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ABSTRACT

This paper reports on an examination of the differences between and among community college students enrolled in transfer and occupational programs. Data were gathered from a sample of 924 full-time freshman and sophomore students enrolled in transfer and occupational programs in three Iowa community colleges in the spring of 1968. Seventy-nine variables were examined among students grouped by sex and program. Men differed on 44 counts, with transfer men holding higher mean scores than occupational men on 35 of 44 variables, while women differed on only 15 variables. Differences were reported regarding: personality, various competencies, interests, academic aptitude, educational aspiration, self-reported characteristics, socioeconomic background, and other factors. Important implications for junior colleges as well as 4-year colleges and for counselors in secondary schools are noted. (Author/CA)

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**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.

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**CLEARINGHOUSE FOR  
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## HOW DO COMMUNITY COLLEGE TRANSFER AND OCCUPATIONAL STUDENTS DIFFER?<sup>1</sup>

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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

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-

<sup>1</sup>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.

<sup>2</sup>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

College	Program		Sex		Class	
	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

	Sex	Program	
		Transfer	Occupational
<b>Men</b>			
Freshmen		273	234
Sophomores		64	77
Totals		337	311
<b>Women</b>			
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, key-punched 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	Scales	Transfer	Occupational
<b>VPI Scales</b>			<b>Self-Estimates—</b>		
Realistic		X <sup>a</sup>	Interpersonal Characteristics		
Artistic	X		Leadership	X	
Social	X		Understanding others	X	
Enterprising	X		<b>Self-Estimates—</b>		
Conventional	X		Selected Abilities		
Intellectual		X	Mechanical ability		X
<b>Personality Scales</b>			Mathematical ability		X
Masculinity		X	Speaking ability	X	
Status	X		Writing ability	X	
Acquiescence	X		Sales ability	X	
<b>Competency Scales</b>			Managerial ability	X	
Skilled & technical		X	<b>Self-Estimates—</b>		
Community service	X		Personal Characteristics		
Leadership-Persuasive	X		Originality	X	
Artistic	X		Aggressiveness	X	
<b>Interest Scales</b>			Independence	X	
Skilled & technical		X	Physical energy	X	
Business	X		Physical health	X	
Music	X		<b>Socioeconomic Background</b>		
Literary	X		Father's occupation	X	
Drama	X		Father's education	X	
Leadership	X		<b>Other Factors</b>		
<b>Academic Aptitude</b>			Hours of work per week for pay		X
ITED Composite	X		Time of initial decision to attend college	X	
MPA (high school)	X		Transfer intention	X	
GPA (college)		X			
<b>Educational Aspiration</b>					
Believed (high school)	X				
Expected (high school)	X				
Believed (community college)	X				
Expected (community college)	X				

<sup>a</sup>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 <sup>a</sup>	
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	

<sup>a</sup>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 occupa-

tional 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.

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## APPENDIX A

### VOCATIONAL PREFERENCE INVENTORY

TABLE 1

**Transfer and Occupational Men Students  
Compared with Regard to Their Scores  
on the Vocational Preference Inventory Scales<sup>1</sup>**

*Results of ANOVA—5 Income Levels x 2 Student Groups*

<i>VPI Scale</i>	<i>Occupational Interests</i>	<i>Groups</i>	<i>F-Statistics</i>	
			<i>Income</i>	<i>Groups x Income</i>
	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*

<i>VPI Scale</i>	<i>Occupational Interests</i>	<i>Groups</i>	<i>F-Statistics</i>	
			<i>ITED</i>	<i>Groups x ITED</i>
	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.

<sup>1</sup>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 (N = 122)		Occupational (N = 134)		t
	Mean	S.D.	Mean	S.D.	
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 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 (N = 122)		Occupational (N = 134)		t
	Mean	S.D.	Mean	S.D.	
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.

**TABLE 3**

**Transfer and Occupational Men Students Compared with Regard to Their Scores on the Personality Scales of the Vocational Preference Inventory Scales<sup>1</sup>**

*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.

<sup>1</sup>For a more complete description of the analysis of variance results please write ACT for the Technical Supplement to this Research Report.

## APPENDIX B

### GUIDANCE PROFILE SCALES

**TABLE 5**

**Transfer and Occupational Men Students Compared  
with Regard to Their Scores on the  
Guidance Profile Competencies Scales<sup>1</sup>**

*Results of ANOVA—5 Income Levels x 2 Student Groups*

<i>Guidance Profile Competency Scale</i>	<i>Groups</i>	<i>F-Statistics</i>	
		<i>Income</i>	<i>Groups x Income</i>
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*

<i>Guidance Profile Competency Scale</i>	<i>Groups</i>	<i>F-Statistics</i>	
		<i>ITED</i>	<i>Groups x ITED</i>
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.

<sup>1</sup>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 (N = 128)		Occupational (N = 145)		t
	Mean	S.D.	Mean	S.D.	
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 (N = 122)		Occupational (N = 134)		t
	Mean	S.D.	Mean	S.D.	
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	Groups	F-Statistics	
		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	Groups	F-Statistics	
		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

<i>ITED Composite Standard Score</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>t</i>
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<sup>1</sup>

Results of ANOVA—5 Levels x 2 Student Groups

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

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

Women Students

<i>Group</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>t</i>
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.

<sup>1</sup> 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<sup>1</sup>**

*Results of ANOVA—5 Levels x 2 Student Groups*

Variable	Groups	F-Statistics	
		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.

<sup>1</sup>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**

Highest Level of Education	Transfer (%)		Occupational (%)	
	Believed	(Expected)	Believed	(Expected)
<b>MEN</b>				
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		N = 239	
<b>WOMEN</b>				
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		N = 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**

<i>Highest Level of Education</i>	<i>Transfer (%)</i>		<i>Occupational (%)</i>	
	<i>Believed</i>	<i>(Expected)</i>	<i>Believed</i>	<i>(Expected)</i>
<b>MEN</b>				
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	
<b>WOMEN</b>				
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<sup>1</sup>

Results of ANOVA—5 Income Levels x 2 Student Groups

Self-Estimate Variable	Groups	F-Statistics	
		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	Groups	F-Statistics	
		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.

<sup>1</sup>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	S.D.	Mean	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<sup>1</sup>**

*Results of ANOVA—5 Income Levels x 2 Student Groups*

Personal Characteristics	Groups	F-Statistics	
		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	Groups	F-Statistics	
		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.

<sup>1</sup>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		t
	Mean (N = 128)	S.D.	Mean (N = 146)	S.D.	
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<sup>1</sup>**

*Results of ANOVA—5 Income Levels x 2 Student Groups*

Personal Characteristics	Groups	F-Statistics	
		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	Groups	F-Statistics	
		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.

<sup>1</sup>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	S.D.	Mean	S.D.	
	(N = 128)		(N = 146)		
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 (%)
<b>MEN</b>		
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
<b>WOMEN</b>		
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 (%)
<b>MEN</b>		
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
<b>WOMEN</b>		
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 (%)
<b>MEN</b>		
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
<b>WOMEN</b>		
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 (%)
<b>MEN</b>		
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
<b>WOMEN</b>		
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<sup>1</sup>

Results of ANOVA—5 Levels x 2 Student Groups

Variable	Groups	F-Statistics	
		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.

<sup>1</sup>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<sup>a</sup> for Male Students (N = 357)

Step No.	Variable Entered <sup>b</sup> or Removed <sup>c</sup>	Mean	S.D.	b Coefficient	Multiple R	r	F Value to Enter or Remove <sup>d</sup>
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

<sup>a</sup>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.

<sup>b</sup>Only 11 of 79 input variables entered into the stepwise correlation analysis at the .05 level.

<sup>c</sup>None of the variables were removed from the equation in this analysis.

<sup>d</sup>Significant at or beyond the .05 level (P < .05).

TABLE 27

Multiple Correlation Analysis Showing Contribution of  
Input Variables Significantly Correlated with Program Criterion<sup>a</sup>  
for Women Students (N = 150)

Step No.	Variable Entered <sup>b</sup> or Removed <sup>c</sup>	Mean	S.D.	b Coefficient	Multiple R	r	F Value to Enter or Remove <sup>d</sup>
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	0.3547	-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

<sup>a</sup>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.

<sup>b</sup>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.

<sup>c</sup>One variable—Intention to improve writing skills—was added at the 2nd step but was removed from the equation at the 6th step.

<sup>d</sup>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)	Women (N = 150)	Total (N = 507)
	<i>r</i>	<i>r</i>	<i>r</i>
<b>VPI Scales</b>			
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
<b>CCGP Activities and Interest Scales</b>			
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
<b>CCGP Competencies Scales</b>			
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. <i>stic</i>	-0.089	0.092	-0.024
28. <i>guage</i>	-0.088	-0.090	-0.078

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

<i>Degree of Satisfaction</i>	<i>Transfer (%)</i>	<i>Occupational (%)</i>
<b>MEN</b>		
We'll 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
<b>WOMEN</b>		
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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