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AUTHOR	Tuckman, Bruce W.; Edwards, Keith J.
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ABSTRACT

This study probes the relative effects of 2-year and 4-year college environments on their students. Using a population of 205 male students who had resided and graduated from public schools in the same county, 195 were randomly selected for the study. These students--68 from a university and 46 liberal arts, 25 technical, and 56 business students from a nearby 2-year junior college--were given a variant (Bingham's Occupational Repertory Test) of the Modified Repertory Test, both at college entrance and 21 months later. Changes in self-esteem, level of incorporation of occupational concepts, and level of incorporation of social role concepts were noted. Statistical analysis of data suggests that: (1) preselection factors were operating in the students' initial program choice; (2) 2-year college students experienced a noticeable increase in self-esteem and identification with higher status occupations, making post-test differences in self-esteem between 4-year and 2-year college students insignificant; (3) the identification between 2-year college students enrolled in occupationally centered programs and their occupation was intensified; and (4) there was little change in the self-esteem or occupational identification of students completing their first two years of university experience. Based on these findings, the effects of the 2-year college environment are seen as particularly significant in developing occupational and self-concepts. (JO)

FINAL REPORT

A Study of the Role of the Community College in the Development of Self- and Occupational- Concepts

Bruce W. Tuckman
and
Keith J. Edwards

Graduate School of Education
Rutgers - The State University

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SUMMARY

The purpose of this study was to identify changes in self-esteem, level of incorporation of occupational-concepts, and level of incorporation of social role-concepts as brought about by different college experiences. Those college experiences compared were as follows: (1) a two-year technical program in a community college, (2) a two-year business program in a community college, (3) a two-year liberal arts program in a community college, and (4) the first two years of a four-year university program.

Students in the four groups were tested prior to starting their program and again upon completion of the program, two years later. Self-esteem was defined as the difference between perception of one's real self and one's ideal self. Level of incorporation of occupational roles was defined as the difference between one's perception of various occupations and one's perception of oneself. Level of incorporation of social roles was defined as the difference between one's perception of various social roles (e. g., community leader) and one's perception of oneself.

Super has theorized about stages of career development and of the role of self-concepts in the career development process. The career development process includes the formation of self-concepts, the translation of these into occupational terms, and their subsequent implementation and/or revision. Career-oriented programs such as those in the two-year college were expected to facilitate career development in the exploration and implementation stages, causing a greater tendency toward both the formation of self-concepts and their translation and focusing into more specific occupational terms. Moreover, since the two-year college was making college accessible to young people who had heretofore not considered themselves "college material," it was expected that the two-year college experience would enhance students' perception of themselves.

A total of 195 students participated in both pretesting and posttesting including 68 university students, 46 liberal arts students in the two-year college, 25 technical students in the two-year college, and 56 business students in the two year college.*

* Two additional groups, two-year college pre-vocational students, and non-college youngsters participated in the pretesting. Due to subsequent mortality, both groups were dropped from the final analyses.

Each student completed the same measuring instrument twice with a 21 month interval intervening. This instrument combines the Kelly Role Repertory Test and Semantic Differential to form scales defined by the student himself to rate various objects. Objects to be rated included real self (I Am), ideal self (I Wish I Were), 14 occupations differing in status and field of interest, and 4 social roles. Ratings on each object were subtracted from those on real self to determine the level of incorporation of each (i.e., how the student saw each relative to himself).

Level of incorporation scores for pretest and posttest were analyzed separately using analysis of variance and discriminant function analysis. Analysis of pretest scores showed that preselection factors were operating with regard to program choice. University students initially had significantly higher self-esteem than two-year college students. Two-year college business students initially showed greater identification with business executive than the other groups while two-year college technical students initially showed greater identification with technician and engineer. Overall, the two-year college groups identified more closely with lower status occupations than the university group.

At the end of the two-year period, self-esteem differences were found to disappear while occupational-identification tendencies were heightened. After two years at the community college, all three two-year college groups showed markedly higher self-esteem and identified more with higher status occupations, making them comparable to the university students in this regard. Moreover, two-year technical students showed a heightened identification with the occupation of technician, relative to all other occupations and to the other groups while two-year business students showed a heightened identification with business executive, salesman, and community leader relative to other occupations and social roles and relative to the other groups.

Thus, the two-year college experience was seen to have a dramatic effect. This effect took two forms. First, it led to a heightening of self-esteem, presumably based on the kind of opportunity engendered by the two-year college movement, that is, making college accessible to a wider range of students. Second, it led to an intensification of appropriate occupational identification among students enrolled in occupationally-oriented programs (thus playing a role in career development as described by Super). The first two years of the university experience, on the

other hand, produced no noticeable shift in self-concept in terms of either self-esteem or occupational identification. Thus, the role of the first two years at a university on self-concept and career development is minimal in terms of the measurements made in this study while the two-year college contributes noticeably to the development of self-concept and, in the case of students in occupationally-oriented programs, to career development.

A STUDY OF THE ROLE OF THE COMMUNITY COLLEGE IN THE DEVELOPMENT OF SELF- AND OCCUPATIONAL- CONCEPTS

INTRODUCTION

The function of occupational education at any level is not only to help students develop specific occupational skills, but also to help them gain a greater understanding of their own capabilities and of the requirements of various occupations. Occupational programs in the community college should be expected to help students become more aware of their own present capabilities and developing capabilities as well as making available to them greater information about related occupations. As a result of this growing self-awareness and growing occupational awareness, students should expand upon their expectations of occupational placement, and should begin to see themselves to an increasingly greater extent as having those capabilities required for specific occupations. If the community college is fulfilling this function in its technical programs, then it is performing an important function in addition to the one most commonly ascribed to it, namely the development of skills. If the community college is not fulfilling this function, then more emphasis should be placed upon specific opportunities within the educational program for occupational and self exploration.

The purpose of the proposed study is to determine the extent to which students in community college programs are developing this heightened self-awareness and heightened knowledge of related occupations when compared to students who are having different experiences. Of specific interest is the comparison that will be made between students enrolled in technical and business programs in the local community college and students who are taking different career routes such as liberal arts education and no post-secondary education. It is anticipated that students in the community college will be more aware of a wider variety of occupations, of higher level, more technical occupations, and will be more inclined to see themselves as developing the capabilities required for these occupations.

New Jersey is presently making a major commitment to post-secondary education via the community or county two-year colleges. Since a major focus of these colleges is on terminal technical programs which are intended to prepare students for

entry into the world of work at technical and sub-professional levels, it is important that such a commitment be met with attempts to evaluate and understand the effects of this educational opportunity upon the students for whom it is made available. In the absence of such attempts to understand and evaluate, it will be difficult to insure that technical post-secondary programs are meeting the various objectives which were set forth for them. Since New Jersey is at present pioneering in major two-year college development, it seems appropriate that New Jersey also begin pioneering activities in understanding the effects of community college experiences on students.

Therefore, the major objective of this study was to attempt to discover what effect, if any, the two-year college experience has had on students in terms of their development of self-concept, i. e., knowledge of what they themselves are like, and development of occupational concepts, i. e., knowledge of those capabilities required for selected occupations. To the extent to which these two areas of concepts are comparable we would expect the student to be able to make a smooth transition from the community college to that occupation in which his greatest strength lies.

PROBLEM

Super (1957, 1963a) has theorized extensively about self-concept and vocational development and their interrelationship. He has posited that self-concept affects vocational development in the three following ways:

(1) formation of the self-concept - developing a sense of identity through an exploratory process;
(2) translation of the self-concept into occupational terms — occurring through identification, experience, or awareness of appropriate attributes;
(3) implementation — actualization of self-concept through work or training for work.

The above processes, says Super, generally occur in the above order though they are not irreversible. Self-concepts are continually modified as new experiences are incorporated or assimilated into the individual's cognitive structure.

Super (1957) has defined the following five stages of vocational development: growth, exploration, establishment (implementation), maintenance, and decline. Within the implemen-

tation stage (the one relevant to this study), the following activities can be enumerated:

(1) confirmation and verification of choice
(2) professional identification
(3) knowledge of self and role requirements

Super (1963b) has defined vocational self-concept as the "constellation of self attributes which the individual considers vocationally relevant." Bingham (1966) has refined the definition of vocational self-concept to mean "the constellation of self attributes which the individual considers relevant to his own performance in or suitability for a specified occupational role."

Within this study, three types of self-concepts are dealt with. The first of these is called alternatively self-esteem or (generically) self-concept. It refers to the extent to which an individual is like what he would want himself to be. The second is called occupational-concept and refers to the extent to which the individual sees himself in like terms to persons engaged in specific occupations. Finally, social role-concept refers to the extent to which the individual sees himself in like terms to persons fulfilling specific social roles.

The two-year college program not only allows more students and different types of students to have a college experience but it also provides occupationally-relevant experiences for some students which should contribute to their vocational development as part of the implementation stage. Since training in many ways provides a "taste" of an occupation, it can allow the student to test his choice, gain professional identification, and gain knowledge of himself and the role requirements of his occupation-to-be. Not only should the two-year college program lead the student to consider occupations of more diversity and greater status than he might have heretofore, it should also allow students to increase the specificity of their career goals, particularly those students enrolled in occupational programs. Thus, the two-year college experience is expected to increase self-esteem, level of aspiration, and specificity of occupational-concepts (i.e., closer identification with a chosen field). These outcomes would be consistent with Super's formulations on vocational development.

In this study, data will be collected from six groups of subjects (Ss) at two points in time. Groups will include University students, non-college students, and four groups of community college students: liberal arts majors, technician majors,

business majors, and pre-technical majors. Each will have graduated from a high school in the same county at the same time. Each will be tested in the September after graduation from high school and again 21 months later. Only those who remain in college will be retested.

At each testing, each S will rate himself on 12 scales (which he makes up himself) as well as rating his ideal self, 14 occupations (which have been scaled for status), and four social roles (e.g., good neighbor, community leader) on the same scales. Four outcomes will be examined. These are:

(1) self-esteem — the inverse of the discrepancy between rating of self and rating of ideal self.
(2) level of incorporation of occupational-concepts — the inverse of the discrepancy between rating of self and ratings of each of the 14 occupations.
(3) level of incorporation of social role-concepts — the inverse of the discrepancy between rating of self and ratings of each of the four social roles.
(4) level of aspiration — relationship between a person's level of incorporation of (or identification with) the 14 occupations and the status of these occupations.

Changes on these four measures or outcomes will be taken as evidence of the development of self- and occupational- concepts.

Thus, the two-year college experience will be examined both longitudinally and cross-sectionally. Longitudinally, the same students will be tested on entering and upon graduating from the two-year college. Cross-sectionally, not only will students within the various two-year programs be compared, but two-year college students will be compared to four-year college students and to non-college persons.

The following questions will be asked:

(1) Do the different college and program experiences have a differential effect on the development of self-esteem?
(2) Do the different college and program experiences have a differential effect on the development of occupational concepts (i.e., changes in their levels of incorporation)?

(3) Do the different college and program experiences have a differential effect on the development of social role-concepts (i.e., changes in their levels of incorporation)?
(4) Do the different college and program experiences have a differential effect on the development of level of aspiration?

Based on theories such as Super's, one would expect students in occupational programs in the community college to show the greatest development in occupational-concepts based on their exposure through training. It is also possible that greater changes on the other measures will occur for community college students. Liberal arts students in the community college may be afforded more opportunities for exploration (Super's second stage) through the college experience than would otherwise be available, thus broadening their view of themselves and their possibilities.

One value of the community college to society and to the students it serves is in its effect on the way the student sees himself and his occupational goals. If this value is being realized, then it should manifest itself in a heightened self-esteem and a greater awareness of self with respect to the spectrum of occupations. If this value is not being realized, then community colleges must make greater efforts to help students implement their self-concepts through exposure to a wider possibility of occupational alternatives. The findings of this study can be applied to determining whether the community college is in fact realizing its full potential in helping students to implement and supplement their self-concepts.

Furthermore, if we are to fully understand the role of adolescence and education as they affect individual development and the fulfillment of individual and societal needs, then we must determine the role of all educational institutions on the development of self-concepts.

METHOD

A. Sample*

Three groups of Ss, all of whom were residents of the same county and all of whom had graduated from public high schools in that county immediately prior to the study, were identified and tested as follows:

(1) 305 entering male students in the county's Community College (The entire group of 700 entering males were tested. From this total random samples of data from the various programs were drawn.)

  (a) Occupational programs (231 students)

    i. Pre-technical program (51 students)
    ii. Business program (117 students)
    iii. Combined Electronics and Chemical Technician programs (63 students)

  (b) Liberal arts program (74 students)

(2) Entering male students in a University located in the county (93 students)

(3) Non-college bound male high school graduates (35 students)**

The original testing (pretest) was all done in September, 1967 in person. The second testing (posttest) was done in April, 1969. The University and non-college groups were tested

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* We would like to thank Frank Chambers - President of Middlesex County College, Michael Reynolds - Dean of Students at Middlesex, Howard J. Crosby - Dean of Men at Rutgers College and George Kramer - Director of Admissions at Rutgers for their help in getting students to participate in the study. We would also like to thank Angelo C. Gillie for his help in making necessary arrangements.

**An attempt was made to obtain a sample of 100. However, even though $5.00 was offered for one hour of testing, only 35 members of this population would participate.

in person while the remaining Community College students were sent the test in the mail and asked to return it. Posttest sample sizes and mortality percentages are shown in Table 2.

B. The Community College

The Community College was approximately a year old at the time of the testing. The incoming freshman class numbered about 1,000. There were approximately 400 second year students. The College was located on a suburban campus and was engaged in a building program. Liberal arts (transfer) and occupational (terminal) programs were available as well as a pre-vocational program. Business and technical programs included laboratory and classroom study and were two years in duration.

C. The University

The University was a public State University with an enrollment of about 23,000 students on all its campuses. Its major campus was located about six miles from the Community College and contained an all male undergraduate college enrolling about 5,000 students with about 1,400 students in each incoming class. Liberal arts, agriculture, and engineering programs were all available.

D. Independent Variable

The independent variable was the nature of the two-year experience obtained immediately following high school graduation. Six experiences were:

(1a)	i.	Community College occupational program (students) - Technical
(1a)	ii.	Community College occupational program (students) - Business
(1a)	iii.	Community College occupational program (students) - Pre-technical
(1b)		Community College liberal arts program (students)
(2)		University liberal arts (students)
(3)		Non-college

The independent variable was manipulated through the selection of subjects as indicated in the previous section.

E. Measurement of the Dependent Variables

All dependent variables were measured using a variant of the Modified Repertory Test (MRT) developed by Starishevsky and Matlin (1963). This test was first modified by Bingham (1966) to be more relevant to occupational-concepts (renamed by Bingham the Occupational Repertory Test) and used by both Bingham (1966) and Rampel (1967). For purposes of this study, a shortened version of the Occupational Repertory Test with the instructions modified was used.

The basic MRT is a combination of the Role Construct Repertory Test (Kelly, 1955) and the Semantic Differential (Osgood, Suci, and Tannenbaum, 1957). It is a semantic differential wherein S uses the Role Construct Repertory Test to generate his own bipolar adjective pairs which are then used to rate occupations. Rather than providing all Ss with the same bipolar adjective pairs as is done on the semantic differential, this more elaborate procedure allows each S to generate his own, idiosyncratic bipolar adjective pairs, thus making the procedure more relevant and meaningful to him.

In the version of the instrument used in this study (the Modified Occupational Repertory, which appears in the Appendix), S is given 11 descriptions and must list an occupation which fits each (e.g., An occupation in which you could make a lot of money). These descriptions roughly correspond to Maslow's (1954) hierarchy of needs (security, belonging, respect, self-actualization). S is then given 12 sets of three of the occupations that he has listed and must write a word or phrase which indicates a way in which two of each set of three are similar. S must then write the opposite of this word. In this way, S generates 12 bipolar adjective pairs. A packet of 20 rating form slips are then laid over the adjective pairs and each pair is used to rate each form using the basic semantic differential procedure. The rating forms (or objects) are as follows: (1) I Am, (2) I Wish I Were, (3) electrician or plumber, (4) member of high society, (5) teacher, (6) accountant (CPA), (7) clerk, (8) outstanding citizen, (9) salesman, (10) doctor, (11) truck driver or deliveryman, (12) cultured person, (13) mechanic or machinist, (14) engineer, (15) community leader, (16) technician, (17) business executive, (18) bookkeeper, (19) lawyer, (20) policeman or fireman. S rates each object on each scale.

It is possible to calculate a level of incorporation discrepancy score between each object and the self. This is done by calculating the difference between the rating of the object

and the rating of "I Am" on each of the 12 scales and then adding up these differences. Discrepancy scores were calculated for each S on each object. These scores were the data submitted to analysis. The discrepancy score for an object indicates the extent to which S sees himself as similar to a person who fits that object. For instance, the discrepancy score for salesman indicates how much like a salesman S sees himself as being.

The following 19 dependent variables were defined:

(1) self-esteem (1 score) — the sum of the scale discrepancies between "I Wish I Were" and "I Am."

(2) level of incorporation of occupational-concepts (14 scores) -- the sum of the scale discrepancies between each occupational object and "I Am" (a score was calculated for each occupation).

(3) level of incorporation of social role-concepts (4 scores) -- the sum of the scale discrepancies between each social role (see those objects underlined above) and "I Am" (a score was calculated for each social role).

No attempt was made to convert each discrepancy score to its reciprocal. Rather than undertake this extra calculation, it was simply noted that the greater the self-esteem, or the level of incorporation of an occupational- or social role-concept, the smaller would be the discrepancy.

A fourth dependent variable, level of aspiration, was determined by calculating the average rank-ordering of levels of incorporation of the occupational-concepts for each group and comparing these orderings to an ordering based on socio-economic status (as determined by Reiss, 1961). The higher the rank-order correlation with the status list, the higher the level of aspiration. (The status list appears in TABLE 1.)

F. Procedures

All pretesting was done in person in September, 1967. Both institutions provided clearance and cooperation (see previous footnote). Ss identified themselves by name but all data were rostered by number. A sample of the Community College students were chosen from random among those taking the pretest. Group testing sessions were utilized in each instance. All Ss were graduates of high school from schools in the same county and had

TABLE 1

A Listing of the Fourteen Occupations Appearing in the MRT with Their Rank-Ordering in Terms of Status (Reiss, 1961)

Rank	Occupation
1.5	Lawyer
1.5	Doctor
3.5	Business Executive
3.5	Engineer
5	Accountant (CPA)
6	Teacher
7	Technician
8	Bookkeeper
9	Salesman
10.5	Clerk
10.5	Electrician or Plumber
12	Policeman or Fireman
13	Mechanic or Machinist
14	Truck Driver or Deliveryman

graduated at the same time.

All posttesting was done in April, 1969. The Community College group was posttested by mail, the other groups in person. Two of the groups practically disappeared from the study (see RESULTS section). No attempt was made to follow drop-outs from either institution.

G. Analyses

Separate analyses were undertaken for pretest and posttest data (reasons for this are explained in the RESULTS section). For each set of data the following analyses were undertaken:

(1) Analysis of variance (one way) for each of the 19 discrepancy scores,
(2) Discriminant function analysis,
(3) Rank-order correlations between the average occupational discrepancy scores for each group and the status list (and between each group with one another).

RESULTS

A. The Sample

The purpose of the present study was to determine the effect, if any, the two-year community college experience has on students in terms of developing their self-concept (i.e., perception of ideal-self as compared to real-self), their level of incorporation of occupational roles (i.e., perception of occupational roles as compared to real-self), and their level of incorporation of social roles (i.e., perception of social roles as compared to real-self). Data on these variables were obtained from six groups of subjects by means of the MRT in September, 1967 and again in May, 1969. The six groups tested were:

(1) University Liberal Arts (U-LA)
(2) Community College Liberal Arts (CC-LA)
(3) Community College Combined Technical (CC-TE)
(4) Community College Business (CC-BE)
(5) Community College Pre-technical (CC-PT)
(6) Non-college students (NC)

A primary concern in the present study is the problem of experimental mortality, i.e., loss of subjects over the two-

year period between the pretest and posttest. If loss of subjects within any one group is non-random, then comparisons of that group with the other groups in the study could lead to spurious conclusions concerning the effects of the different experiences. Such a problem exists because a non-random loss of subjects within a group may result in a remaining sample which differs significantly from the one chosen originally on the dependent variables being studied. TABLE 2 shows the number of subjects tested in each group in 1967 and 1969 as well as the percentage of 1967 subjects that did not respond in 1969.

In order to examine the effects of experimental mortality, the pretest means of the 1967 sample were calculated for each group. Then, the pretest means of those subjects responding in 1969 were calculated separately for each group. The magnitude of the difference between the pretest means of the 1967 sample and those remaining in 1969 indicate the extent to which the latter is a biased subsample of the former. The 1967 and 1969 pretest means for each group on the 19 scales are given in TABLE 3.

As one would expect, the groups with the highest mortality have the largest differences in means. For example, the pre-technical group (75% non-respondents) had a mean discrepancy of 22.92 on the scale "I Wish I Were" for the 1967 sample and a mean discrepancy of 29.62 for the 1969 subsample. The 1969 group pretest mean is over three standard errors (S.E. of mean = 2.03) greater than the 1967 mean. Similarly, the non-college group (72% non-respondents) had means of 21.46 and 16.50 for the 1967 and 1969 samples, respectively on the scale "I Wish I Were," the 1969 group mean being almost two standard errors (S.E. = 2.96) greater than the 1967 group mean. On the other hand, the group with the next highest rate of non-response (combined technical - 60%) had means of 18.73 and 20.20 for the 1967 and 1969 samples, respectively; the latter being less than one standard error greater than the former (S.E. = 1.64). The results are similar for the other three groups with lower mortality rates and for the other 18 scales.

The purpose of the above analysis was to examine the degree to which experimental mortality had resulted in biased samples of the groups being studied. The data in TABLE 3 indicates that the non-respondent bias is considerable for the non-college and pre-technical groups and negligible for the remaining four groups. As a result, the non-college and pre-technical groups were not included in subsequent analyses involving group comparisons.

TABLE 2

NUMBER OF SUBJECTS PER GROUP AND EXPERIMENTAL MORTALITY

GROUP	1967	1969	PERCENT MORTALITY
University Liberal Arts	93	68	26%
Community College			
Liberal Arts	74	46	38
Combined Technical	63	25	60
Business	117	56	53
Pre-Technical	51	13	75
Non-College	35	10	72

TABLE 3

BIAS IN SAMPLING DUE TO EXPERIMENTAL MORTALITY: DIFFERENCES BETWEEN NUMBERS IN THE 1967 AND 1969 COLUMNS FOR EACH GROUP INDICATE EXTENT OF SAMPLING BIAS

	University		Community College								Non-College	
			Liberal Arts		Technical		Business		Pre-Tech			
SCALE	1967	1969	1967	1969	1967	1969	1967	1969	1967	1969	1967	1969
I wish	19.03	17.56	22.08	22.89	18.73	21.20	21.67	20.57	22.92	29.62	21.46	16.50
High Society	26.31	27.26	24.67	25.02	23.28	24.40	24.48	23.18	26.35	29.31	26.46	30.70
Outstanding Citizen	21.17	20.48	22.40	22.41	19.35	20.12	21.55	22.78	22.41	28.23	25.28	26.30
Cultured Person	21.10	20.93	20.59	20.61	20.09	21.76	21.78	22.78	21.41	29.85	26.28	28.20
Community Leader	22.24	21.40	22.52	21.30	21.41	20.92	22.30	22.18	23.27	28.92	25.43	25.10
Teacher	22.31	21.53	21.59	19.70	21.55	21.12	21.61	22.38	24.10	26.69	24.17	27.30
Doctor	23.00	21.82	23.15	22.48	20.78	21.88	24.20	22.34	25.27	28.23	26.54	29.50
Lawyer	22.75	21.74	24.15	24.04	21.79	20.92	22.38	21.95	25.18	26.69	26.20	27.70
Accountant	25.40	24.88	24.73	22.09	21.90	22.20	21.37	21.00	23.49	26.15	28.14	33.60
Engineer	21.93	20.79	22.74	22.87	18.94	17.76	22.84	23.59	23.69	26.00	24.57	30.20
Technician	21.79	21.37	22.59	21.17	18.52	16.44	21.83	21.70	22.12	25.23	24.63	28.30
Business Executive	23.98	23.88	23.75	22.30	20.30	21.76	20.33	20.19	23.25	24.69	24.95	28.30
Clerk	30.21	30.54	24.68	22.93	25.60	23.88	23.38	24.95	21.67	22.92	27.83	33.90
Salesman	26.59	26.20	22.16	20.96	24.08	22.64	22.50	23.39	21.00	17.31	24.91	28.20
Bookkeeper	27.18	28.00	25.34	22.50	23.19	23.88	20.72	22.09	21.08	25.38	26.31	29.40
Electrician/ Plumber	27.83	27.13	25.67	24.13	22.19	20.80	25.35	25.11	22.80	26.15	25.00	28.00
Truckdriver	32.59	32.54	28.34	26.85	29.81	29.80	28.40	28.57	25.11	26.92	30.88	35.30
Mechanic/ Machinist	26.52	26.38	26.00	24.00	23.11	22.12	24.96	25.91	23.16	20.85	25.48	29.50
Policeman/ Fireman	27.02	26.38	24.99	23.63	24.70	24.00	23.35	24.82	22.94	22.23	26.08	29.80

B. Calculations

Each person made up 12 rating scales on which he rated the 20 objects (I Am, I Wish I Were, 14 occupations, 4 social roles) using a seven-point scale (see APPENDIX). Thus, each rater rated each object 12 times, giving, in each case, a rating of from one to seven. Thus, each person gave a total of 240 (12 X 20) ratings. Each person's rating on each of the 12 scales for 19 of the objects was then subtracted from his rating on the corresponding scale for the object: "I Am." Thus, on each of the 12 scales a discrepancy between "I Am" and each of the other 19 objects is obtained. The 12 discrepancies for each object (subtracted from "I Am") are then converted to absolute values and summed, giving 19 discrepancy scores for each person, one for each object minus "I Am." In previous work this discrepancy score has been divided into one to get its reciprocal. For this study, the discrepancy score was used as the level of incorporation score.

C. Analysis of Pretest Data

1. Analysis of Variance For Pretest Discrepancy Scores

Pretest discrepancy scores for the 19 stimulus words (i.e., each word minus "I Am") were calculated and subjected to a one way analysis of variance. The results are given in TABLE 4.* Significant differences were found on 8 of the 19 stimulus words, i.e., 7 of the 14 occupations and the self-esteem words (I Wish I Were - I Am). No significant differences were found on the four social roles.

Those occupations showing significant differences were engineer, technician, electrician/plumber, clerk, salesman, bookkeeper and truck driver. The first three are in the technical cluster and are most closely identified with by those students who had chosen a technical major in the Community College. The other four occupations were significant due to the high mean discrepancy scores for the University group.

On the self-esteem measure, the University group had the

* The results given in this table vary somewhat from those reported in the interim report due to the omission of two groups and the use of only subjects for which both pretests and posttests were available.

TABLE 4

PRETEST MEANS AND ANALYSIS OF VARIANCE OF DISCREPANCY SCORES FOR THE 19 STIMULUS WORDS

SCALE	University	Liberal Arts	Combined Technical	Business	MS_b	MS_w	F df=(3,191)
		Community College					
I wish I were	17.56	22.89	20.20	20.57	291.44	91.36	3.19*
High Society	27.26	25.02	24.40	23.18	178.72	80.18	2.24
Outstanding Citizen	20.48	22.41	20.12	22.78	82.66	63.30	1.31
Cultured Person	20.93	20.61	21.76	22.78	51.05	77.41	0.66
Community Leader	21.40	21.30	20.92	22.18	12.13	66.89	0.18
Teacher	21.53	19.70	21.12	22.38	62.49	60.68	1.03
Doctor	21.82	22.48	21.88	22.34	5.33	85.94	0.06
Lawyer	21.74	24.04	20.92	21.95	77.77	79.68	0.90
Accountant	24.88	22.09	22.20	21.00	169.48	92.81	1.83
Engineer	20.79	22.87	17.76	23.59	235.57	68.86	3.42*
Technician	21.37	21.17	16.44	21.70	182.84	51.99	3.52*
Business Executive	23.88	22.30	21.76	20.19	140.84	64.85	2.17
Clerk	30.54	22.93	23.88	24.98	663.15	98.10	6.76**
Salesman	26.20	20.96	22.64	23.39	268.87	81.02	3.32*
Bookkeeper	28.00	22.50	23.88	22.09	450.65	95.40	4.72**
Electrician/ Plumber	27.73	24.13	20.80	25.11	269.96	85.43	3.16*
Truck Driver	32.54	26.85	29.80	28.57	331.94	95.52	3.48*
Mechanic/ Machinist	26.38	24.00	22.12	25.91	142.00	69.04	2.06
Policeman/ Fireman	26.38	23.63	24.00	24.82	80.98	66.43	1.22

* $p < .05$ ** $p < .01$

lowest mean discrepancy between the ideal-self (I Wish I Were) and the real-self (I Am). The Community College liberal arts group had the highest mean discrepancy for self-esteem.

2. Discriminant Analysis of Pretest Discrepancy Scores

Since the discrepancy scores for each of the 19 stimulus words were obtained from the same subjects, the scores for any one word are not independent of the other eighteen but are intercorrelated. Because of these intercorrelations, the univariate F-tests in TABLE 4 are not independent; consequently, the probability statements concerning the significance of the differences between the groups are not accurate. An exact probability statement concerning group differences can be obtained using a one-way multivariate analysis of variance. The multivariate F statistic provides information about differences among groups on all 19 scales simultaneously (Bock and Haggard, 1968). The multivariate test of group differences on the 19 pretest discrepancy scores is given in TABLE 5. In addition to the overall F statistic for the four groups, a matrix of F values is given for each pairwise comparison possible among the four groups. The overall F-test is significant ($F = 1.70$; $df = 57,517$; $p < .005$) indicating, as we would expect, that the group means on the 19 scales are different. The matrix of pairwise F-tests shows significant differences between the University and business groups ($F = 2.42$; $df = 19,173$; $p < .01$) and the combined technical and business groups ($F = 2.10$; $df = 19,173$; $p < .01$).

While the above analysis indicates which groups differ significantly on the 19 scales, it does not indicate which scales are contributing to these differences. One would be inclined to consult TABLE 4 and the univariate analyses to answer this last question. But remember, the analyses in Table 4 do not take into account the intercorrelations among an individual's discrepancy scores, and in fact are confounded by the dependencies among the 19 scales. Therefore, TABLE 4 is at best only a rough guide to interpreting group differences on all the scales simultaneously. The appropriate technique for this purpose is discriminant analysis which can be incorporated into the multivariate analysis of variance. In this context it is used primarily to characterize group differences, rather than as a device for classification (which is its more well known use).

Discriminant analysis determines the linear combination

TABLE 5

One-Way Multivariate Analysis of Variance
Of The Pretest Discrepancy Scores

Overall	F = 1.70	Degrees of Freedom = (57,517)
	F = 1.53	Tabled Value for p = .005

Matrix of F Values for Pairwise Group Comparisons
(Degrees of Freedom 19 and 173)

Group	University	Community College	
		Liberal Arts	Combined Technical
Liberal Arts	1.64		
Combined Tech	1.41	1.48	
Business	2.42**	1.13	2.10**

**p < .01

of dependent variables (in this case the 19 stimulus words) which maximizes group differences. When there are more than two groups (and two or more dependent variables) more than one discriminant function may be necessary to accurately depict group differences. For example, in the present study if the University and business groups differed on one set of scales and the technical and business groups differed on another set, two discriminant functions would be required to characterize these differences. In general, the number of possible discriminant functions is the lesser of the two numbers g - 1 and m (where g is the number of groups and m is the number of variables). An approximate test of the statistical significance of group differences on a particular discriminant function is available to determine the number of meaningful functions (Cooley and Lohnes, 1962 and Maxwell, 1961).

In the present study with four groups (g = 4) and 19 variables (m = 19) the maximum number of discriminant functions possible is three. The tests of the significance for each of the three discriminant functions are given in TABLE 6. Only the statistic associated with the first function is significant beyond $\alpha = .05$ level of confidence ($\chi^2 = 48.48$; df = 21; $p < .001$). Thus, for the pretest data, the first discriminant function is sufficient to depict the significant group differences shown in TABLE 5. However, both the first and second functions are included in the remaining discussion of the pretest data for reason that will become apparent when the posttest data are presented.

The discriminant function weights scaled by multiplying each of the unscaled weights by the appropriate error standard deviation for each variable are given in TABLE 7. These scaled weights indicate by their sizes the relative contribution of each stimulus word to discriminating between the four groups. (See Bock and Haggard, 1968, p. 118) The group centroids for each of the groups on the first two discriminant functions are presented in TABLE 8. These centroids represent the group means in the two-dimensional space defined by the first two discriminant functions. A group centroid was obtained by multiplying each stimulus word mean for that group by the corresponding unscaled discriminant function weight and summing over the 19 stimulus words. Since the functions were derived so as to maximize group separation, the centroids indicate the nature of the group differences which were indicated in the matrix of pairwise comparisons given in TABLE 5.

TABLE 6

Significance of Discriminant Functions Chi Square Approximation*

Function	Root	df	χ^2	p
I	0.30407	21	48.48	<.001
II	0.15726	19	26.61	<.20
III	0.10638	17	18.25	<.50

* See Maxwell (1961), p. 266.

TABLE 7

Scaled Discriminant-Function Weights
for The Pretest Data

Stimulus Words	Function I	Function II
I Wish I Were	.11	-.43*
High Society	-.32	.40
Outstanding Citizen	.27	.05
Cultured Person	-.07	-.30
Community Leader	.33	.08
Teacher	.15	.02
Doctor	-.41*	-.26
Lawyer	-.10	-.06
Accountant	-.28	-.25
Engineer	.77*	.34
Technician	.32	.59*
Business Executive	-.46*	-.15
Clerk	.13	.64*
Salesman	-.03	.09
Bookkeeper	-.43*	-.27
Electrician/Plumber	-.06	.41
Truck Driver/Deliveryman	-.34	-.13
Mechanic/Machinist	.26	-.11
Policeman/Fireman	-.06	-.10

*Major components

TABLE 8

Group Centroids on the First Two
Discriminant Functions for the Pretest

Group	Centroids	
	Function I	Function II
University	-.526	.379
CC - Liberal Arts	.272	-.168
CC - Technical	-.611	-.865
CC - Business	.688	.064

The centroids for the four groups on the first two discriminant functions are shown graphically in FIGURE 1. We see from this figure that the significant differences between the University and business groups and the technical and business groups are both represented by the first discriminant function. This would indicate that the business group differs from the other two groups on the same variables in a similar manner. For example, the largest scaled weight on Function I in TABLE 7 is for the stimulus word "engineer." The fact that the weight is positive and the business group's centroid is positive indicates that business students have higher discrepancy scores than students in the other two groups. The negative weights in Function I indicate those variables on which business students have lower discrepancy scores; for example, bookkeeper and business executive. In general, the first discriminant function represents group differences on a business versus technical occupational continuum.

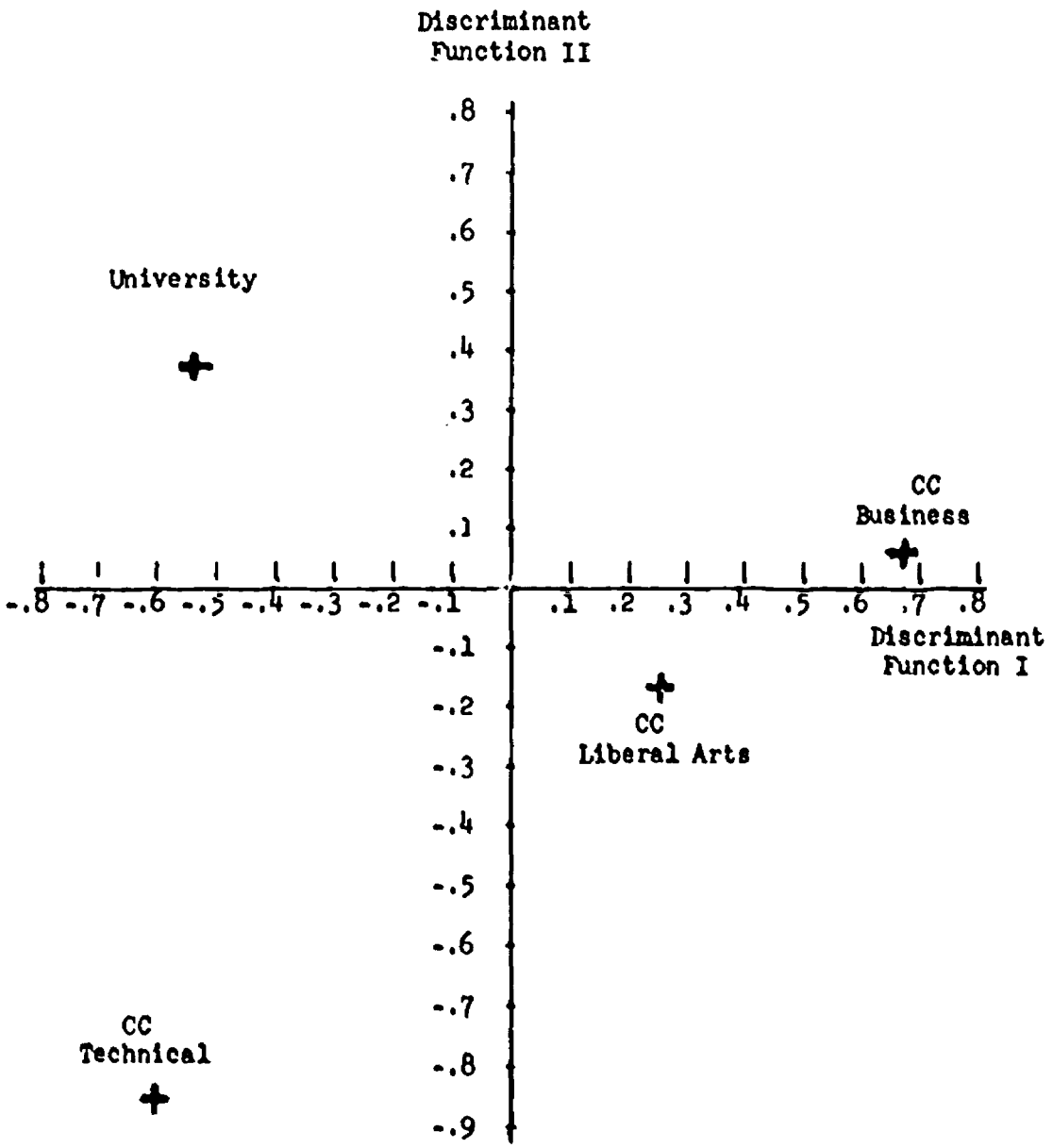
While University and CC technical students differ in similar ways from CC business students along one dimension, FIGURE 1 shows that these two groups are distinct in terms of the second dimension of the discriminant space. A look at Function II in TABLE 7 helps in understanding the nature of the difference. The fact that the University group has a positive centroid and the technical group a negative centroid on the second discriminant function indicates that discrepancy scores are lower in the first group on variables with negative weights on Function II and lower in the second group on variables with positive weights. Thus, Function II in TABLE 7 reflects the fact that technical students more closely identify with (i.e., have lower discrepancy scores on) the occupations of technician, clerk, electrician/plumber and engineer than do University students (Function II weights of .59, .64, .41, and .34 respectively). On the other hand, the University students have lower scores on the self-esteem variable (I Wish I Were - I Am) and the social role scale, "cultured person" (Function II weights of -.43 and -.30, respectively).

In general, the second discriminant function identifies group differences along a self-esteem dimension of positive self-concept (University group) versus identity with low status occupations (technical group).

While the discriminant analysis presented above may appear somewhat complicated, its advantages over the univariate analyses of TABLE 4 above in representing group differences should be obvious. The reduction of the 19 dependent variables to a

FIGURE 1

Centroids of the Four Groups
On the First Two Discriminant Functions
For the Pretest Data



two-dimensional discriminant space greatly facilitated the interpretation and understanding of the interrelationships among the four groups that we were studying. This advantage will become even more apparent when we examine the posttest data and the changes that took place over the two-year period studied.

3. Rank-Orderings of Pretest Discrepancy Scores on the Occupations

The group mean discrepancy scores for each occupation indicate how similar to each occupation each group (on the average) sees itself. Comparing the within-group rank-orderings of these means between groups would show the degree of similarity among the profiles of occupational incorporation for the four groups. This analysis was accomplished by ranking the 14 occupation mean discrepancy scores for each group and then calculating rank-order correlations between each pair of groups (6 correlations). In addition, each group's rank profile of occupational incorporation was compared to a status ranking of the occupations given by Reiss (1961). The rankings of occupational incorporation for each group and the status ranking for the 14 occupations along with the matrix of rank-order correlations are given in TABLE 9.

As can be seen from this table, the rankings for the University group are very similar to the CC technical group (ρ = .84) and only moderately similar to the CC liberal arts and business groups. (ρ = .49 and .53, respectively). The technical group's ranking profile bears little similarity to the CC liberal arts and business groups. (ρ = .20 and .33, respectively), while the latter two groups are quite similar to each other (ρ = .63). The University and CC business groups have the highest correlation with the status list (ρ = .74 and .77, respectively), whereas the CC technical and liberal arts students have the lowest correlation with the status ranking (ρ = .54 and .43, respectively).

D. Analyses of the Posttest Data

1. Analysis of Variance of Posttest Discrepancy Scores

The major objective of this study was to examine the effect of the community college experience on different groups of students' perceptions with regard to self and certain social and occupational roles. The original plan was to perform an analysis of variance on change scores (Pretest - Posttest) to accomplish this objective. However, large error variances made such

TABLE 9

Ranking of Pretest Group Mean Discrepancy Scores and Status Ranking for 14 Occupations with the Intergroup Rank-Order Correlations

Occupations	Group Rankings				Status List
	Univ	CC-LA	CC-Tech	CC-Bus	
1. Lawyer	4	12	4	4	1.5
2. Doctor	5	6	7	6	1.5
3. Business Executive	6	5	6	1	3.5
4. Engineer	1	8	2	9	3.5
5. Accountant	7	4	9	2	5
6. Teacher	3	1	5	7	6
7. Technician	2	3	1	3	7
8. Bookkeeper	12	7	13	5	8
9. Salesman	9	2	10	8	9
10. Clerk	13	9	12	11	10.5
11. Electrician/Plumber	11	13	3	12	10.5
12. Policeman/Fireman	10	10	11	10	12
13. Mechanic/Machinist	8	11	8	13	13
14. Truck Driver/Deliveryman	14	14	14	14	14

Intergroup Rank-Order Correlations					
University	--	.49	.84	.53	.74
CC Liberal Arts		—	.20	.63	.43
CC Technical			—	.33	.54
CC Business				—	.77

an analysis very insensitive to differences in mean change scores among groups. None of the analyses of variances using discrepancy change scores was significant at p = .05 and only one was significant at p = .10.

The standard alternative for post-treatment comparisons of intact groups, analysis of covariance, was not adequate either due to low average correlations between the pretest and posttest. The authors decided to use the same techniques in analyzing the pretest and posttest data separately and then comparing the results as a means of representing any change that had taken place. This approach proved especially fruitful in terms of the discriminant function analysis.

The analyses of variance for the 19 stimulus words on the posttest discrepancy scores along with group means are presented in TABLE 10. Significant differences were found on 10 of the 19 scales, i.e., two of the four social roles and 8 of the 14 occupations. No significant differences were found on the self-esteem measure (I Wish I Were - I Am).

The occupations showing significant differences among the groups were technician, business executive, clerk, salesman, electrician/plumber, truck driver, mechanic/machinist, and policeman/fireman. Students in the CC technical group identified with the technician role producing the significant result for that scale. The same was true for CC business students and the scale, business executive. The rest of the scales were significant primarily due to high mean discrepancy scores for the University group. The one exception was "salesman" which was significant due to a combination of a high mean discrepancy for the University group and low means for the CC business and liberal arts students.

Among the social roles, high society and community leader were significant with the CC business group having the lowest mean discrepancy in both cases.

2. Discriminant Analysis of Posttest Discrepancy Scores

The same multivariate analysis described above for the pretest data was applied to the posttest data. The overall multivariate F statistic for group mean differences along with the matrix of F values for pairwise comparisons are given in TABLE 11. The overall F value is significant ($F = 1.88$; $df = 57,517$; $p < .005$) as expected. Three of the six pairwise group comparisons were significant: UNIV vs. CC - bus. ($F = 2.71$, $df = 19,173$,

TABLE 10

Posttest Means and Analysis of Variance
(df = 3,191)

Stimulus Words	Univ.	CC-LA	CC-Tech	CC-Bus	MSbtwp	MSwth	F
I Wish I Were	16.03	18.72	17.84	16.98	70.60	86.56	0.57
High Society	27.24	23.93	28.12	22.32	344.06	94.57	3.62*
Outstanding Citizen	20.87	19.30	21.28	18.68	61.73	61.03	1.01
Cultured Person	18.96	19.30	21.20	19.54	31.40	55.54	0.56
Community Leader	22.38	19.96	22.52	18.66	177.64	66.91	2.65*
Teacher	20.09	18.70	20.04	20.66	33.99	63.39	0.54
Doctor	22.15	22.54	20.32	21.88	28.50	63.81	0.45
Lawyer	20.53	21.41	21.36	20.75	9.33	67.66	0.14
Accountant	26.65	22.20	24.64	24.05	189.21	116.06	1.63
Engineer	22.59	20.59	17.80	20.20	154.96	72.01	2.15
Technician	24.70	20.37	15.56	21.43	546.37	75.54	7.23**
Business Executive	25.15	21.37	23.40	18.46	479.45	71.38	6.72**
Clerk	32.20	24.22	27.60	28.25	599.85	110.06	5.45**
Salesman	28.31	21.43	24.64	21.12	677.89	85.44	7.93**
Bookkeeper	28.93	23.93	25.04	27.28	258.56	103.05	2.51
Electrician/Plumber	28.47	23.30	23.24	24.89	323.20	84.24	3.24*
Truck Driver	33.62	28.43	28.92	28.48	380.37	110.25	3.45*
Mechanic/Machinist	28.10	23.91	21.92	23.46	359.43	73.73	4.88**
Policeman/Fireman	28.17	22.65	22.24	23.48	426.10	85.11	4.89**

*p < .05 F = 2.65
**p < .01 F = 3.88

TABLE 11

One-Way Multivariate Analysis
Of Posttest Discrepancy Scores

Overall	F=1.82	Degrees of Freedom = (57,517)
	F=1.53	Tabled Value for $p < .005$

Matrix of F-Values for Pairwise Comparisons

Group	Univ.	CC-LA	CC-Tech
CC-LA	1.45		
CC-Tech	1.88*	1.13	
CC-Bus	2.71**	1.36	2.27**

*$p < .05$ **$p < .01$ df = (19,173)

$p < .01$); CC tech. vs. CC bus. ($F = 2.27$, df = 19,173, $p < .01$); and UNIV vs. CC tech. ($F = 1.88$, df = 19,173, $p < .05$). As indicated in Section C.1, there are possibly three distinct dimensions on which the four groups in this study could differ. For each dimension there is a corresponding discriminant function describing it. We again examine the significance of each function (and thus each dimension) using the Chi-Square statistic. The results are recorded in TABLE 12. The first two roots corresponding to the first two discriminant functions are significant beyond $p = .01$. Therefore, a two-dimensional discriminant space is necessary to represent all significant group differences.

The scaled coefficients for each of the 19 stimulus words on the first two discriminant functions are listed in TABLE 13. The corresponding group centroids (which are simply group means in the discriminant space) are given in TABLE 14. The relative positions of the four groups in discriminant space are shown by the graph of group centroids in FIGURE 2. As was the case for the pretest data, the first function discriminates between the CC business group and the University and technical groups. However, the composition of Function I has changed considerably. Whereas for the pretest the first discriminant space dimension was a somewhat complex technical vs. business continuum, it has become a clearly business dimension on the posttest. Three of the highest scaled weights on Function I in TABLE 13 are on the business occupations, viz., business executive (-.82), salesman (-.44) and bookkeeper (.55). In addition, the social role word "community leader" has a weight of -.48 on the same function. Three of these four scales have negative loadings indicating business students identify more closely with the roles than do students in the other groups. The positive weight for "bookkeeper" shows that business students identify less with this role than the other groups.

The similar contribution of "business executive" and "community leader" to Function I is apparently related to the common concept of the businessman in the American community. He is typically expected to join at least one civic organization and provide leadership in his community. While the roles "bookkeeper" and "salesman" have about the same social status (ranks 8 and 9 respectively on the status list) the former does not carry the social connotations associated with the latter. This may account for the lack of identification of business students with the occupation of bookkeeper. Consequently, Function I may more accurately be called a business continuum with social

TABLE 12

Significance of Discriminant Functions
Chi Square Approximation

Function	Root	D.F.	χ^2	p
I	0.30637	21	48.78	$<.001$
II	0.21951	19	36.23	$<.01$
III	0.08267	17	14.45	$<.50$

TABLE 13

Scaled Discriminant Function Weights
For The Posttest Data

Stimulus Words	Function I	Function II
I Wish I Were	.03	.00
High Society	-.23	-.15
Outstanding Citizen	.18	-.27
Cultured Person	.18	-.26
Community Leader	-.48*	-.12
Teacher	.22	.06
Doctor	.02	.26
Lawyer	.42	-.17
Accountant	-.12	-.29
Engineer	.07	.03
Technician	.22	.95*
Business Executive	-.82*	-.24
Clerk	.29	.44
Salesman	-.44*	.24
Bookkeeper	.55*	-.01
Electrician/Plumber	.13	.05
Truck Driver/Deliveryman	-.24	-.31
Mechanic/Machinist	-.32	-.03
Policeman/Fireman	-.06	.30

*Major components

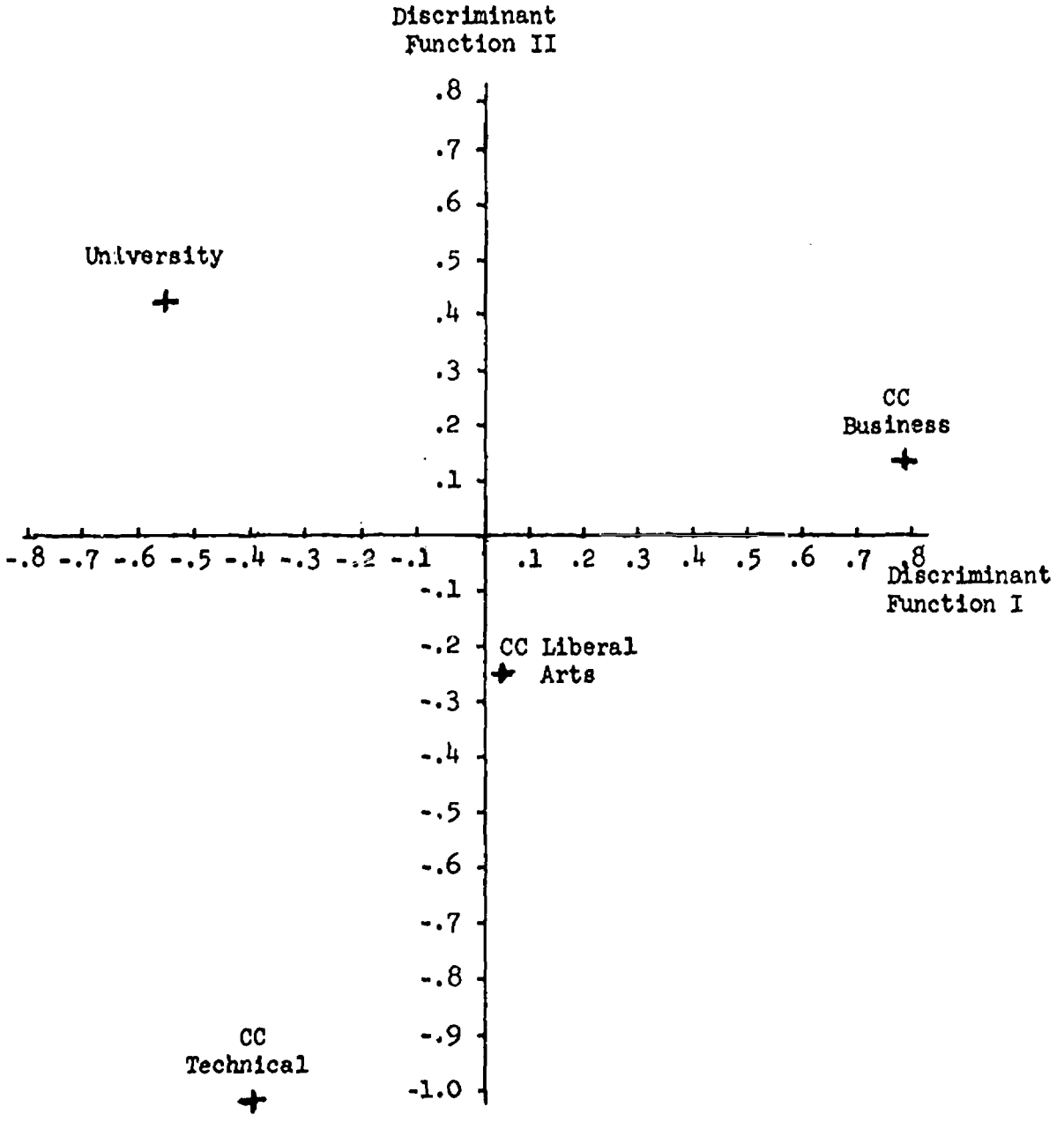
TABLE 14

Group Centroids on the First Two
Discriminant Functions for the Posttest

Group	Centroids	
	Function I	Function II
University	-.537	.427
CC - Liberal Arts	.042	-.256
CC - Technical	-.390	-1.007
CC - Business	.791	.142

FIGURE 2

Centroids for the Four Groups
On the First Two Discriminant Functions
For the Posttest Data



overtones.

The second function in TABLE 13 provides for discrimination primarily between the CC technical and University groups. Examining the scaled weights for Function II, we see that the dimension is dominated by the occupational scale "technician" (scaled weight .95). Therefore, differentiation among the groups in the second discriminant dimension is clearly based upon occupational identification of technical students.

3. Rank-Orderings of Posttest Discrepancy Scores on the Occupations

The posttest mean discrepancy scores on each of the 14 occupations were rank-ordered within each group. The rank-orderings of group means along with the status ranks for each occupation are given in TABLE 15. The rank-order correlations among groups and with the status list are also given in TABLE 15.

As can be seen from this table, there is a high degree of similarity in ranking profiles among the four groups. The six intergroup correlations range from .66 to .87. Moreover, the correlations between the rankings of the four groups and the status list are moderate to high with a range from .51 to .81.

DISCUSSION

A considerable amount of the analysis presented above was devoted to analyzing the pretest data. Since the purpose of the present research was to examine the effect of a two-year college experience, the pretest analysis was intended to define the nature of the sample groups we had selected for study. The objective of this research was to be accomplished by analyzing the posttest data in a similar manner and comparing the two sets of results. Intergroup differences found in the posttest analyses that were not present in the pretest data were assumed, in part, to be a function of the different educational experiences of the groups. The discussion presented here concerning the role of the community college is based upon this assumption.

It is obvious from the analysis of the pretest data that some pre-selection by students goes into the process of their selecting schools and curricula, even as regards their own occupational outlook. The University and CC technical students identify with the technical occupations (this is particularly

TABLE 15

Ranking of Posttest Group Mean Discrepancy Scores and Status Ranking for 14 Occupations with the Intergroup Rank-Order Correlations

Occupations	Group Rankings				Status List
	Univ	CC-LA	CC-Tech	CC-Bus	
1. Lawyer	2	5	5	4	1.5
2. Doctor	3	8	4	7	1.5
3. Business Executive	6	4	9	1	3.5
4. Engineer	4	3	2	2	3.5
5. Accountant	7	7	10	10	5
6. Teacher	1	1	3	3	6
7. Technician	5	2	1	6	7
8. Bookkeeper	12	12	12	12	8
9. Salesman	10.5	6	11	5	9
10. Clerk	13	13	13	13	10.5
11. Electrician/Plumber	8	10	7	11	10.5
12. Policeman/Fireman	9	9	8	9	12
13. Mechanic/Machinist	10.5	11	6	8	13
14. Truck Driver/Deliveryman	14	14	14	14	14

Intergroup Rank-Order Correlations

University	—	.85	.80	.76	.81
CC - Liberal Arts		—	.75	.87	.66
CC - Technical			—	.66	.51
CC - Business				—	.66

true of the technical students) while the business group identifies with business related occupations. The fourth group, CC liberal arts has no clear cut identification with any of the scales as compared to the other groups at the beginning of college.

While the University and CC technical groups differ from business students in a similar manner at the start of college they are also different from each other. This difference is primarily in self-esteem. The University group started college with a positive self-concept and identified with high status technical jobs. On the other hand, the technical group started college with low self-esteem and identified with low status technical occupations. CC liberal arts students also started college with lower self-esteem than University students. It may be that self-esteem is an important differentiator for a student between whether he selects a four-year or two-year college.

On the posttest we found that there were no major shifts in relative group position in the discriminant space. However, the change in importance of variables to group discriminations (change in scaled discriminant weights) indicates the effect of the two-year college experience. The business students were distinguished from other students by their identification with the social concept of the business executive. They had come to see themselves as similar to business executives and community leaders.

One of the most significant results of the two-year college experience was the elimination of the self-esteem differences between the CC technical and University groups. Though the technical students began with relatively low self-esteem the two years in college apparently helped them to attain an acceptable level of self-esteem based primarily on their occupational identification.

The summary, the results of the present study indicate that the effect of the community college on students' self, social, and occupational attitudes is to sharpen and clarify occupational identification and to facilitate the development of the students' self-concept.

Specifically, the following outcomes seem to occur as the result of the two-year college experience:

(1) a noticeable increasing in self-esteem for

students in the community college resulting in comparable levels of self-esteem for these students as compared to those in the University (this enhancement in self-esteem is most striking for liberal arts students in the community college;

(2) an increase in the status level of occupations identified with by the community college liberal arts students as compared to the other groups;

(3) an increase in the occupational focus and identity of technical and business students in the community college as compared to University and community college liberal arts students; specifically, technical students identify more with technical occupations and less with business ones while the reverse is true for business students.

Thus, the two-year community college plays a significant role in the development of self- and occupational- concepts. While University students show little change in either self- or occupational- concepts during their first two years, two-year college students show noticeable changes. Liberal arts students gain in self-esteem and the status of occupations they identify with while technical and business students refine their occupational concepts — coming to identify more closely with occupations in their own chosen area and less closely with those in other areas.

REFERENCES

Bingham, W. C. Change of occupation as a function of the regnancy of occupational self-concepts. Unpublished doctoral dissertation, Teachers College, Columbia University, 1966.

Bock, D. R. and Haggard, E. The use of multivariate analysis of variables in behavioral research. In D. Whitla (Ed.) Handbook of measurement and assessment in behavioral science. Reading, Mass.: Addison-Wesley, 1968.

Cooley, W. and Lohnes, P. Multivariate procedures for the behavioral scientist. N. Y.: Wiley, 1962.

Maslow, A. H. Motivation and personality. N. Y.: Harper, 1954.

Maxwell, A. E. Canonical variate analysis when the variables are dichotomous. Educational and Psychological Measurement, 1961, 21, 259-271.

Rampel, Marion E. A metadimensional approach to occupational choice. Unpublished doctoral dissertation, Rutgers University, 1967.

Reiss, A. J. Occupations and social status. Glencoe, Ill.: The Free Press, 1961.

Starishevsky, R. and Matlin, N. A model for the translation of self-concepts into vocational terms. In D. E. Super, R. Starishevsky, N. Matlin, & J. P. Jordaan (Eds.) Career development: Self-concept theory. N. Y.: College Entrance Examination Board, 1963, pp. 33-42.

Super, D. E. The psychology of careers. N. Y.: Harper & Row, 1957.

Super, D. E. Self-concepts in vocational development. In D. E. Super et al. (Eds.) Career development: Self-concept theory. N. Y.: College Entrance Examination Board, 1963 (a), pp. 11-14.

Super, D. E. Toward making self-concept theory operational. In D. E. Super et al. (Eds.) Career development: Self-concept theory. N. Y.: College Entrance Examination Board, 1963 (b), pp. 17-20.

APPENDIX

The Form of the Multiple Repertory Test (MRT)
Used in This Study

OCCUPATIONS SCALE INSTRUCTIONS - PART A

On the following page, you will find descriptions of different kinds of occupations. Before each statement, there is a blank space. In each space, write the name of an occupation or job which best fits the description. Try to be specific rather than general. For example: use automobile mechanic rather than mechanic; use truck driver rather than driver; use electronics technician rather than technician; use chemical engineer rather than engineer.

DO NOT LIST THE SAME OCCUPATIONAL NAME OR JOB MORE THAN ONCE

BE SURE TO FILL IN EACH BLANK

Code: _____

_____ (1) The occupation in which you are presently employed or are presentiy studying.

_____ (2) An occupation where you wouldn't have to worry very much about losing your job even in hard times.

_____ (3) An occupation in which you could make a lot of money.

_____ (4) An occupation in which you could invent, design, or develop new things or ideas.

_____ (5) An occupation in which there are many contacts with people.

_____ (6) An occupation where you could know by the results when you've done a good job.

_____ (7) An occupation where you could be a person who is looked up to.

_____ (8) An occupation in which you can do things your own way.

_____ (9) An occupation that you would find very distasteful or unpleasant.

_____ (10) An occupation in which you would have clear rules and regulations to follow and good supervision.

_____ (11) An occupation in which you would be able to rise to a position of leadership.

STOP

PART B

On the following page, the letters A through L are listed. In the center column, next to each of these letters, there is a group of three numbers. These numbers refer to the occupations which you have listed in Part A on the previous page.

For each of these groups of three occupations, you are to think of an important way in which two of these three occupations are alike, and, at the same time, different from the third. Be sure to think of only an important way in which two of the occupations are alike.

When you have decided in what way two of the three occupations are alike, write the word or phrase which expresses that similarity or alikeness in the space provided in the column headed SIMILARITY.

Next, draw circles around the two numbers which represent the two occupations which are alike. Then, in the space under OPPOSITE on the same line, write a word or a phrase which is the opposite of the word or phrase which you wrote under SIMILARITY. Do not write a word or phrase which describes the occupation which is different from the other two. Write only a word or phrase which is the opposite of the one you wrote under SIMILARITY.

Illustrative examples:

Example 1:

Assume you have been watching three men at work. You are asked to think of an important way two of their jobs are alike, but different from the third. You noticed that two were actively moving things around, the third was seated and apparently making notes about what the others moved. So you might write active as the way in which two were alike, but different from the third. Asked to give the opposite perhaps you would write quiet or unmoving. Here you are asked to write under SIMILARITY the way in which two people are alike, but, different from the third, and then to write under OPPOSITE the opposite of that word.

Example 2:

Suppose two of the occupations being compared were astro-

naut and racing car driver and the third was librarian. You might decide that the first two were alike in that both were interesting and would therefore write the word "interesting" in the column headed SIMILARITY. In the OPPOSITE column you would then write boring because this is the opposite of "interesting." On the other hand, you might judge the first and last to be alike in that both are trained in school, while the racing car driver is not. The opposite would be not trained in school. As you can see, there may be more than one basis for similarity among occupations. Choose the one that seems most important to you.

Code: _____

PART B

SIMILARITY		OPPOSITE
_____	A. 5. 11. 7	_____
_____	B. 9. 3. 1	_____
_____	C. 6. 11. 1	_____
_____	D. 3. 11. 8	_____
_____	E. 6. 3. 5	_____
_____	F. 4. 7. 6	_____
_____	G. 2. 8. 7	_____
_____	H. 10. 11. 9	_____
_____	I. 6. 8. 10	_____
_____	J. 9. 2. 4	_____
_____	K. 5. 8. 4	_____
_____	L. 3. 2. 10	_____

PART C

Attached to this sheet of instructions there are several strips called WORD RATING FORMS. Each WORD RATING FORM has a TITLE printed at the top. You are asked to judge each of the TITLES against the words or phrases (A through L) which you have written on Part B of the test.

For example, suppose the TITLE of the first WORD RATING FORM is Astronaut, and suppose that the response you have recorded on line A is Quiet ... Noisy. If you feel that the adjective "Quiet" is very appropriate for describing "Astronaut," i.e., it is much more appropriate than "Noisy" is, you would check as follows:

ASTRONAUT

Quiet ✓ : ___ : ___ : ___ : ___ : ___ : ___ : Noisy

On the other hand, if you feel that "Noisy" is slightly more appropriate for describing "Astronaut" than Quiet is, you would check as follows:

Quiet ___ : ___ : ___ : ___ : ✓ : ___ : ___ : Noisy

If either adjective seems to you to be more appropriate than the other for describing "Astronaut," you would check as follows:

Quiet ___ : ___ : ___ : ✓ : ___ : ___ : ___ : Noisy

You may indicate your response by placing a check mark in any one of the seven spaces, but please be sure to place your check mark in the center of the space so it is clear which space you mean to check.

Follow this same procedure for each word or phrase, A through L. Be sure to complete each item. Then check each one of the WORD RATING FORMS in the same way.

It is better to work rapidly without puzzling over individual items. Remember that each WORD RATING FORM has a different TITLE, so be sure to keep the TITLE in mind as you check. It will be better if you look at the TITLE of each WORD RATING

FORM only when you are ready to check it. When you complete one WORD RATING FORM, fold it back at the staple and go on to the next one.

Detach this instruction sheet from the WORD RATING FORMS. Then place the WORD RATING FORMS over the center column of Part B so that each letter (A through L) on the WORD RATING FORM is next to the same letter on the page. This will result in "bridging" each SIMILARITY ... OPPOSITE with a seven point scale.

WORD RATING FORM

POLICEMAN OR FIREMAN

A ___:___:___:___:___:___:___:

B ___:___:___:___:___:___:___:

C ___:___:___:___:___:___:___:

D ___:___:___:___:___:___:___:

E ___:___:___:___:___:___:___:

F ___:___:___:___:___:___:___:

G ___:___:___:___:___:___:___:

H ___:___:___:___:___:___:___:

I ___:___:___:___:___:___:___:

J ___:___:___:___:___:___:___:

K ___:___:___:___:___:___:___:

L ___:___:___:___:___:___:___:

A packet of 20 WORD RATING FORM strips, 3" wide, such as the one shown here for illustration, is given with Part C. Each contains a different object at the top as follows:

I AM
I WISH I WERE
ELECTRICIAN OR PLUMBER
MEMBER OF HIGH SOCIETY
TEACHER
ACCOUNTANT (CPA)
CLERK
OUTSTANDIND CITIZEN
SALESMAN
DOCTOR
TRUCK DRIVER OR DELIVERY-MAN
CULTURED PERSON
MECHANIC OR MACHINIST
ENGINEER
COMMUNITY LEADER
TECHNICIAN
BUSINESS EXECUTIVE
BOOKKEEPER
LAWYER
POLICEMAN OR FIREMAN