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HOW DO COMMUNITY COLLEGE TRANSFER AND OCCUPATIONAL STUDENTS DIFFER?

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Erratum

Page 4, last sentence of the first full paragraph in Column 2 should read as follows.

The Intellectual Scale did reveal a difference between the two groups.

Abstract

This paper reports an examination of differences between and among community college students enrolled in transfer programs and in occupational programs. Seventy-nine variables are examined among students grouped by sex and program. (The men differ on 44 characteristics while the women differ on only 15.) Differences are reported regarding personality, various competencies, interest, academic aptitude, educational aspiration, self-reported characteristics, socioeconomic background, and other factors.

The transfer men hold higher mean scores than occupational men on 35 of 44 variables. Among women students the distribution of significant differences is balanced.

HOW DO COMMUNITY COLLEGE TRANSFER AND OCCUPATIONAL STUDENTS DIFFER?[1]

Eldon J. Brue, Harold B. Engen, and E. James Maxey[2]

Today's 2-year college has become a multi-purpose institution serving a variety of functions, but historically two particular roles have fallen to it: preparing students for transfer and for occupations. The role of preparing students for transfer to 4-year institutions has a longer history, but the so-called terminal function, of preparing students for an occupation, has often been considered the 2-year college's primary aim. For example, early descriptions of 2-year colleges, such as Eells' (1941), were largely devoted to the terminal function, and the 1947 President's Commission urged that 2-year colleges design programs emphasizing occupational training. Again, in 1963, the Educational Policies Commission stressed a similar function.

But despite attention given to occupational education, there may actually be more emphasis placed on transfer preparation by both 2-year institutions and students, and perhaps by the values of our whole society. As a result, students often seem to be undecided about their actual purpose in choosing a particular 2-year program—a fact apparently illustrated by Medsker's (1960) data. He found that, although two-thirds of the entering 2-year students planned to transfer to a 4-year institution, only one-third actually transferred. He also pointed out that

> . . . the claim made by the junior college that it is unique because of the extent to which it offers special programs for the terminal students is exaggerated. . . . [Don't] condemn the junior college for not emphasizing the terminal function, but rather look for social and cultural values that account in part for this situation [pp. 116-117].

Clark (1960b) stressed the importance of student influence on the college curriculum in his report of a case study of San Jose City College. This college was established primarily for vocational-technical training but soon became transfer oriented. Clark concluded this happened because 2-year colleges were faced with students who had become "a large market of free buyers" (p. 53); these students shaped the college by their choices, and they chose the transfer courses.

Most research on 2-year college students has been done in a traditional manner using test scores, average grades, and academic successes or failures, before and after transfer to 4-year colleges. As Roueche (1967, p. 21) points out, "Junior colleges claim to be multi-purpose, comprehensive institu-

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[1] This research report is based upon data originally gathered for an unpublished doctoral dissertation by Eldon Brue entitled, "Characteristics of Transfer and Occupational Students in Community Colleges: A Comparative Study," The University of Iowa, Iowa City, Iowa, 1969. Dr. Brue is now Assistant Professor of Educational Psychology and Guidance and Assistant Director of the Counseling Center at the University of South Dakota.

[2] The authors wish to acknowledge the technical assistance of Dr. Leo A. Munday in the preparation of this research report.

tions, yet the typical research study focuses on only one segment of the institution's students—those who transfer to 4-year institutions." The two largest subgroups of 2-year college students—transfer and occupational—between which one might expect considerable differences, have been compared in very few studies. Much of the research has not differentiated the two groups or has studied only the transfer students.

Educators frequently wonder how students in transfer and occupational curricula differ. If one group has a lower academic ability, then remedial classes in reading, arithmetic, and other study skills should be provided—as well as other special programs to meet their particular needs. On the other hand, if there is no difference between the two groups, restrictions on curriculum transfers could be relaxed or abandoned altogether. So the study of differences among transfer and occupational students can yield information about curriculum selection procedures and help identify special educational problems.

An important decision facing students is that of program selection. The fact that many transfer students fail to transfer suggests a possible discrepancy between aspiration and ability—a dimension obviously requiring further study. Inherent in the promise of "equal opportunity for all" is a possibility of personal failure, so it is the educator's crucial task to help an individual adjust his aspirations to his abilities. Clark (1960a) and Simon (1967) describe this as a "cooling-out" function, essentially an educational rechanneling.

Some studies have examined and found differences between transfer and occupational students. For example, we know that transfer students score higher on academic examinations than occupational students, although the differences are sometimes small (Munday, 1968). Studies of female students have often shown no academic differences between the groups at all.

Bowles and Slocum (1968) found a number of important differences in the backgrounds, school experiences, and attitudes among the two kinds of students. Differences were especially marked in those who planned to graduate from college.

Fenske (1969) reported that high school seniors selecting occupational programs were distributed quite evenly across a wide range of academic and socioeconomic levels, in contrast to those not continuing their education or going on toward baccalaureate degrees. Three types of seniors most often had vocational-technical plans: (a) the upper 30% academically who had parents of a low socioeconomic level; (b) the lowest 30% academically with parents of the highest socioeconomic levels; (c) and underachievers, those high on academic aptitude tests but low on grade averages. A general finding was that single factors had little predictive power for vocational-technical plans, but in combination they yielded usable information.

Except for the Fenske study very little research on academic ability has controlled differences by socioeconomic level. Moreover, previous research on socioeconomic levels has not been controlled by ability level. This lack of control characterizes virtually all previous research in this area.

Furthermore, some results conflict. Anthony (1964) found a significant difference in socioeconomic level between transfer and terminal students, with terminal students tending to come from lower levels. However, Nogle (1965) found no such difference, concluding that both kinds of programs draw students from all socioeconomic levels in the area served.

Thus, research indicates that transfer students differ from occupational students in some ways. Transfer students seem to have a higher academic ability, while evidence is contradictory as to which group possesses greater nonacademic ability.

Transfer students seem to aspire to higher educational levels, although one study found no such difference. Some evidence indicates that educational aspirations are unrealistically high for students in both groups. Transfer students seem to prefer occupations to which are attributed higher prestige and status.

Regarding personality and personal characteristics, evidence suggests that transfer students are more sensitive and socially oriented, while occupational students are more realistic and practical.

The present study further examines differences among community college students enrolled in transfer programs and students enrolled in occupational programs. Groups are compared on variables measuring socioeconomic background, abilities and achievement, vocational orientations and plans, levels of educational aspiration, personality-related characteristics, and other background and personal characteristics.

Method

Sample

The sample consisted of 924 full-time freshman and sophomore students enrolled in transfer and occupational programs in three Iowa community colleges in the spring of 1968. (See Tables 1 and 2.) Each of the students had graduated from an Iowa public high school either in 1966 or 1967. The Guidance Profile (GP) and the Community College Student Questionnaire (CCSQ) were administered to students in selected classes. Pupil Inventory (PI) information, along with other Card-Pac data, was gathered on these students as high school seniors. The two groups—transfer and occupational—were identified according to each student's classification of himself.

TABLE 1

Numbers of Students Classified by Program, Sex, and Class at Each College Who Completed the Questionnaire Data

	Program		*Sex*		*Class*	
College	*Trans.*	*Occup.*	*Men*	*Women*	*Fresh.*	*Soph.*
A	162	205	273	94	335	32
B	300	209	307	202	390	119
C	183	228	295	116	298	113
Totals	645	642	875	412	1023	264

TABLE 2

Numbers of Students Who Met the Criteria for Inclusion in the Study Sample Classified by Program, Sex, and Class

	Transfer	*Occupational*
Men		
Freshmen	273	234
Sophomores	64	77
Totals	337	311
Women		
Freshmen	107	129
Sophomores	22	18
Totals	129	147

Statistics

Variables were compared by using chi square, *t* test, and analysis of variance techniques. The statistics revealed significant differences in ability between the transfer and occupational men. Since these differences were found, the study determined if ability and socioeconomic level were contributing conditions. Two separate analyses of variance were completed for the men, the first using ability as a factor (ITED Composite) and the second using socioeconomic level (family income) as a factor. These analyses were not completed for the women since similar differences did not exist between the two groups. In addition, student variables were related to program enrollment by a stepwise multiple correlation.

Measures

Guidance Profile (GP)

The Guidance Profile (1967) was developed by the Research and Development Division of The American College Testing Program. The GP is similar to the Student Profile Section (SPS) of The American College Testing Program's Test Battery (ACT). However, the GP is more comprehensive than the Student Profile Section, has little overlap in specific content, and was designed specifically for 2-year colleges. The GP was designed "to accelerate and simplify the assessment process in vocational and educational guidance" (The American College Testing Program, 1968). The GP provides information that a counselor might obtain in an interview or testing session and includes six main sections:

Educational and vocational aspirations
Self-estimates of abilities and personal traits
Occupational interests
Potentials
Competencies
Free responses

Community College Student Questionnaire (CCSQ)

Items for the CCSQ were developed by Brue and intended to supplement information obtained in the GP. In addition to information for identification and classification, other items asked for the student's college grade point average, his financial

resources (including part-time work), his family's income level, the time of his initial decision to attend college, and his plans for further education.

Several items which students had completed on the Pupil Inventory as high school seniors were repeated on the CCSQ: attitude toward studying, educational aspiration and plan, and extent of participation in various college activities. These items were included for a follow-up comparison.

CardPac Data

The CardPac system for gathering student and school information was developed by the Iowa Educational Information Center (1967). The CardPac system uses, as its name implies, a pack of cards adapted for data processing. A variety of pupil and school information is recorded, keypunched onto the cards, and then placed on tape. The tapes constitute a research data bank.

Pupil Inventory. The Pupil Inventory was developed for the CardPac system as an assessment device for selected personal and biographical information. The PI includes 37 items seeking biographical and school information, as well as educational aspirations and plans. The PI was administered each year to all pupils in grades 7-12 in the public schools in Iowa.

Iowa Tests of Educational Development (ITED). At selected times in their school careers most Iowa public school pupils completed the ITED, a battery of tests measuring educational achievement in various areas and providing a general indication of scholastic aptitude. Composite scores on the ITED, which the pupils in this study took in the 11th grade, were used here.

Mark-Point Average (MPA). The mark-point average, which is the pupils' high school grade average, is also included in the CardPac data. In addition to the PI and the ITED scores, the MPA was also used in this study.

Results

Tables 3 and 4 describe how the students differed within limits imposed by the sample and measuring devices. The men differed significantly on 44 variables, while the women were significantly different on only 15. Comparisons were made between the two groups on 79 separate variables. (See Appendix H, Table 28.)

VPI Scales (See Appendix A, Tables 1 & 2.)

Transfer and occupational men differed on five of the six basic VPI Scales and on the Infrequency Scale. Occupational men had a higher mean on the Realistic Scale which seems consistent with the conceptual definition of this preference scale for technical and skilled trades. (See the Vocational Preference Inventory Manual for a more complete description of the scales.) Transfer men, by having higher means on artistic, social, enterprising, and conventional scales, indicated preferences for occupations in artistic, musical, literary, teaching, other helping occupations, clerical, supervisory, and sales areas. Further, since very few differences were found by ability or income levels, the differences of preference between transfer and occupational students apparently are not due to these factors. A study of the scales would be necessary to determine the types of persons emulated in each. The occupational men also had a higher mean on the Infrequency Scale, indicating a greater preference for unpopular occupations and a greater dislike for popular occupations. The Intellectual Scale did not reveal a difference between the two groups.

Women students differed on only two scales: transfer women had higher means on the artistic and social scales. These scales actually represent two types of persons: the first, or artistic type, is asocial and prefers dealing with environmental problems through self-expression in artistic media. The social scale represents a type of person who is sociable, responsible, needs attention, and prefers to solve problems through interpersonal manipulation of other people.

Personality Scales (See Appendix A, Tables 3 & 4.)

Transfer men differed from occupational men on their preference for prestige vocations (Status Scale) and a wider variety of occupations (Acquiescence Scale). Occupational men scored higher on the masculinity scale and preferred occupations commonly desired by men. Again, these conclusions tend to be independent of socioeconomic characteristics.

Occupational women scored higher on the masculinity scale, which indicates a more frequent choice of occupations typically preferred by males. No differences were found between women groups on the self-control, status, or acquiescence scales.

Competencies (See Appendix B, Tables 5 & 6.)

This section contains activities and skills on which the student evaluates his own performance. Occupational men rated themselves higher in skilled and technical areas, as one might expect.

TABLE 3

General Summary of How Men Community College Transfer and Occupational Students Differed

Scales	*Transfer*	*Occupational*
VPI Scales		
Realistic		X[a]
Artistic	X	
Social	X	
Enterprising	X	
Conventional	X	
Intellectual		X
Personality Scales		
Masculinity		X
Status	X	
Acquiescence	X	
Competency Scales		
Skilled & technical		X
Community service	X	
Leadership-Persuasive	X	
Artistic	X	
Interest Scales		
Skilled & technical		X
Business	X	
Music	X	
Literary	X	
Drama	X	
Leadership	X	
Academic Aptitude		
ITED Composite	X	
MPA (high school)	X	
GPA (college)		X
Educational Aspiration		
Believed (high school)	X	
Expected (high school)	X	
Believed (community college)	X	
Expected (community college)	X	
Self-Estimates– Interpersonal Characteristics		
Leadership	X	
Understanding others	X	
Self-Estimates– Selected Abilities		
Mechanical ability		X
Mathematical ability		X
Speaking ability	X	
Writing ability	X	
Sales ability	X	
Managerial ability	X	
Self-Estimates– Personal Characteristics		
Originality	X	
Aggressiveness	X	
Independence	X	
Physical energy	X	
Physical health	X	
Socioeconomic Background		
Father's occupation	X	
Father's education	X	
Other Factors		
Hours of work per week for pay		X
Time of initial decision to attend college	X	
Transfer intention	X	

[a]X is placed to show which group had the highest mean when compared in a treatments by levels of analysis of variance design. Differences were significant at the .05 level.

Data upon which the summary table is based can be found in the Appendixes.

The transfer men had higher self-ratings in areas of community service, leadership-persuasive, and artistic. No differences were found in the areas of secretarial-clerical, business, home economics, and scientific skills and knowledge. (These differences were generally not confounded by socioeconomic or ability factors.) The women rated themselves on the same scales. The three scales which were significantly higher for occupational women were the secretarial-clerical, community service, and home economics scales. Language skills were included in the self-evaluations of the transfer women more frequently than those of the occupational.

TABLE 4

General Summary of How Women Community College Transfer and Occupational Students Differed

Scales	*Transfer*	*Occupational*
VPI Scales		
Artistic	X[a]	
Social	X	
Personality Scales		
Masculinity		X
Competency Scales		
Secretarial & clerical		X
Community service		X
Home economics		X
Language	X	
Interest Scales		
Business		X
Academic Aptitude		
MPA (high school)	X	
Self-Estimates–Selected Abilities		
Scholarship	X	
Artistic ability	X	
Mechanical ability		X
Mathematical ability		X
Clerical ability		X
Other Factors		
Hours of work per week for pay	X	

[a]X is placed to show the group having the highest mean score. Differences were significant at the .05 level.

Data upon which the summary table is based can be found in the Appendixes.

Interest Scales (See Appendix B, Tables 7 & 8.)

There were differences between transfer and occupational men on six of the eight activities and interest scales on the Guidance Profile. The results support other findings: occupational students expressed higher interest in skilled and technical areas, and transfer men indicated greater interest in activities related to business, music, literature, drama, and leadership. This is consistent with patterns in other measured areas for this sample.

Only one difference between the two groups of women was found, and that was occupational women showed more interest in business.

Academic Aptitude and Grades (See Appendix C; Tables 9, 10, & 11.)

Transfer men had higher academic and verbal ability than did occupational men, while the women groups did not differ. The men were significantly different, with respective means of 21.5 and 18.8 on the composite score of the Iowa Tests of Educational Development (with a significant t of 5.397).

Since there was a difference in academic ability between the two men groups, one might anticipate their grades would differ in the same way. There was a significant difference between the men groups in high school grade point average, by ability level but not by family income. At the college level the occupational men received significantly higher grades in college (transfer men, 2.11; occupational men, 2.53). Differences were not found by family income levels, but significant differences were reported for ability levels.

It should be recognized that a wide range of academic ability exists both within the colleges and between them. Some 2-year colleges have student bodies academically superior to the entering classes

of the typical 4-year college (Hoyt & Munday, 1966), and virtually all 2-year colleges have individual students as academically able as any to be found in 4-year colleges.

Educational Aspirations (See Appendix C, Tables 12 & 13.)

The transfer students, while high school seniors, differed from the occupational students in expected educational attainment. When evaluated later in the community college, the difference was still significant, with the transfer students expecting to attain a high level of education.

About one-half the high school seniors in the occupational group, who expected less education than they desired, indicated it was because of limited family resources. Many students apparently attended the community college as a second choice, since only two-thirds of the transfer group and less than one-half the occupational group had planned to attend a community or junior college.

Self-Estimates—Interpersonal Characteristics (See Appendix D, Tables 14 & 15.)

The transfer men rated themselves higher on interpersonal characteristics and were significantly higher on leadership and understanding of others. This difference supports Behm's (1967) finding that transfer men were more socially oriented than occupational men. Stewart (1966) also found that occupational students were less interested in being of service to others.

Women groups did not differ on any of the scales measuring interpersonal competence characteristics.

Self-Estimates—Selected Abilities (See Appendix D, Tables 16 & 17.)

Abilities relating to communication skills were rated highest by the transfer men, while the occupational men were significantly higher in self-ratings on mechanical and mathematical ability. The skills of speaking, writing, sales, and managerial were also rated highly by transfer men.

The women differed in five of the ability self-estimates. The occupational women rated themselves higher on mechanical and mathematical ability, as did the occupational men. In addition, occupational women rated themselves higher on the clerical ability scale.

Self-Estimates—Personal Characteristics (See Appendix D, Tables 18 & 19.)

The transfer men felt they were more original, aggressive, and independent than did the occupational men. These ratings were compatible with other characteristics. Self-estimates of physical energy and health were also rated significantly higher by the transfer men.

Socioeconomic Background (See Appendix E, Tables 20, 21, & 22.)

The fathers of transfer and occupational students had significantly different occupation types. A higher percentage of farm workers, laborers, or workmen were among the fathers of occupational students. Transfer students reported fewer in these categories and a higher percentage in managerial or official and professional categories.

Father's education was also higher for the transfer group than that reported by the occupational men. This complements the occupational patterns described above.

Estimated family income was significantly higher for men transfer students when analyzed by chi square. Women did not differ on socioeconomic factors.

Other Factors (See Appendix F, Tables 23, 24, & 25.)

Three other differences were reported between the two groups:

Transfer and occupational men differed in the time of their initial decision to attend college. The largest proportion of transfer men had made this decision as high school sophomores or juniors. On the other hand, the largest proportion of occupational men had made this decision as high school seniors. Apparently, the decision is made independently of ability or income levels. The women groups did not differ on this variable.

A difference between the two men groups regarding transfer intentions was expected and substantiated.

The men occupational students worked more hours for income to pay for their training. This too is consistent with socioeconomic findings reported earlier. The opposite was true of the women: transfer students worked more hours per week for income while attending college.

Stepwise Multiple Correlation (See Appendix G, Tables 26 & 27.)

The variable of skilled and technical competencies was the strongest indicator "predicting" whether men would enroll in a transfer or an occupational program. The number of home economics competencies was a similar indicator for women.

Discussion

Compared with students enrolled in transfer curricula, occupational students generally come from lower socioeconomic backgrounds and show less scholastic aptitude—as traditionally defined by high school standards. Their vocational interests, while diverse, tend to emphasize technical and skilled trades and occupations accorded less social prestige. The occupational men rated themselves higher in skilled and technical competence than did transfer students. Despite lower academic test scores and high school grades, the occupational students made higher college grades than the transfer students. Apparently, other talents than the traditional academic ones contributed to this success. The occupational men had lower educational aspirations and saw lack of money as a barrier to further education. Fewer of them planned for college while in high school, and it was late in their high school careers that they made the decision to attend college. Based on their self-estimates, occupational men saw their special talents as mechanical and mathematical. Compared with transfer men, occupational men appeared to possess fewer interpersonal competencies and communication skills.

The guidance needs of occupational men appear rather clearly. Both high school and college counselors need to familiarize themselves with the characteristics of men in occupational programs. For example, counselors of these men should value technical and mechanical talents as highly as academic talents; they should help all men use and develop their distinctive talents, whatever they are, rather than label some more important than others. Counselors also need to remember that occupational men typically decide later during their high school years to attend college; this implies that their commitment to a vocational choice may be somewhat delayed. Compared with transfer students, we would expect more of them to change vocational choices, to consider their choices more tentative, or even to be undecided about a choice. In short, the man in an occupational program still wants to test his ideas about a vocation. A student-oriented campus, then, may have a flexible curriculum for occupational students still exploring themselves and the world of work, and should offer educational-vocational counseling particularly for these men. Another finding of this study was that transfer men were less satisfied and more undecided about their career choices than were the occupational men. Possible explanations are that occupational students may be closer to entering their chosen occupations, or that the specific vocational preparation they pursue is more tangible than the general arts and science courses taken by transfer students.

Perhaps the most striking conclusion we reach from this study is the similarity between the two groups of women. From essentially the same socioeconomic backgrounds, with approximately the same level of high school achievement, the two groups of women are certainly much more alike than different on the variables included in this study. Competencies for the occupational women were higher in secretarial-clerical, community service, and home economics fields, and their interest in business occupations was more pronounced. Self-estimates of abilities showed mechanical, mathematical, and clerical abilities to be higher for occupational women. The fact that there are so few differences among the women—particularly, no difference in socioeconomic status and scholastic aptitude—suggests that transfer and occupational programs be designed for similar student characteristics (e.g., more verbal and academic), and also that women be advised to choose a program on the basis of factors other than ability or socioeconomic status.

Implications

A number of implications can be drawn from this research report. Although the inferences are directed at the community college, these data also may be meaningful for 4-year colleges, counselors in secondary schools, and others.

Implications for Personnel in Community Colleges

The fact that occupational students often do not decide until after high school graduation to attend a community college seems to reveal a need for counseling services for prospective students. In addition, the fact that community college students tend to "warm up" suggests the importance of providing individual and group counseling and faculty advising services throughout a student's enrollment. A "warmed-up" occupational student who wants to transfer to a 4-year college should be given the same assistance as a prospective student in accurately appraising his abilities and potentials.

Since only two-thirds of the transfer students and less than half the occupational students planned to attend the community college, more publicity of the college's programs is needed. Participation in Career Fairs, college information sessions, releases to news media, and provision of complete and accurate information to all area high schools and counselors would help meet this need.

Transfer programs in community colleges are often accorded higher status and prestige than are occupational programs. However, it is also important that abilities and achievements of occupational students be recognized and accorded prestige and status in their own right. Educators should recognize and promote the unique objectives of each program.

The lower socioeconomic level of the occupational men suggests the importance of providing specific job and financial help. The occupational student should be helped to find part-time employment which allows him to use the skills required in his training program.

Occupational programs need to allow for the practical, nonacademic attitudes of the occupational students. The learning environment should complement their future work environment.

Implications for Personnel in 4-Year Colleges

Since many students in occupational programs aspire to a 4-year degree, and since a number of them do transfer, 4-year colleges should cooperate closely with community colleges in planning to meet their special needs, as well as those of the transfer student. Counseling services and a special orientation program should be provided to help ease transition problems and to assist students with unrealistic aspirations.

Implications for Personnel in High Schools

High school counselors need to be aware of differences between the transfer and occupational males. Students should be given complete information about available programs well before their senior year. Students should also be helped to select an appropriate program based on their abilities and interests. To assist in this selection process, former students of the community college should be encouraged to return to the high school and discuss their experiences with current students.

The finding that transfer students were less satisfied with their vocational choice than were the occupational students suggests a need for more realistic vocational guidance in high school.

High school counselors should recognize that a student's educational aspiration is likely to increase after high school graduation. Counselors should also know that men who later enroll in occupational programs tend to make their initial decision to attend college during their senior year or even following high school graduation.

Finally, probably few high school counselors have attended community colleges or have experienced occupational training programs. Counselors should visit former students at community colleges, confer with graduates of occupational and transfer programs, and become involved with students who have experienced the training.

References

American Association of Junior Colleges. *1969 junior college directory.* Washington, D.C.: Author, 1969.

The American College Testing Program. *Manual for the ACT guidance profile: Two-year college edition.* Iowa City, Ia.: Author, 1969.

Anthony, D. M. *The relationship of certain socio-economic and academic factors to student choice of occupation and program in the public junior college.* (Doctoral dissertation, University of Texas) Ann Arbor, Mich.: University Microfilms, 1964. No. 64-11772.

Behm, H. D. *Characteristics of community college students: A comparison of transfer and occupational freshmen in selected midwestern colleges.* (Doctoral dissertation, University of Missouri) Ann Arbor, Mich.: University Microfilms, 1967. No. 68-3595.

Bowles, R. T., & Slocum, W. L. *Social characteristics of high school students planning to pursue post-high school vocational training.* Final Report No. 17, June 1968, Washington State University Project No. 7-0031, Contract No. OEO 4-7-070031-1626, U.S. Department of Health, Education, and Welfare, Office of Education.

Clark, B. R. The "cooling-out" function in higher education. *The American Journal of Sociology,* 1960, **65**, 569-576. (a)

Clark, B. R. *The open door college: A case study.* New York: McGraw-Hill, 1960. (b)

Eells, W. C. *Present status of junior college terminal education.* Washington, D.C.: American Association of Junior Colleges, 1941.

Fenske, R. H. Who selects vocational-technical post-high school education? In *Monograph two: The two-year college and its students: An empirical report.* Iowa City, Ia.: The American College Testing Program, 1969.

Guidelines for research-appraisal and development of junior college student personnel programs. Proceedings of the Conference to Plan Research on Junior College Student Personnel Programs, University of Chicago, 1964. Flint Community Junior College, Flint, Michigan, 1964.

Holland, J. L. *Manual—Vocational preference inventory.* (6th rev.) Palo Alto, Calif.: Consulting Psychologists Press, 1965.

Holland, J. L., & Lutz, S. Predicting a student's vocational choice. *ACT Research Report No. 18.* Iowa City, Ia.: The American College Testing Program, 1967.

Hoyt, D. P., & Munday, L. A. Academic descriptions and predictions in junior colleges. *ACT Research Report No. 10.* Iowa City, Ia.: The American College Testing Program, 1966.

Iowa Educational Information Center. *CardPac administration manual.* Iowa City, Ia.: Author 1967.

Medsker, L. L. *The junior college: Progress and prospect.* New York: McGraw-Hill, 1960.

Munday, L. A. A comparison of junior college students in transfer and terminal curricula. *Journal of College Student Personnel,* 1968, **9**, 325-329.

Nogle, D. G. *A comparison of selected characteristics of transfer and terminal-occupational students in a California junior college.* (Doctoral dissertation, University of Southern California) Ann Arbor, Mich.: University Microfilms, 1965. No. 65-7236.

Roueche, J. E. Gaps and overlaps in institutional research. *Junior College Journal,* 1967, **38**(3), 20-23.

Simon, L. S. The cooling-out function of the junior college. *Personnel and Guidance Journal,* 1967, **45**, 973-978.

Stewart, L. H. Characteristics of junior college students in occupationally oriented curricula. *Journal of Counseling Psychology,* 1966, **13**, 46-52.

APPENDIXES

APPENDIX A

VOCATIONAL PREFERENCE INVENTORY

TABLE 1

Transfer and Occupational Men Students
Compared with Regard to Their Scores
on the Vocational Preference Inventory Scales[1]

Results of ANOVA–5 Income Levels x 2 Student Groups

VPI Scale	*F-Statistics*		
Occupational Interests	*Groups*	*Income*	*Groups x Income*
Realistic (Technical)	23.4*	0.8	0.5
Scientific (Intellectual)	0.7	1.7	1.5
Social	28.2*	0.8	3.4*
Artistic	16.4*	0.2	2.5*
Enterprising	17.5*	3.0*	0.9
Conventional	5.9*	2.1	0.4
Infrequency	14.8*	0.5	1.3

Transfer N = 214
Occupational N = 232

Results of ANOVA–5 ITED Ability Levels x 2 Student Groups

VPI Scale	*F-Statistics*		
Occupational Interests	*Groups*	*ITED*	*Groups x ITED*
Realistic (Technical)	16.6*	1.1	0.6
Scientific (Intellectual)	0.7	4.4*	0.7
Social	31.9*	1.4	1.0
Artistic	16.6*	0.3	0.7
Enterprising	19.7*	2.3	2.1
Conventional	8.9*	0.9	1.5
Infrequency	18.9*	6.8*	0.6

Transfer N = 193
Occupational N = 215

*The size of the F-ratio strongly suggests a non-zero difference between the group means.

[1] For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

TABLE 2

Transfer and Occupational Women Students Compared with Regard to Their Scores on the Vocational Preference Inventory Scales

VPI Scale	*Transfer Mean (N = 122)*	*S.D.*	*Occupational Mean (N = 134)*	*S.D.*	*t*
Realistic	0.9	1.2	1.0	1.5	0.22
Intellectual	2.7	3.5	2.1	3.2	−1.43
Artistic	4.0	3.7	3.0	3.5	−3.05*
Social	6.2	4.1	5.4	3.7	−2.11*
Enterprising	2.0	2.1	1.6	2.1	−1.19
Conventional	2.0	2.6	1.8	2.4	−0.58
Infrequency	6.4	2.8	7.0	2.9	1.74

*The size of the *t*-ratio strongly suggests a non-zero difference between the group means.

TABLE 3

Transfer and Occupational Men Students Compared with Regard to Their Scores on the Personality Scales of the Vocational Preference Inventory Scales[1]

Results of ANOVA–5 Income Levels x 2 Student Groups

VPI Personality Scale	*Groups*	*F-Statistics Income*	*Groups x Income*
Self-Control	1.95	0.69	1.55
Masculinity	7.92*	2.48*	0.66
Status	58.02*	4.75*	0.74
Acquiescence	12.46*	0.79	1.72

Transfer N = 214
Occupational N = 232

Results of ANOVA–5 ITED Ability Levels x 2 Student Groups

VPI Personality Scale	*Groups*	*F-Statistics ITED*	*Groups x ITED*
Self-Control	3.73	1.73	0.61
Masculinity	8.91*	0.26	0.21
Status	47.23*	0.18	1.10
Acquiescence	15.55*	3.12	0.88

Transfer N = 193
Occupational N = 215

*The size of the F-ratio strongly suggests a non-zero difference between the group means.

[1] For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

TABLE 4

Transfer and Occupational Women Students Compared with Regard to Their Scores on the Personality Scales of the Vocational Preference Inventory

VPI Personality Scale	*Transfer Mean (N = 122)*	*S.D.*	*Occupational Mean (N = 134)*	*S.D.*	*t*
Self-Control	10.0	3.4	9.5	3.8	−1.06
Masculinity	4.0	2.3	4.6	2.1	1.97*
Status	8.1	2.3	7.5	2.0	−1.66
Acquiescence	9.1	4.6	8.2	4.9	−1.47

*The size of the *t*-ratio strongly suggests a non-zero difference between the group means.

APPENDIX B

GUIDANCE PROFILE SCALES

TABLE 5

Transfer and Occupational Men Students Compared with Regard to Their Scores on the Guidance Profile Competencies Scales[1]

Results of ANOVA—5 Income Levels x 2 Student Groups

Guidance Profile Competency Scale	*F-Statistics*		
	Groups	*Income*	*Groups x Income*
Skilled & Technical	102.59*	1.24	1.21
Secretarial-Clerical	0.06	0.23	0.54
Business	0.69	2.47*	1.06
Community Service	4.76*	1.33	0.84
Home Economics	0.44	1.87	1.51
Leadership-Persuasive	9.01*	2.19	0.31
Scientific Skills & Knowledge	1.23	0.99	0.71
Artistic	4.72*	1.77	0.74
Language	2.54	0.33	0.62

Transfer N = 214
Occupational N = 232

Results of ANOVA—5 ITED Ability Levels x 2 Student Groups

Guidance Profile Competency Scale	*F-Statistics*		
	Groups	*ITED*	*Groups x ITED*
Skilled & Technical	77.51*	1.64	2.95*
Secretarial-Clerical	1.37	1.38	0.99
Business	2.57	3.18*	0.31
Community Service	4.81*	0.37	1.46
Home Economics	0.01	0.40	0.93
Leadership-Persuasive	11.12*	2.04	0.17
Scientific Skills & Knowledge	2.71	23.74*	2.20
Artistic	6.20*	1.24	0.24
Language	4.57*	0.53	0.57

Transfer N = 193
Occupational N = 215

*The size of the F-ratio strongly suggests a non-zero difference between the group means.

[1] For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

TABLE 6

Transfer and Occupational Women Students Compared with Regard to Their Scores on the Guidance Profile Competencies Scales

Competency Scale	*Transfer* Mean (N = 128)	S.D.	*Occupational* Mean (N = 145)	S.D.	*t*
Skilled & Technical	2.5	2.5	3.3	2.6	1.60
Secretarial-Clerical	3.2	2.0	4.4	2.2	5.23*
Business	1.1	1.1	1.2	1.0	0.62
Community Service	2.2	2.0	2.6	2.1	2.10*
Home Economics	6.0	2.8	7.3	1.8	5.29*
Leadership-Persuasive	4.9	2.7	5.3	2.4	1.43
Scientific Skills and Knowledge	4.6	2.6	5.0	2.5	1.21
Artistic	4.7	2.2	4.9	1.9	0.67
Language	0.9	0.7	0.7	0.7	−2.22*

*The size of the *t*-ratio strongly suggests a non-zero difference between the group means.

TABLE 8

Transfer and Occupational Women Students Compared with Regard to Their Scores on the Guidance Profile Activities and Interest Scales

Scale	*Transfer* Mean (N = 122)	S.D.	*Occupational* Mean (N = 134)	S.D.	*t*
Skilled & Technical	3.1	3.0	3.6	2.9	1.00
Business	1.6	1.3	2.2	1.5	3.56*
Music	8.9	4.3	9.1	4.3	0.42
Literary	9.5	3.2	9.2	3.2	−0.86
Drama	8.2	3.6	7.9	3.6	−0.52
Leadership	11.3	3.6	11.5	3.5	0.39
Science	3.8	2.9	4.2	3.0	1.01
Artistic	4.9	4.4	4.3	3.7	−1.19

*The size of the *t*-ratio strongly suggests a non-zero difference between the group means.

TABLE 7

Transfer and Occupational Men Students Compared with Regard to Their Scores on the Guidance Profile Activities and Interest Scales

Results of ANOVA–5 Income Levels x 2 Student Groups

Guidance Profile Activities and Interests	*F-Statistics* Groups	Income	Groups x Income
Skilled & Technical	44.33*	1.71	0.75
Business	3.95*	2.49*	1.33
Music	9.06*	1.93	0.13
Literary	50.01	1.35	0.23
Drama	35.12*	0.68	0.40
Leadership	19.86*	0.98	0.50
Science	0.30	0.79	0.80
Artistic	0.76	0.13	1.22

Transfer N = 214
Occupational N = 232

Results of ANOVA–5 ITED Ability Levels x 2 Student Groups

Guidance Profile Activities and Interests	*F-Statistics* Groups	ITED	Groups x ITED
Skilled & Technical	37.14*	1.02	1.44
Business	4.40*	1.03	2.34
Music	9.21*	1.56	0.47
Literary	49.22*	6.69*	0.81
Drama	36.52*	1.13	0.73
Leadership	18.10*	0.45	0.23
Science	0.08	16.55*	1.79
Artistic	0.39	2.28	0.40

Transfer N = 193
Occupational N = 215

*The size of the F-ratio strongly suggests a non-zero difference between the group means.

APPENDIX C

ACADEMIC MEASURES AND ASPIRATIONS

TABLE 9

Transfer and Occupational Students Compared with Regard to Their Level of Academic Aptitude as Measured by the Composite Score on the Iowa Tests of Educational Development

ITED Composite Standard Score	*N*	*Mean*	*S.D.*	*t*
Transfer men	238	21.5	5.3	+5.40*
Occupational men	239	18.8	5.5	
Transfer women	96	23.2	5.9	−1.61
Occupational women	102	22.0	4.8	

*The size of the *t*-ratio strongly suggests a non-zero difference between the group means.

TABLE 10

Transfer and Occupational Students Compared with Regard to Their Level of Academic Achievement as Measured by Their High School Grade Point Average

Men Students[1]

Results of ANOVA—5 Levels x 2 Student Groups

Variable Name	*F-Statistics*		
	Groups	*Variable*	*Groups x Variable*
Income	4.52*	0.85	1.24
ITED	6.17*	9.22*	2.12

Transfer Ns = 214; 193
Occupational Ns = 232; 215

Women Students

Group	*N*	*Mean*	*S.D.*	*t*
Transfer	104	2.90	0.60	−2.30*
Occupational	110	2.70	0.70	

*The size of this ratio strongly suggests a non-zero difference between the group means.

[1] For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

TABLE 11

Transfer and Occupational Students Compared with Regard to Their Level of Academic Achievement as Measured by Their College Grade Point Average

Men Students[1]

Results of ANOVA—5 Levels x 2 Student Groups

		F-Statistics	
Variable	*Groups*	*Variable*	*Groups x Variable*
Income	16.35*	1.29	1.74
ITED	12.95*	3.25	0.58

Transfer Ns = 214; 193
Occupational Ns = 232; 215

Women Students

Group	*N*	*Mean*	*S.D.*	*t*
Transfer	126	2.5	0.6	1.54
Occupational	121	2.6	0.6	

*The size of the F-ratio strongly suggests a non-zero difference between the group means.

[1] For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

TABLE 12

Transfer and Occupational Students while Seniors in High School Compared with Regard to the Highest Level of Education They Believed They Could or Expected to Attain

	Transfer (%)		*Occupational (%)*	
Highest Level of Education	*Believed*	*(Expected)*	*Believed*	*(Expected)*
MEN				
Junior college or less	23.2	(38.3)	76.6	(90.8)
Bachelor's degree	57.9	(49.2)	20.5	(8.4)
Advanced academic or professional degree	19.0	(12.5)	2.9	(0.8)
	N = 242	(240)	N = 239	(239)
WOMEN				
Junior college or less	19.2	(35.6)	55.7	(84.0)
Bachelor's degree	56.7	(55.8)	36.8	(16.0)
Advanced academic or professional degree	24.0	(8.7)	7.5	(0.0)
	N = 104	(104)	N = 106	(106)

Believed:			
Men:	Chi square = 139.998	df = 2	$p < .0001$
Women:	Chi square = 32.092	df = 2	$p < .001$
Expected:			
Men:	Chi square = 144.660	df = 2	$p < .001$
Women:	Chi square = 52.874	df = 2	$p < .001$

TABLE 13

Transfer and Occupational Students Compared with Regard to the Highest Level of Education They Believed They Could or Expected to Attain

Highest Level of Education	*Transfer (%)*		*Occupational (%)*	
	Believed	*(Expected)*	*Believed*	*(Expected)*
MEN				
Junior college or less	10.4	(16.8)	46.7	(83.1)
Bachelor's degree	50.8	(61.0)	44.0	(14.9)
Advanced academic or professional degree	38.8	(22.3)	9.3	(2.0)
	N = 327		N = 302	
WOMEN				
Junior college or less	7.8	(21.9)	31.7	(83.4)
Bachelor's degree	56.3	(67.2)	50.3	(15.2)
Advanced academic or professional degree	35.9	(10.9)	17.9	(1.4)
	N = 128		N = 145	

Believed:

Male:	Chi square = 131.511	df = 2	$p < .001$
Female:	Chi square = 27.754	df = 2	$p < .001$

Expected:

Male:	Chi square = 279.830	df = 2	$p < .001$
Female:	Chi square = 104.319	df = 2	$p < .001$

APPENDIX D

SELF–ESTIMATES

TABLE 14

Transfer and Occupational Men Students Compared with Regard to Their Self-Estimates of Selected Interpersonal Characteristics[1]

Results of ANOVA–5 Income Levels x 2 Student Groups

Self-Estimate Variable	*F-Statistics*		
	Groups	*Income*	*Groups x Income*
Leadership	3.59	1.27	0.81
Understanding of others	5.37*	0.52	0.24
Sociability	2.22	2.58*	1.08
Self-Confidence	0.12	1.99	0.48

Transfer N = 214
Occupational N = 232

Results of ANOVA–5 ITED Ability Levels x 2 Student Groups

Self-Estimate Variable	*F-Statistics*		
	Groups	*ITED*	*Groups x ITED*
Leadership	5.08*	0.47	0.67
Understanding of others	4.49*	0.61	0.49
Sociability	3.93*	3.21*	0.80
Self-Confidence	0.03	1.40	0.50

Transfer N = 193
Occupational N = 215

*The size of the F-ratio strongly suggests a non-zero difference between the group means.

[1] For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

TABLE 15

Transfer and Occupational Women Students Compared with Regard to Their Self-Estimates of Selected Interpersonal Characteristics

Self-Estimate	*Transfer*		*Occupational*		*t*
	Mean (N = 128)	*S.D.*	*Mean (N = 146)*	*S.D.*	
Leadership	2.1	0.6	2.1	0.6	0.57
Understanding of others	2.7	0.7	2.8	0.6	0.96
Sociability	2.4	0.6	2.5	0.6	1.30
Self-Confidence (social)	2.1	0.7	2.1	0.6	0.55

TABLE 16

Transfer and Occupational Men Students Compared with Regard to Their Self-Estimates of Selected Personal Characteristics[1]

Results of ANOVA—5 Income Levels x 2 Student Groups

Personal Characteristics	*F-Statistics*		
	Groups	*Income*	*Group x Income*
Mechanical ability	30.80*	0.93	1.62
Mathematical ability	7.32*	1.24	0.16
Scholarship	0.62	1.45	0.32
Artistic ability	0.53	0.54	0.91
Speaking ability	6.29*	2.99*	1.46
Scientific ability	0.06	1.28	0.90
Writing ability	10.33*	1.21	1.50
Research ability	1.27	1.64	0.18
Acting ability	1.94	3.00*	1.94
Clerical ability	0.17	0.37	1.18
Sales ability	4.09*	1.78	1.90
Managerial ability	7.86*	2.57*	1.92

Transfer N = 214
Occupational N = 232

Results of ANOVA—5 ITED Levels x 2 Student Groups

Personal Characteristics	*F-Statistics*		
	Groups	*ITED*	*Group x ITED*
Mechanical ability	21.20*	2.09	1.15
Mathematical ability	5.33*	11.70*	0.65
Scholarship	1.82	17.10*	0.79
Artistic ability	0.37	2.17	1.39
Speaking ability	6.09*	0.09	0.83
Scientific ability	0.01	12.06*	2.72*
Writing ability	9.44*	1.71	0.38
Research ability	0.06	2.35*	1.04
Acting ability	0.78	2.70*	1.09
Clerical ability	0.57	0.73	0.15
Sales ability	3.92*	1.79	0.07
Managerial ability	5.11*	0.37	0.13

Transfer N = 193
Occupational N = 215

*The size of the F-ratio strongly suggests a non-zero difference between the group means.

[1] For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

TABLE 17

Transfer and Occupational Women Students Compared with Regard to Their Self-Estimates of Selected Abilities

Personal Characteristics	*Transfer*		*Occupational*		
	Mean	*S.D.*	*Mean*	*S.D.*	*t*
	(N = 128)		*(N = 146)*		
Mechanical ability	1.7	0.6	1.9	0.7	2.03*
Mathematical ability	1.8	0.8	2.0	0.7	2.05*
Scholarship	2.3	0.8	2.1	0.6	−2.20*
Artistic ability	1.8	0.8	1.6	0.7	−2.16*
Speaking ability	2.1	0.7	2.1	0.6	0.15
Scientific ability	1.8	0.7	1.8	0.7	0.00
Writing ability	2.2	0.7	2.2	0.6	−0.68
Research ability	2.2	0.6	2.1	0.5	−1.32
Acting ability	1.8	0.7	1.7	0.6	−0.85
Clerical ability	2.0	0.8	2.2	0.8	2.42*
Sales ability	1.9	0.6	1.8	0.6	−1.00
Managerial ability	1.9	0.6	2.0	0.6	1.02

*The size of the *t*-ratio strongly suggests a non-zero difference between the group means.

TABLE 18

Transfer and Occupational Men Students Compared with Regard to Their Self-Estimates of Selected Personal Characteristics[1]

Results of ANOVA—5 Income Levels x 2 Student Groups

Personal Characteristics	*F-Statistics*		
	Groups	*Income*	*Groups x Income*
Originality	10.19*	4.46*	0.72
Drive to Achieve	0.54	2.16	0.49
Aggressiveness	4.50*	0.40	0.55
Self-Control	3.27	0.38	1.18
Independence	10.63*	2.42*	0.62
Practical-Mindedness	1.66	1.44	0.09
Self-Confidence	0.04	1.35	1.11
Perseverance	0.58	1.92	0.61
Physical Energy	5.76*	0.46	0.62
Physical Health	4.67*	1.01	0.75

Transfer N = 214
Occupational N = 232

Results of ANOVA—5 ITED Ability Levels x 2 Student Groups

Personal Characteristics	*F-Statistics*		
	Groups	*ITED*	*Groups x ITED*
Originality	10.21*	1.87	0.79
Drive to Achieve	0.41	1.05	1.08
Aggressiveness	4.71*	3.79*	0.81
Self-Control	2.33	1.57	0.80
Independence	6.77*	1.90	1.12
Practical-Mindedness	1.09	0.36	0.22
Self-Confidence	0.12	0.82	0.30
Perseverance	1.09	0.61	0.60
Physical Energy	7.81*	1.18	0.63
Physical Health	5.07*	2.15	0.21

Transfer N = 193
Occupational N = 215

*The size of the F-ratio strongly suggests a non-zero difference between the group means.

[1] For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

TABLE 19

Transfer and Occupational Women Students Compared with Regard to their Self-Estimates of Selected Personal Characteristics

Self-Estimate	*Transfer*		*Occupational*		*t*
	Mean (N = 128)	*S.D.*	*Mean (N = 146)*	*S.D.*	
Originality	2.3	0.6	2.2	0.5	−1.75
Drive to achieve	2.6	0.7	2.5	0.6	−0.66
Aggressiveness	2.1	0.5	2.0	0.5	−0.47
Self-Control	2.5	0.6	2.5	0.6	0.03
Independence	2.5	0.7	2.7	0.7	1.60
Practical-Mindedness	2.6	0.7	2.6	0.5	−0.10
Self-Confidence (intellectual)	2.1	0.6	2.1	0.6	−0.32
Perseverance	2.4	0.6	2.3	0.5	−1.19
Physical Energy	2.4	0.7	2.5	0.7	1.09
Physical Health	2.7	0.8	2.8	0.8	1.20

APPENDIX E

SOCIOECONOMIC BACKGROUND

TABLE 20

Transfer and Occupational Students Compared with Regard to Type of Their Father's Occupation

Type of Occupation	*Transfer (%)*	*Occupational (%)*
MEN		
Farm worker, laborer, or workman	21.6	37.3
Private household, semiskilled, protective, or service worker, store clerk or salesman	22.9	16.7
Skilled worker or technician	16.9	16.3
Manager or official	11.9	3.9
Proprietor or owner of business or farm	19.5	23.6
Professional	7.2	2.1
	N = 236	N = 233
WOMEN		
Farm worker, laborer, or workman	—	—
Private household, semiskilled, protective, or service worker, store clerk or salesman	17.8	9.6
Skilled worker or technician	22.8	16.3
Manager or official	5.0	8.7
Proprietor or owner of business or farm	24.8	31.7
Professional	5.9	1.9
	N = 101	N = 104

MEN: Chi square = 28.948 df = 5 $p < .001$
WOMEN: Chi square = 8.811 df = 5 Not significant

TABLE 21

Transfer and Occupational Students Compared with Regard to Highest Level of Their Father's Education

Highest Level of Education	*Transfer (%)*	*Occupational (%)*
MEN		
Grade school or less	16.6	22.3
High school	57.5	61.6
Vocational or business school	8.1	6.2
College or advanced degree	17.8	9.8
	N = 332	N = 305
WOMEN		
Grade school or less	14.8	20.1
High school	61.7	53.5
Vocational or business school	7.0	13.9
College or advanced degree	16.4	12.5
	N = 128	N = 144

MEN: Chi square = 11.114 df = 3 $p < .025$
WOMEN: Chi square = 5.590 df = 3 Not significant

TABLE 22

Transfer and Occupational Students Compared with Regard to Estimated Family Income

Family Income Estimate	*Transfer (%)*	*Occupational (%)*
MEN		
Less than $7,499 per year	39.8	61.0
$7,500 to $9,999 per year	24.5	22.0
$10,000 or more per year	35.7	17.0
	N = 241	N = 182
WOMEN		
Less than $7,499 per year	44.0	51.3
$7,500 to $9,999 per year	25.0	18.4
$10,000 or more per year	31.0	30.3
	N = 84	N = 76

MEN: Chi square = 22.802 df = 2 $p < .001$
WOMEN: Chi square = 1.239 df = 2 Not significant

APPENDIX F

OTHER FACTORS

TABLE 23

Transfer and Occupational Students Compared with Regard to the Time of Their Initial Decision to Attend College

Time of Initial Decision	*Transfer (%)*	*Occupational (%)*
MEN		
Elementary school	8.3	0.6
Junior high school	18.8	5.1
High school sophomore or junior	33.9	27.0
High school senior	29.2	55.0
After high school graduation	9.8	12.2
	N = 336	N = 311
WOMEN		
Elementary school	18.8	13.7
Junior high school	27.3	19.9
High school sophomore or junior	28.9	28.1
High school senior	19.5	15.3
After high school graduation	5.5	13.0
	N = 128	N = 146

MEN: Chi square = 74.348 df = 4 $p < .001$
WOMEN: Chi square = 7.844 df = 4 Not significant

TABLE 24

Transfer and Occupational Men Students' Intention to Transfer to Another College or University to Continue Studies[1]

Results of ANOVA—5 Levels x 2 Student Groups

		F-Statistics	
Variable	*Groups*	*Variable*	*Groups x Variable*
Income	502.91*	1.94	1.32
ITED	453.14*	1.78	0.53

Transfer Ns = 214; 193
Occupational Ns = 232; 215

*The size of the F-ratio strongly suggests a non-zero difference between the group means.

[1] For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

TABLE 25

Transfer and Occupational Students Compared with Regard to the Number of Hours They Worked per Week for Pay while Attending College

Hours Worked per Week	*N*	*Mean*	*S.D.*	*t*
Transfer men	336	15.4	13.6	4.64*
Occupational men	309	20.5	14.0	
Transfer women	128	12.3	10.0	−4.06*
Occupational women	147	7.6	9.1	

*The size of the *t*-ratio strongly suggests a non-zero difference between the group means.

APPENDIX G

STEPWISE MULTIPLE CORRELATION TABLES

TABLE 26

Stepwise Multiple Correlation Analysis Showing Contribution of Input Variables Significantly Correlated with Program Criterion[a] for Male Students (N = 357)

Step No.	*Variable Entered*[b] *or Removed*[c]	*Mean*	*S.D.*	*b Coefficient*	*Multiple R*	*r*	*F Value to Enter or Remove*[d]
1	Skilled and technical competencies scale	13.74	5.1	0.03127	0.3639	0.364	54.1803
2	ITED Composite Score	20.55	5.2	0.02199	0.4500	−0.266	31.0969
3	Drama activities and interest scale	4.61	3.1	−0.02866	0.4938	−0.249	19.3155
4	Time of initial decision to attend college	3.43	1.0	0.06197	0.5107	0.300	8.0872
5	Physical energy self-estimate	2.61	0.7	−0.09201	0.5257	−0.131	7.5532
6	Scholarship self-estimate	1.92	0.6	0.10397	0.5393	−0.018	7.1395
7	Acquiescence scale (VPI)	8.65	5.0	−0.01176	0.5487	−0.171	5.0757
8	Intention to improve writing skills	2.01	0.6	−0.09478	0.5558	−0.205	3.9765
9	Intention to improve spelling skills	0.54	0.5	−0.10329	0.5638	−0.062	4.5276
10	Home economics competencies scale	20.6	1.9	0.02576	0.5706	0.014	3.9589
11	Drive to achieve self-estimate	2.38	0.7	0.06603	0.5774	0.051	4.0668

[a]The criterion was scored "1" if the student was enrolled in a transfer program and "2" if the student was enrolled in an occupational program.

[b]Only 11 of 79 input variables entered into the stepwise correlation analysis at the .05 level.

[c]None of the variables were removed from the equation in this analysis.

[d]Significant at or beyond the .05 level ($P < .05$).

TABLE 27

Multiple Correlation Analysis Showing Contribution of Input Variables Significantly Correlated with Program Criterion[a] for Women Students (N = 150)

Step No.	*Variable Entered[b] or Removed[c]*	*Mean*	*S.D.*	*b Coefficient*	*Multiple R*	*r*	*F Value to Enter or Remove[d]*
1	Home economics competencies scale	6.57	2.7	0.04382	0.2960	0.296	14.2165
2	Intention to improve writing skills	0.69	0.5		0.3547	−0.214	6.4133
3	Secretarial and clerical competencies scale	3.83	2.3	0.05303	0.3968	0.233	5.4898
4	Intention to improve arithmetic skills	0.56	0.5	−0.19600	0.4348	−0.245	5.6541
5	Number of hours per week of homework while in high school	2.99	0.9	−0.14258	0.4786	−0.207	7.4700
6	Intention to improve writing skills				0.4590		3.4336
7	Scientific ability self-estimate	1.92	0.6	0.17863	0.4907	0.088	5.7026
8	Sales ability self-estimate	1.83	0.6	−0.17116	0.5205	−0.090	5.9175
9	Conventional scale (VPI)	2.18	2.7	−0.04298	0.5458	−0.083	5.4581
10	Business activities and interest scale	1.99	1.5	0.06788	0.5671	0.171	4.9171

[a]The criterion was scored "1" if the student was enrolled in a transfer program and "2" if the student was enrolled in an occupational program.

[b]Only 9 of 79 input variables entered into the stepwise correlation analysis at the .05 level; one variable was removed leaving 8 in the equation.

[c]One variable—Intention to improve writing skills—was added at the 2nd step but was removed from the equation at the 6th step.

[d]Significant at or beyond the .05 level ($P < .05$).

APPENDIX H

CORRELATION OF BACKGROUND AND PERSONAL VARIABLES

TABLE 28

Correlations of 79 Background and Personal Variables with Student Enrollment in Either a Transfer or an Occupational Program (Criterion variable: Transfer = 1, Occupational = 2)

Variable	*Men (N = 357)* r	*Women (N = 150)* r	*Total (N = 507)* r
VPI Scales			
1. Realistic	0.179	−0.049	0.109
2. Intellectual	−0.017	−0.114	−0.047
3. Social	−0.243	−0.143	−0.175
4. Conventional	−0.165	−0.083	−0.146
5. Enterprising	−0.229	−0.067	−0.190
6. Artistic	−0.180	−0.163	−0.147
7. Infrequency	0.167	0.143	0.161
8. Self-Control	0.079	0.003	0.063
9. Masculinity	0.125	0.063	0.069
10. Status	−0.302	−0.143	−0.243
11. Acquiescence	−0.171	−0.176	−0.172
CCGP Activities and Interest Scales			
12. Skilled and technical	0.272	0.124	0.154
13. Business	−0.116	0.171	−0.017
14. Music	−0.139	0.041	−0.067
15. Literary	−0.298	−0.086	−0.191
16. Drama	−0.249	−0.027	−0.145
17. Leadership	−0.151	0.080	−0.075
18. Science	0.044	0.123	0.060
19. Artistic	−0.042	−0.053	−0.043
CCGP Competencies Scales			
20. Skilled and technical	0.364	0.151	0.194
21. Secretarial and clerical	−0.072	0.233	0.044
22. Business	−0.095	0.041	−0.068
23. Community service	−0.157	0.127	−0.044
24. Home economics	0.014	0.296	0.102
25. Leadership-Persuasive	−0.138	0.145	−0.055
26. Scientific skills and knowledge	−0.068	0.129	−0.013
27. Artistic	−0.089	0.092	−0.024
28. Language	−0.088	−0.090	−0.078
CCGP Ability Self-Estimates			
29. Mechanical ability	0.200	0.110	0.155
30. Mathematical ability	0.050	0.158	0.077
31. Scholarship	−0.018	−0.170	−0.060
32. Artistic ability	0.024	−0.052	0.002
33. Speaking ability	−0.128	0.107	−0.056
34. Scientific ability	−0.024	0.088	0.003
35. Writing ability	−0.205	−0.028	−0.146
36. Research ability	−0.006	−0.088	−0.029
37. Acting ability	−0.094	0.027	−0.055
38. Clerical ability	−0.107	0.159	−0.010
39. Managerial ability	−0.130	0.011	−0.095
40. Sales ability	−0.109	−0.090	−0.107
CCGP Personal Characteristic Self-Estimates			
41. Originality	−0.148	−0.075	−0.126
42. Drive to achieve	0.051	−0.023	0.033
43. Aggressiveness	−0.068	0.043	−0.040
44. Self-Control	−0.047	0.086	−0.012
45. Independence	−0.176	0.140	−0.087
46. Practical-Mindedness	−0.070	0.051	−0.033
47. Self-Confidence (intellectual)	−0.057	0.052	0.054
48. Perseverance	−0.059	−0.072	−0.060
49. Physical energy	−0.131	0.069	−0.076
50. Physical health	−0.131	0.040	−0.082
CCGP Interpersonal Characteristic Self-Estimates			
51. Leadership	−0.104	0.093	−0.049
52. Understanding others	−0.133	0.079	−0.067
53. Sociability	−0.060	0.204	0.019
54. Self-Confidence (social)	−0.015	0.116	0.024
CCGP Special Educational Needs			
55. Reading skills	−0.059	−0.014	−0.048
56. Spelling skills	−0.062	−0.004	−0.044
57. Arithmetic skills	0.085	−0.245	−0.015
58. Writing skills	−0.106	−0.214	−0.138
59. Study habits	−0.116	−0.023	−0.089

(continued)

TABLE 28 *(continued)*

Variable	*Men (N = 357) r*	*Women (N = 150) r*	*Total (N = 507) r*
CCGP Item			
60. Highest level of education expected to complete	−0.156	−0.509	−0.180
61. Highest level of father's education	0.132	−0.115	−0.117
62. Highest level of mother's education	−0.100	−0.008	−0.069
63. Time of initial decision to attend college	0.300	0.166	0.236
CardPac Data			
64. Iowa Tests of Educational Development Composite Score	−0.266	−0.130	−0.216
65. High school grade average (mark-point average)	−0.084	−0.110	−0.073
Pupil Inventory Items			
66. Level of father's occupation	−0.139	−0.012	−0.100
67. Amount of mother's work for pay	−0.105	−0.086	−0.098
68. Highest level of father's education	−0.135	−0.092	−0.123
69. Highest level of mother's education	−0.116	0.015	−0.076
70. Number of hours per week pupil worked for pay	0.041	0.077	0.044
71. Number of hours per week pupil worked for which not paid	0.124	0.161	0.133
72. Number of hours per week pupil spent doing homework	−0.111	−0.207	−0.127
73. Number of unpleasant experiences with other pupils	0.008	−0.002	0.008
74. Attitude toward studying	0.093	0.091	0.085
75. Pupil perception of teacher's academic rating of pupil	0.204	0.080	0.153
76. Pupil prediction of college grade average	−0.013	−0.033	−0.014
77. Highest level of education desired to attain	−0.516	−0.400	−0.475
78. Highest level of education expected to attain	−0.489	−0.483	−0.485
79. Frequency pupil drove parent's car	−0.198	0.033	−0.115

APPENDIX I

ADDITIONAL TABLE

TABLE 29

Transfer and Occupational Students Compared with Regard to Their Expressed Satisfaction with Their First Choice of Occupation

Degree of Satisfaction	*Transfer (%)*	*Occupational (%)*
MEN		
Well satisfied with choice	35.7	54.1
Satisfied, but have a few doubts	45.1	36.2
Not sure, dissatisfied but intend to remain, or very dissatisfied and intend to change	19.2	9.8
	N = 286	N = 298
WOMEN		
Well satisfied with choice	48.4	73.1
Satisfied, but have a few doubts	38.8	23.4
Not sure, dissatisfied but intend to remain, or very dissatisfied and intend to change	12.8	3.5
	N = 126	N = 145

MEN: Chi square = 23.142 df = 2 $p < .001$
WOMEN: Chi square = 20.598 df = 2 $p < .001$

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