-scale equipment. Blue collar. Work in noisy, messy surroundings.

Expert B: Use tools or operate machinery. Very strenuous. Low prestige. Does not require a high level of education.

Expert C: Trades.

Factor III:

Expert A: Provide services. Rely more on mental than physical or social skills.

Expert B: Interact with people or help them. Moderately strenuous. High prestige. Requires some education beyond high school.

Expert C: White collar and health.

Table 5 (Continued)

---

Noncollege Bound Sample

Factor I:

Expert A: Blue collar. Use gross muscles. Most are directly concerned with primary production/manufacturing. Do not require a college degree.

Expert B: Operate machinery or use tools to fix or build things. Physically demanding, often outdoors. Blue collar. Little interaction with people.

Expert C: Trades. Involved with mechanical things.

Factor II:

Expert A: Office jobs, dealing with paper or computers.

Expert B: Processing information, records, paperwork. Not physically demanding, usually indoors. White collar. Must interact with people to accomplish job.

Expert C: White collar, mostly with a business orientation. Higher prestige.

Factor III:

Expert A: Public employee. Provide protection.

Expert B: Keeping order of things or people. Follow directions and protocols. Moderately physically demanding. Uniformed worker.

Expert C: Wear a uniform, badge, or ID.

Table 5 (Continued)

---

Factor IV:

Expert A: Work with the natural world. Housekeeping. Concerned with maintaining life on day-to-day basis or with death.

Expert B: Caretaker of people, plants, and animals. Clean, straighten up, use cleaning agents. Little interaction with people.

Expert C: Indirect services--only limited contact with people whose needs are being served.

Factor V:

Expert A: Deliver services to individual customers in serial fashion with minimal interaction with other workers.

Expert B: Perform a service for people--help them. Make adjustments and connections, fix things. Interact with people one-on-one.

Expert C: Personal service. Much skill.

Factor VI:

Expert A: Above average social skills.

Expert B: Deal with large groups of people--serve them. Not strenuous. Must communicate well.

Expert C: Good people skills. Much independence.

Table 5 (Continued)

Factor VII:

Expert A: Allied health.

Expert B: Health-related. Follow orders from doctors, dentists, supervisors. Not strenuous. Work with people.

Expert C: Health related. Structured work.

Table 6

Correlations of Value Ratings with Factors, College Bound Sample and Noncollege Round Sample

| | College Bound Sample (N = 88) | | | Noncollege Bound Sample (N = 46) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Factor | | | Factor | | | | | | |
| Occupation | I | II | III | I | II | III | IV | V | VI | VII |
| Risk | -.33 | .41 | -.15 | .47 | -.26 | .38 | -.18 | -.41 | -.34 | -.02 |
| Autonomy | .07 | -.63 | .36 | -.32 | -.05 | -.21 | .33 | -.16 | .48 | -.07 |
| Physical activity | .13 | .42 | -.50 | .42 | -.61 | .05 | .31 | -.27 | .13 | -.14 |
| Prestige | -.68 | -.43 | .81 | -.25 | .59 | -.08 | -.46 | -.21 | .10 | .43 |
| Advancement | -.71 | -.42 | .79 | -.14. | 54 | .06 | -.49 | -.30 | .00 | .48 |
| Ability utilization | -.62 | -.38 | .73 | .08 | .31 | -.20 | -.35 | -.31 | -.10 | .43 |
| Achievement | -.50 | -.35 | .57 | -.11 | .15 | -.14 | -.20 | -.46 | .08 | .48 |
| Economicr rewards | -.58 | -.43 | .73 | -.07 | .45 | .09 | -.39 | -.47 | -.06 | .49 |
| Authority | -.39 | -.43 | .57 | -.14 | .32 | .49 | -.36 | -.18 | -.10 | .29 |
| Variety | -.61 | -.36 | .70 | -.20 | .43 | -.09 | -.22 | -.35 | .06 | .38 |
| Cultural identity | .59 | .56 | -.88 | -.05 | -.25 | .18 | -.14 | -.07 | .36 | -.05 |
| Economic security | -.56 | -.37 | .71 | -.32 | .42 | .20 | -.21 | -.33 | -.18 | .52 |
| Social interaction | -.05 | -.77 | .59 | -.57 | .35 | .25 | -.31 | .02 | .27 | .40 |
| Creativity | .22 | -.41 | .07 | -.12 | -.16 | -.29 | .22 | -.06 | .49 | -.05 |
| Environment | -.27 | -.69 | .70 | -.52 | .49 | -.17 | -.21 | .00 | .29 | .38 |

Table 6 (Continued)

| Occupation | College Bound Sample (N = 88) Factor I | II | III | Noncollege Bound Sample (N = 46) Factor I | II | III | IV | V | VI | VII |
|---|---|---|---|---|---|---|---|---|---|---|
| Altruism | -.55 | -.27 | .64 | -.19 | .27 | .19 | -.20 | -.36 | -.27 | .53 |
| Aesthetics | .09 | -.54 | .27 | -.41 | .19 | -.13 | .08 | -.11 | .44 | .27 |
| Don't know | .18 | .41 | -.43 | .24 | -.22 | -.19 | .38 | -.15 | -.14 | -.15 |

Note. Correlations of .25 and .33 are significant at the .05 and .01 levels (two tail), respectively.

Table 7

Intercorrelations of Value ratings, College Bound Sample and Noncollege Bound Sample

| Value Rating | | Value Rating (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | Risk | (88) | -02 | 56 | 20 | 16 | 23 | 41 | 21 | 38 | 21 | -04 | 18 | -14 | -08 | -28 | 23 | -16 | -03 |
| (2) | Autonomy | -37 | (80) | -02 | 44 | 41 | 48 | 55 | 54 | 38 | 49 | -46 | 33 | 45 | 70 | 57 | 19 | 64 | -39 |
| (3) | Physical activity | 46 | 15 | (91) | -17 | -20 | -11 | 11 | -17 | -12 | 04 | 36 | -16 | -52 | 06 | -42 | 01 | -09 | 04 |
| (4) | Prestige | -07 | 23 | -26 | (84) | 87 | 91 | 87 | 83 | 58 | 84 | -80 | 74 | 51 | 33 | 68 | 72 | 44 | -54 |
| (5) | Advancement | 13 | 02 | -21 | 79 | (89) | 80 | 79 | 84 | 59 | 71 | -77 | 63 | 50 | 23 | 65 | 59 | 40 | -44 |
| (6) | Ability utilization | 27 | 04 | 04 | 71 | 76 | (80) | 86 | 85 | 59 | 81 | -76 | 80 | 44 | 43 | 63 | 61 | 48 | -49 |
| (7) | Achievement | 32 | 24 | 13 | 66 | 74 | 69 | (88) | 78 | 68 | 78 | -67 | 63 | 41 | 51 | 54 | 57 | 54 | -49 |
| (8) | Economic rewards | 18 | 03 | -17 | 73 | 79 | 63 | 70 | (82) | 61 | 72 | -76 | 78 | 48 | 36 | 64 | 54 | 47 | -42 |
| (9) | Authority | 39 | -13 | -19 | 41 | 54 | 40 | 53 | 47 | (83) | 55 | -68 | 55 | 62 | 25 | 32 | 46 | 27 | -30 |
| (10) | Variety | 12 | 32 | -04 | 74 | 70 | 66 | 64 | 55 | 45 | (83) | -71 | 67 | 33 | 35 | 61 | 64 | 46 | -57 |
| (11) | Cultural identity | -01 | 33 | 23 | 21 | 15 | 04 | 33 | 10 | 08 | 13 | (02) | -71 | -58 | -21 | -68 | -57 | -36 | 38 |
| (12) | Economic security | 09 | -06 | -18 | 53 | 61 | 47 | 59 | 68 | 50 | 50 | 05 | (79) | 38 | 16 | 49 | 66 | 25 | -37 |
| (13) | Social interaction | -22 | 09 | -46 | 47 | 43 | 10 | 33 | 38 | 52 | 27 | 16 | 41 | (91) | 24 | 55 | 32 | 36 | -40 |
| (14) | Creativity | -18 | 67 | -27 | 30 | 17 | 27 | 45 | 17 | 00 | 31 | 28 | -04 | 13 | (90) | 48 | -06 | 76 | -31 |
| (15) | Environment | -40 | 40 | -40 | 74 | 61 | 43 | 41 | 46 | 26 | 60 | 08 | 33 | 55 | 40 | (89) | 25 | 75 | -54 |
| (16) | Altruism | 28 | -.02 | 01 | 50 | 56 | 54 | 61 | 56 | 42 | 63 | -09 | 70 | 25 | 01 | 26 | (86) | 03 | -46 |
| (17) | Aesthetics | -23 | 57 | -01 | 52 | 46 | 39 | 54 | 29 | 28 | 56 | 18 | 29 | 39 | 65 | 72 | 27 | (82) | -49 |
| (18) | Don't know | 04 | -05 | 15 | -32 | -40 | -23 | -19 | -20 | -24 | -31 | -12 | -19 | -28 | 08 | -33 | -19 | -26 | (67) |

Note. Decimal points have been omitted. The interrcorrelations for the college bound sample (N = 88) appear above the diagonal; those for the noncollege bound sample (N = 46) appear below the diagonal. The correlations between corresponding variables in the samples appear in the diagonal. Correlations of .25 and .33 are significant at the .05 and .01 levels (two-task), respectively.

Table 8

Means and Standard Deviations of Value Ratings for College Bound Sample and Noncollege Bound Sample

| Value Rating | College Bound Sample (N=88) Mean | S.D. | Noncollege Bound Sample (N=46) Mean | S.D. |
|---|---|---|---|---|
| Risk | 2.55 | .81 | 2.29 | .79 |
| Autonomy | 2.61 | .53 | 2.39 | .56 |
| Physical activity | 2.89 | .54 | 2.93 | .74 |
| Prestige | 2.44 | .69 | 2.70 | .59 |
| Advancement | 2.20 | .82 | 2.50 | .68 |
| Ability utilization | 2.81 | .61 | 3.01 | .61 |
| Achievement | 2.53 | .67 | 2.61 | .53 |
| Economic rewards | 2.70 | .55 | 2.77 | .52 |
| Authority | 2.24 | .70 | 2.29 | .77 |
| Variety | 2.72 | .67 | 2.89 | .62 |
| Cultural identity | 3.39 | .40 | 2.87 | .30 |
| Economic security | 2.72 | .37 | 2.67 | .35 |
| Social interaction | 2.94 | .76 | 2.93 | .66 |
| Creativity | 2.15 | .75 | 2.25 | .69 |
| Environment | 2.24 | .55 | 2.44 | .66 |
| Altruism | 2.77 | .58 | 2.86 | .50 |
| Aesthetics | 1.99 | .74 | 2.11 | .67 |
| Don't know | .08 | .08 | .07 | .07 |