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Factors influencing minority enrollment in postsecondary vocational-technical education programs in the state of Iowa

Samuel Chukuemeka Obi
University of Northern Iowa

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Obi, Samuel Chukwuemeka, D.I.T.

University of Northern Iowa, 1989

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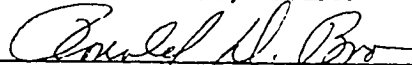
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A Dissertation
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In Partial Fulfillment
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Doctor of Industrial Technology

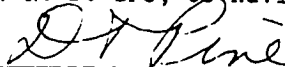
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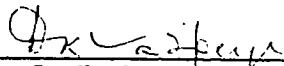
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August 1989

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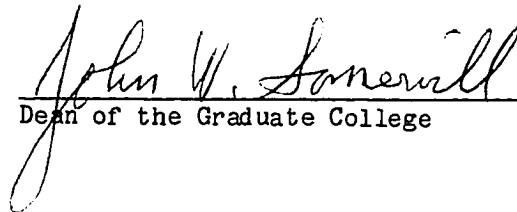
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Faculty Advisor



Dean of the Graduate College

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ABSTRACT

A study involving minority students was undertaken to ascertain and validate pertinent variables that influenced their enrollment in the postsecondary vocational-technical education programs in the state of Iowa. The study was also used to determine: (a) whether there were significant differences in the perceptions of postsecondary vocational-technical education minority students and vocational-technical-minded minority high school seniors on the one hand, and college-minded, vocational-technical-minded, and non-college/non-vocational-technical-minded minority high school seniors on the other; (b) whether the identified variables had comparable influences on postsecondary minority students to what the students thought; (c) the sources from which minority students learned the most about the programs; and (d) whether the students had positive or negative opinions about the programs.

Two different populations of students were used: postsecondary vocational-technical education minority students and minority high school seniors. The samples, chosen on the basis of minority population availability, included all postsecondary minority students enrolled in vocational-technical education programs in seven Iowa community institutions, and minority high school seniors enrolled in the Waterloo, Iowa school system. The subjects were surveyed in the spring semester of 1989.

It was found that the following factors had great influence on minority student enrollment in vocational-technical education

programs of study: role models, support groups, ethnic culture on the school's campus, program requirements, fear of failure, counseling services, and accessibility to an institution. The results also showed that postsecondary minority students and technical-minded minority high school seniors exhibited few significant differences in their perceptions regarding the programs, but the three groups of high school seniors perceived the programs similarly. The scores of postsecondary minority students on their opinions of what would be ideal influences on their enrollment were significantly higher than the actual influences. This suggested that the students would like to be influenced more by the factors. Most of the postsecondary students and high school seniors learned about the programs from high school counselors/teachers, friends, recruiters, parents, by visiting schools, and by reading college literature. The results also showed that an overwhelmingly large majority of the students were interested with the programs and had positive opinions about them.

DEDICATION

This dissertation is dedicated to
my wonderful wife
Adora Nwabuogo Obi
who patiently took charge of our
children during my doctoral studies

ACKNOWLEDGMENTS

This study would not have been possible without the able and dedicated support I received from various individuals, notably my five-member doctoral committee who faithfully worked with me all the way in the course of my studies. My major advisor, Dr. Ervin A. Dennis, labored with me not only in the course of writing this dissertation but also throughout my doctoral work. His professional advice and constant support provided a decisive guidance in accomplishing this study.

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I am particularly grateful to Dr. Gerald D. Bisbey, Coordinator of Institutional Research for the University of Northern Iowa, who

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My candid appreciation is also extended to the administrators and minority students of all the community colleges and high schools who participated in the study. These administrators and students willingly offered to participate and made provisions for the study. Lack of space did not permit that their names be mentioned here. Their sacrificial consent and willing cooperation were very much appreciated.

Last, but not the least, my wife, Adora; my daughter, Ngozi; and my son, Chuks; were very very helpful and supportive throughout the period of my studies. Words could never explain how they helped me by having to pray, wait, persevere, and hope. To them, especially my wife, I promise that I will never leave them alone as I did in the course of this study. May God bless you all.

CONTENTS

DEDICATION.....	ii
ACKNOWLEDGMENTS.....	iii
CONTENTS.....	v
LIST OF TABLES.....	ix
CHAPTER 1:	
THE PROBLEM.....	1
Background of the Problem.....	1
Need for the Research.....	3
Statement of Purpose.....	6
Statement of the Problem.....	6
Research Questions.....	7
Limitations.....	8
Assumptions.....	9
Operational Definitions.....	10
Research Budget.....	12
Schedule of Research Activities.....	12
CHAPTER 2:	
REVIEW OF THE LITERATURE.....	14
Minorities and Vocational Education.....	14
Factors Influencing Minority Enrollment:	
Macroscopic Perspective.....	17
Influences of Financial Aid and Individuals.....	20
Roble's Findings: The Influence of Counseling on Minority Students.....	23

Influences of Accessibility and Grade Point Average.....	26
Influences of Ethnic Culture, Role Models, and Support Services.....	27
Other Variables.....	30
Summary of Related Research and Information.....	33
CHAPTER 3:	
METHODOLOGY.....	36
Preparation of the Survey Instruments.....	36
Section One of the Instruments.....	39
Section Two of the Instruments.....	40
Selection of the Subjects for the Study.....	42
The Populations.....	43
The Samples.....	44
Pilot Test of the Instruments.....	46
Modification of the Survey Instruments.....	47
Administering the Survey.....	49
CHAPTER 4:	
DATA PRESENTATION.....	53
Demographic Data.....	53
Data Presentation.....	59
Data Presentation for Research Question Number One.....	59
Data Presentation for Research Question Number Two.....	68
Postsecondary Students Versus Technical-Minded Seniors.....	69
College-, Non-College/Non-Technical-, and Technical-Bound Minority High School Seniors.....	74

Data Presentation for Research Question Number Three.....	77
Data Presentation for Research Question Number Four.....	82
Data Presentation for Research Question Number Five.....	85
Other Supportive Data.....	89
CHAPTER 5:	
DATA ANALYSES.....	96
Analyses of Research Question Number One.....	96
Analyses of Research Question Number Two.....	98
Postsecondary Students Versus Technical-Minded Minority High School Seniors.....	99
Analyses of Research Question Number Three.....	101
Analyses of Research Question Number Four.....	102
Analyses of Research Question Number Five.....	104
CHAPTER 6:	
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.....	107
General Summary.....	107
Summary of the Results.....	111
Conclusions.....	113
Recommendations for Action.....	114
Recommendations for Further Study.....	117
REFERENCES.....	119
APPENDICES.....	124
A. Labor Market Information.....	125
B. Hawkeye Institute of Technology 1982/83 Minority Student Report.....	130

C. Research Budget.....	134
D. Schedule of Research Activities.....	136
E. Survey Instruments.....	138
F. Jury Members Who Validated the Survey Instruments.....	151
G. Letters of Transmittal for the Pilot Survey.....	157
H. Additional Factors Provided by Minority Students.....	165
I. Letters Requesting Permission to Conduct the Main Survey...	172
J. Letters of Transmittal During Administration of the Main Survey.....	183
K. Follow-Up Letter to Absent Minority High School Seniors....	193
L. Table L-1.....	195
M. Letters of Appreciation to the Cooperating Administrators..	200
VITA.....	204

LIST OF TABLES

TABLES	PAGE
1. Survey Administration Dates as Scheduled by Institutions.....	50
2. Survey Participation by Institution.....	54
3. Survey Participants by Sex.....	55
4. Minority Student Participants by Race.....	56
5. Classification of Minority High School Seniors by Career Aspirations.....	57
6. Postsecondary Minority Student Participants by Age.....	58
7. Mean Scores of Actual and Opinionative Influences of Variables on Postsecondary Minority Student Selection of Programs of Study.....	61
8. Mean Scores for Vocational-Technical-Bound, College-Bound, and Non-College/Non-Technical-Bound Minority Seniors on the Influence of Factors on their Selection of Vocational- Technical Education Programs.....	64
9. Comparison of Mean Scores for Postsecondary Minority Students and Technical-Bound Minority High School Seniors Regarding the Influence of Factors on their Enrollment in Vocational-Technical Programs.....	71
10. A Comparison of the Mean Scores for the Actual and Opinionative Influences of Variables on Postsecondary Minority Student Program Selection.....	79
11. Sources from Which Minority Students Learned the Most About Vocational-Technical Education Programs of Study in Iowa.....	82
12. When Minority Students First Learned About Vocational- Technical Education Programs of Study.....	84
13. Postsecondary Minority Students' Responses to Whether They Liked or Disliked Their Programs of Study.....	86
14. Seniors' Responses to Whether They Would Consider Enrolling in a Postsecondary Vocational-Technical education Program of Study.....	87

15. Why Seniors Liked Vocational-Technical Education Programs of Study.....	87
16. Why Seniors Disliked Vocational-Technical Education Program.....	88
17. Minority Student Opinions About Vocational-Technical Education Programs.....	89
18. Postsecondary Minority Student Responses to Whether Support Services Were Available at Their Colleges.....	90
19. Distances from School Postsecondary Minority Students Lived.....	91
20. How Postsecondary Minority Students Commuted to School.....	91
21. Reasons Why Postsecondary Minority Students Selected Programs.....	92
22. Postsecondary Minority Student Responses to Whether They Were Contacted and Encouraged by Recruiters to Attend School.....	93
23. Number of Fellow Minority Students in the Same Courses.....	94
24. Activities Provided in Postsecondary Institutions.....	95
H-1. Additional Factors and Associated Mean Ratings Provided by Minority Students During the Pilot Survey Administration....	167
H-2. Additional Factors and Associated Mean Ratings Provided by Minority Students During the Main Survey Administration....	170
L-1. Comparison of Mean Scores of College-Bound, Vocational-Technical-Bound, and Non-College/Non-Technical-Bound Minority Seniors on the Influence of Factors on their Enrollment in Vocational-Technical Education Programs of Study.....	196

CHAPTER 1

THE PROBLEM

It was endeavored in this study to determine some of the pertinent factors that influence minority students in their selection of courses of study relative to vocational-technical education programs. In this study, vocational-technical education programs included all postsecondary, non-baccalaureate courses of study that were technically oriented, such as electronics, power, mechanical, automechanics, and machine tool technologies. Moreover, the names "vocational-technical education," "technical education," and "trade and industry education" were used synonymously.

Background of the Problem

Labor participation reports published on Iowa counties the past three years showed higher rates of unemployment for minorities than those for caucasians (Iowa Department of Employment Services, 1985, 1986, 1987). For example, in Black Hawk County, unemployment rates for minorities in 1984 through 1986 were 14.8%, 31.0%, and 27.9%, while rates for caucasians, for the same periods, were 6.9%, 13.3%, and 11.7% respectively (Iowa Department of Employment Services, 1985, 1986, 1987). Rates for other counties followed a similar pattern.

Historically minorities have had higher unemployment rates than caucasians in the state of Iowa and the nation. Saenz, Goudy, and Lee (1987) reported that minorities in the state of Iowa had concurrently higher unemployment rates for the three decades before the census of 1980. It has been determined that several factors were

related to this trend. A report from the United States Bureau of Labor Statistics (1983) (Appendix A) included a section which read:

Joblessness among adult workers declines as educational attainment rises. Among persons 25 years of age and over, the more years of school completed, the less the likelihood of unemployment.... Jobless rates for black workers in 1982 were over twice those of the white workers.... Unemployment rates for persons of Hispanic origin tend to be about 1.5 times that of their white counterparts. Joblessness [also high] varies among Mexican, Puerto Rican, and Cuban subgroups, reflecting their diverse cultural background, age composition, educational level, residential patterns, as well as other factors. (pp. 10 & 14)

The personnel in the Iowa Department of Job Service (1981) had previously given the following as some of the reasons for the high rates of minority unemployment: (a) lack of vocational skills, and (b) lack of education. These reasons indicated that at least some minorities could not be employed because they did not have the education and skills which employers required.

The combined consequences of lack of skills and education on minorities attracted the attention of researchers in the 1980s. Philips (1985), for example, noted that members of minority populations had experienced widespread unemployment problems as the society witnessed a transition to new technologies. Blacks and Hispanics were especially affected because they "occupied jobs at the lower rung of the declining industries" (Philips, 1985, p. 218). They had risen from poverty level only in very small numbers, with a disproportionately large number of them living as sharecroppers in rural areas or remaining unemployed in cities because they had no skills (Fischer, 1980).

Robinson (1982), in his work on Contemporary Challenges for Vocational Education, stated:

Inability to read, write and perform basic mathematics is a significant problem for unemployed youths. Former Vice President Walter Mondale's Task Force on Youth Unemployment (1980) asserts that the underlying reason for many young people not finding a job is that they lack the basic educational skills crucial to training and employment.... The basic skills of reading and mathematics are critically important for all U.S. citizens, particularly in a society whose economy is tilting ever more toward service. (p. 209)

Philips (1985) also warned that the major problem that faced minorities was the need to get a good education so as to be prepared for the new jobs that would be created. An underlying factor for this concern was the rapid advance in technical innovation evidenced in many manufacturing and service industries. Acquisition of necessary skills would help prepare minorities for future jobs.

Need for the Research

The need for the study arose from the fact that predominantly white institutions have underenrolled ethnic minority students. According to Wright (1987), these institutions have done little to correct the situation. Moreover, Philips (1985) stated that:

Higher education census data for 1982 show that in almost all occupational categories requiring some degree of postsecondary education and training, minority groups are significantly underrepresented. Black Americans constitute approximately 9 percent of all students enrolled in higher education. Hispanics represent 4 percent, while Asians and Native Americans represent 2.9 percent and 0.7 percent respectively. (pp. 220-221)

This also held true for vocational-technical institutions. For instance, minority students were generally underrepresented in the vocational-technical education programs in the state of Iowa.

Minorities made up some 10,071 persons (or 7.3%) in the most recent census taken of the population in Black Hawk County (1980) out of 137,961 people (U.S. Census Bureau, 1980). Moreover, student records received from Sharon Droste, coordinator of student accounting, Waterloo public school system, indicated that a total of 152 (or about 20% of 767 seniors) minority high school seniors graduate each year from the Waterloo public school system. A report from Hawkeye Institute of Technology, however, (the only vocational-technical institution in the area) indicated that minority student enrollment was always low. For example, examination of student records revealed that minority student enrollments in the electronics, power mechanics, and manufacturing/engineering technology programs at the institution for the 1982/83 academic year were only 2%, .04%, and 3% respectively (Appendix B). That particular year, there were only 11 minority students or 2.7% of the 393 students enrolled in the combined vocational-technical education programs. The need for the study is then reflected on the county level.

These percentages seemed low when compared with 7.3% of minorities who live in Black Hawk County, or with the minority seniors who comprised about 20% of all seniors who graduate each year in the Waterloo public school system. Moreover, the figures appear low in lieu of Cross's (1971) finding that when compared with other segments of higher education, community institutions are more accessible to black students. Nor are they consistent with the findings of Gilley (1979) and Lincoln (1979), namely, that of the

more than one million black youth who were pursuing some form of higher education, 60% were attending two-year colleges, trade, or technical schools. The low representativeness of minority students in the above programs of study also suggested that the high minority unemployment rate was related to the low number of minority students enrolled in an Iowa area community institution. The reason for the low number of minority students needs to be studied to determine root causes.

Interviews held at Hawkeye Institute of Technology with Glen Schrock, department head of vocational-technical education programs, and Sammie Dell, minority student affairs director, on February 22, 1988, revealed that there was a great need to for this study in order to assist them in obtaining a higher percentage of minority student enrollment in vocational-technical education programs offered in that institution. This realization was because very few minorities (sometimes none) were enrolling and the personnel wanted to increase the number of minority students in that department to ensure social equality and equity among the ethnic groups. Moreover, occasional attempts had been made by the department to recruit more minority students into the programs, but with little success.

Perhaps, the needs of postsecondary minority students in the area had not been properly met by vocational-technical education. This appeared to be a problem that demanded a research-based solution.

The findings from this study might be used to develop recruitment programs for effective recruitment of minorities into these programs. Effective recruitment of minority students into these programs would

result in their acquiring employable skills which should gain them more employment. The result might be a reduction in their unemployment rate in the state of Iowa.

Statement of Purpose

One major purpose of this study was to ascertain the degree of influence certain identified pertinent factors (variables) had on minority students' decisions in selecting vocational-technical education programs in the state of Iowa. It was assumed that such a finding might aid in developing effective recruitment programs incorporating those factors for the purpose of recruiting minorities into vocational-technical education programs. More minorities might be attracted into the programs which could result in their gaining additional education and employable skills.

Statement of the Problem

A major problem of the study was to validate, through subjects' responses, selected factors which were reported to influence minority student enrollment in vocational-technical education programs and to determine their level of influence on those students in the state of Iowa. It was also endeavored in the study to determine: (a) the sources from which minority students learned about vocational-technical education programs, (b) their opinions and attitudes (positive or negative) about the programs, and (c) whether there were significant differences in the ways different classifications of minority students perceived the programs.

Research Questions

There were five major research questions. Ten factors were identified through a review of literature as having considerable potential for influencing minority student enrollment in community institutions. These factors were grouped under question number one. The second question was designed to ascertain: (a) whether there was a difference on how technical-bound minority high school seniors and postsecondary students perceived vocational-technical education, and (b) whether there was a significant difference in the ways minority high school seniors with different career aspirations perceived vocational-technical education programs. The third question was used to compare how the factors that had already influenced postsecondary minority students agreed with what the students thought the influence should be. Question four identified from what sources minority students became acquainted with the programs, while question five was designed to ascertain whether minorities had positive or negative opinions about technical education programs. The specific research questions were as follows:

Question No. 1: To what extent did the following factors influence minority student enrollment in vocational-technical education programs in the state of Iowa: role models, support groups, ethnic culture, age, program requirements, fear of failure, counseling, extra-curricular activities, accessibility to institution, and grades?

Question No. 2: Were there significant differences in the perceptions regarding selected aspects of vocational-technical

education of (a) postsecondary minority students and technical-bound minority high school seniors, and (b) minority seniors of different career classifications?

Question No. 3: Were there significant differences between how the ten factors (in question no. 1) actually influenced enrolled postsecondary minority students and what the students thought should be the degree of influence on their enrollment?

Question No. 4: From what sources did minority students learn about vocational-technical education programs?

Question No. 5: What were minority students' opinions, and to what extent did they have positive or negative opinions, about vocational-technical education programs?

Limitations

In this study, an attempt was made to concentrate on a small segment of the society. The study was limited to:

1. Iowa postsecondary, non-baccalaureate degree vocational-technical education programs selected on the basis of adequate minority population availability in the counties served by the participating community institutions.
2. Minority high school seniors in Iowa represented by seniors in Waterloo public school system.
3. Only those non-baccalaureate, postsecondary degree programs that were technically oriented.
4. The time and financial resources available.
5. The following courses of study offered in the seven selected community institutions: electronics, auto mechanics, machine tool,

welding, mechanical drafting, carpentry, agricultural power and machinery, computer programming, electronics engineering technology, machine shop, welding and cutting, electrical occupations, small engine mechanics, masonry construction, heating and air conditioning, aviation maintenance, architecture and construction drafting, auto body repair, civil engineering technology, diesel truck mechanics, photography, machine operator, machine tool maintenance, mechanical technology, machine and tool design, mechanical drafting and design technology, automotive parts management, tool and die making, building construction, electronic service technician, general technology, industrial service technician, machine general/specialist, mechanical engineering technology, automotive technology, computer operators, electro-mechanical technology, motorcycle mechanics, solar energy technology, mechanics specialization, engine mechanics, industrial electrician, chemical technology, computer maintenance, plumbing and pipefitting, graphic arts, programmers, computer and console operators, electronic communications, upholstery, architectural construction, machine and tool design, radio/television, solar systems technology, key punch operator, and avionic technology (Iowa Department of Public Instruction, 1979/80; Hawkeye Institute of Technology, 1987-89).

6. Minority students enrolled in the above selected vocational technical education programs.

Assumptions

The assumptions made in this study applied only to the state of Iowa because the needs established regarding high unemployment and

low enrollment rates were all specific concerns of the state. The study was based on the following underlying assumptions:

1. Minority students could be recruited effectively when research-based techniques were followed since research is a scientific means of finding answers to specific problems (Clover & Balsley, 1984).
2. The minority adult population in a metropolitan and statistical area (MSA) determined the extent to which there would be minority students enrolled in the area's vocational-technical institutions.
3. Those minorities selected would represent all minority high school seniors and postsecondary vocational-technical education students in the state of Iowa.
4. Minority postsecondary vocational-technical education students were considered a homogeneous group.
5. Minority high school seniors were considered a heterogeneous group.

Operational Definitions

Because some terms were used to relate specifically to this study, they were defined. This would help to clarify their use in the context of this research.

Accessibility to Institution. The ease of transportation to and from the institution. The closer the institution was to the place of residence (city), the easier it was for minority students to attend.

Community Institution. Any two-year institution that offered a program of study in trade and industry for the purpose of training

students to learn and acquire employable skills of a technical nature.

Ethnic Culture. A style of social expression and behavior patterns peculiar to a particular ethnic group.

Minority Student. Any student who by ethnicity was a Black, Hispanic, Spanish, Mexican, Native American, or Puerto Rican, and who was also a citizen of the United States of America. White Female Americans were not included in this definition.

Persistence. Ability to continue in a program, after initial enrollment, until program was successfully completed.

Predictive Factor. Any variable that helped to determine how a student would perform in a program of study.

Role Models. Instructors who were members of the minority population who were employed to mentor, teach, and give vocational guidance to minority students in vocational-technical education programs.

Support Groups. All activities and/or programs whose aims were to provide incentives to minority students who were enrolled in a program of study. Examples included counseling, job placement, vocational guidance, and financial aid programs through agencies such as Talent Search and Upward Bound.

Technical Education. The branch of education devoted to instruction and training in occupations above the craftsman or trade levels, but not generally professional in nature. Instruction might not be baccalaureate in content but was evaluated usually by credit criteria rather than clock hours. The courses qualified persons for

employment in paraprofessional positions and as technicians, engineering aids, and production specialists (Freitag, 1987).

Trade and Industry Education. Instruction planned to develop basic manipulative skills, safety practices, judgement, technical knowledge, and related occupational information for the purpose of fitting persons for initial employment in industrial occupations or upgrading and retraining workers employed in industry (Freitag, 1987).

Vocational-Technical Education. All activities and experiences through which a student prepared himself or herself with marketable skills for a work role of a technical nature in trade and industry that occurred in a non-baccalaureate, postsecondary degree program (Iowa Department of Job Services, 1981).

Research Budget

The cost of the entire study was nearly one thousand five hundred dollars (\$1,500). Of this amount, the Office of the Vice President for Academic Affairs, University of Northern Iowa, provided seven hundred dollars (\$700). A break down of the cost and activities is shown in Appendix C.

Schedule of Research Activities

The research demanded much planning and coordination. Some of the activities, particularly those involving letters of permission to conduct the survey, required ample lead time ahead of scheduled visiting and survey completion dates for smooth execution. The period for the study spanned approximately 10 months: September

1988, through June, 1989. All the activities scheduled within this time span are identified in Appendix D.

The findings from the study were reported and copies mailed to officials of the participating institutions. Letters of appreciation for cooperation (Appendix M) were also written and mailed to the administrators of each of the institutions that participated in the survey.

CHAPTER 2

REVIEW OF THE LITERATURE

There had been some studies conducted on minority students with regard to their attitudes and relationship to vocational-technical education in the United States. These research studies, journal articles, books, project reports, personal interviews with knowledgeable officials, newspaper and magazine articles were employed in the review of the literature. The findings from these sources are related here for the purpose of this study.

The attitudes of minority students toward vocational-technical education programs are covered in this chapter. The factors that have been reported to influence minority enrollment are also identified. The chapter ends with a summary of those factors.

Minorities and Vocational Education

There was an unsettled notion that black students were not attracted by vocational education programs. Research reports that supported this view usually left the impression that vocational education programs were inferior to other educational programs, notably, college four-year type programs of study. Schulman's (1973) study of Mexican-American youth, the study of minority women with concern to vocational education by Miranda and Associates (1977), and the study of minorities in technical education by the researchers at Stark Technical College (1977) supported such an attitude in minority students. Gilley's (1979), Lincoln's (1979), and Kinnebrew's (1984) studies of minority students clearly indicated otherwise. Whereas

Schulman, Miranda and Associates, and the researchers at Stark Technical College indicated that minorities considered vocational education as demeaning and detrimental to upward mobility, which therefore suggested that they would not enroll in the programs, Kinnebrew found no statistical difference in the proportions of blacks and Hispanic students when compared with white students who enrolled in vocational education programs in the counties he studied.

Likewise, Gilley (1979) and Lincoln (1979) both reported that of the more than one million black youth who were pursuing some form of higher education, 60% were attending two-year colleges and trade and technical schools. Kay (1976) also found that minorities attended postsecondary vocational-technical institutions twice (200%) their expected numbers. An important rationale for this particular finding was given by Philips (1985) who found that "in terms of high school preparation, Blacks, Chicanos, Native Americans, and Puerto Ricans tend to be more heavily enrolled in vocational or general high school curriculums than in a college preparatory curriculum" (p. 220). Supporting this finding also was the research conducted by Weber (1988) with high school students. He discovered that "the proportion of minority students in the vocational curriculum is significantly greater than the proportion of minority students in the general curriculum, which is significantly greater than the proportion of minority students served by the college-preparatory curriculum" (p. 42).

Since high school students constituted the pool from which most institutions--including community colleges--recruited their students, Weber's finding was important in that it identified sure and available pools of prospective minority students from which vocational-technical educators could always recruit vocational-minded students into vocational-technical programs. This opportunity was currently being utilized by the administrators of the College of Business, University of Northern Iowa with significant success. The Dean of the College, Paul Uselding, was interviewed on the issue of minority enrollment in his college on April 10, 1989. According to him, his staff had undertaken, and were in the process of implementing some strategic programs targeted at recruiting minority students.

The program, called financial assistance to deserving scholars (FADS), was put into place as a recruitment tool to assist minority students financially and supply them with job opportunities. The targeted population was the minority high school seniors in the Waterloo, Iowa school system. As of the spring semester of 1989, 13 minority students were already enrolled in the programs of the college and, according to the Dean, there were still plans to increase that number in the fall semester of the same year.

It appears then that there is adequate pool of prospective students from which vocational-technical educators could recruit their minority students. This was suggested by Hodgkinson (1985) who

found that the following trends have taken place as a result of the demographic changes in America:

More children entering school from poverty households, more children entering school from single parent households, more children from minority background..., a continuing decline in the level of retention to high school graduation in virtually all states except for minorities, a continued drop in the number of minority high school graduates who apply for college..., a continuing increase in the number of Black middle class students in the entire system, a major increase in college students who need both financial and academic assistance.... Increasing number of talented minority youth choosing the military as their educational route both due to cost and direct access to 'high technology'.... (p. 10)

Since Philips (1985) found that as a group, minority Americans tend to concentrate in two-year community colleges, it appeared that vocational educators could successfully achieve what the administrators in the College of Business at the University of Northern Iowa have accomplished. These findings suggested that minority students could be effectively recruited into vocational-technical education programs which are offered in the community colleges.

Factors Influencing Minority Enrollment: Macroscopic Perspective

Minority groups are classified into four major groups in America: Blacks, Hispanics, Asian/Pacific Islanders, and American Indians (Philips, 1985). A study undertaken by Wright (1987) revealed that the following factors, on a macroscopic approach, influenced minority enrollment in American institutions: Civil Rights Movement; Federal Support for higher education; Changes in immigration patterns; United

States policy on statehood; and World War II and other world conflicts.

Wright (1987) indicated that because of the social unrests of the 1960s, such as the Civil Rights Movement, people involved in American higher education witnessed an increase in minority enrollment particularly in the predominantly white institutions. There was also the issue of the federal support for higher education especially during the Johnson and Kennedy administrations. Such financial support came in the form of Pell grants, student loans, and college work study programs. These financial supports helped in the creation of "education and training programs for the educationally and economically disadvantaged" (Wright, 1987, p. 8).

Perhaps of equal importance was the passage of the Smith-Hughes Act in 1917 which gave some impetus to vocational education in the United States. The act required vocational educators to pay particular attention to the problem of social equality (Li, 1981). It also focused on tackling the "tremendous demand for skilled workers in business, industry, and agriculture" which emerged from the Industrial Revolution (Finch & McGough, 1982, p. 5). Embedded in the Smith-Hughes Act was the fundamental philosophy of vocational education which required vocational educators to provide equity among all the ethnic groups in the programs. Some of the goals in this philosophy as listed by Strong (1975) included: (a) to prepare skilled workers for available jobs, (b) to prepare persons to meet the demand of the nation's work force, (c) to equip all persons so

they could earn a living, (d) to cooperate with business and industry, and (e) to meet students' needs. Much of the federal support for higher education was geared to help meet these needs especially as they relate to minorities in vocational education programs. The result has been an increase in the number of minorities getting an education in the United States.

Similarly, the influx of many immigrants into the U.S. had boosted enrollment in higher education. Several immigration acts enacted by U.S. Government were employed to control the influx of immigrants who immigrated into the United States from all over the world. Over the years, "The United States has resettled many ethnic minorities who, having obtained citizenship, became eligible for college education. Asians, for example, constituted not only a major group in the U.S., but also ...have the highest level of education attainment [of all minority groups] comparable to, and in some cases, exceeding the educational attainment of White Americans" (Phillips, 1985, p. 217).

Wright (1987) also emphasized that the granting of statehood to any U.S. territory usually meant an increase in the number of minority students in higher education. He noted that the inclusion of Arizona, Oklahoma, New Mexico, Alaska, Hawaii, and one commonwealth (Puerto Rico) into the statehood since the 1900s always meant more land acquisition and the resultant increase in the number of minorities in higher education. Similarly, World War II and other global conflicts, notably the Korean and Vietnamese wars, brought

thousands of Asian immigrants into the United States (Wright, 1987). "As a result of this series of historical events, then, U.S. minorities received mixed support for entrance into predominantly white colleges and universities" (p. 10).

Wright's findings could be summarized as follows:

1. There had been a resultant increase in the number of minorities in the United States. This suggested that there was adequate number of minorities from which vocational educators could recruit.
 2. The Federal support for minority education was a major factor in minorities getting an education.
 3. Asian minority students were significantly different from other minorities in terms of academic achievements.
 4. There was apparent need for varied support for minority education.
- Items 2 and 4 (financial support) received the attention of researchers in recent years.

Influences of Financial Aid and Individuals

Philips (1985) reported that having adequate financial support was a strong factor in the academic success of minority students. Bottoms (cited in Robinson, 1982) also recommended that "money needs to be targeted through vocational education for employability and job skills for in-school and out-of-school youths" (p. 212).

The importance of availability of money to the enrollment of minority students in vocational-technical education programs can not

be overemphasized. Most students would probably like to receive some form of financial aid to assist in their studies, but minority students, perhaps, have more need of a financial aid in the society than other segments. This notion was suggested by the finding of McIntosh et al. (1987) in their study of Native Americans at Mesa Community College. The data collected from 69 survey respondents revealed that 94.2% of the students expressed concern about financing their education, with about half working full- or part-time.

To this might be added the findings of Boyer (1987) and Clyde et al. (1984) on the influence of different individuals on college choice and enrollment of high school seniors. Boyer's findings indicated that parents had the most influence (51%) on college selection of their children, followed by friends (23%), high school counselors (16%), and high school teachers (10%).

Clyde et al. (1984) studied the phenomenon of job aspirations of disadvantaged students relative to their low enrollment in low-level programs. The researchers collected data on 2,348 students from 29 secondary and postsecondary vocational and technical schools, and conducted telephone interviews with 201 parents. Clyde et al. found that inadequate parental influence, the prestige value of a student's occupational environment, the nature of the student's personal development, and sources of information for making educational choices were potential barriers to enrollment in high level programs. Since parents had the most influence on their children's selection of an institution (Boyer, 1987), it could be

safely argued that parents also influenced their children on their program selection as suggested by Clyde et al (1984). Similarly, friends, counselors, and teachers influenced, in varying degrees, the program selection of high school seniors. In fact, Benson (1988) stressed that vocational educators should let the parents and advisors of college-bound high school seniors know what vocational education classes have to contribute in their future employability. He stated that:

Students on an academic, college-bound track, for whatever reasons, seldom enroll in vocational classes. That means, if we are going to help them with their future, we must let them, their parents, and their other advisors know what vocational classes have to contribute. Our emphasis, and perhaps our greatest contribution as vocational educators to the college-bound high school population must be this. Vocational classes will teach them the job-finding skills they will need when they are academically qualified by the college of their choice. We must show them that vocational and industrial arts programs are designed to improve their chances of getting the job they want. They need to know that vocational educators can teach them what to do to get an employer interested in talking to them. (p. 10)

The findings of Boyer (1987) and Clyde et al. (1984) were important in that recruiters and key decision makers, equipped with such pertinent knowledge, could devise a means of educating those influential individuals on the nature of the programs of vocational-technical education. For example, a parent who understood that his or her child did not get a job because of lack of basic skills (that could be acquired from a nearby community college), might communicate that information to the child. Likewise, high school counselors, being such influential factors in the decision-making of high school seniors, could be educated on the importance of postsecondary

vocational-technical education courses on the employability of minority high school graduates.

Roble's Findings: The Influence of Counseling on Minority Students

In reviewing the literature for pertinent factors that influenced minority student selection/registration in vocational education, Roble (1977) found in his study that a relationship existed between selected variables and program choices of black students. Roble identified the following factors as good predictors of program selection of black students: (a) influence of counseling received at the community college level regarding program choice, (b) interest in extra-curricular activities, (c) age, (d) fear of failure, and (e) program requirements. Although it could be "claimed" that these variables had the same influence on white students in the same environment, there might be a possibility of the variables having different degrees of effects on different ethnic groups. This possibility was supported by Singletary's (1982) finding that black students had a significantly different social satisfaction than white students in three racially different community colleges he studied.

Professional counselors in America began to focus attention to minorities in the mid 1960s (Atkinson, Morten, & Sue, 1983). The social unrest (civil right movements) of the period was instrumental in culminating this trend.

Although counseling services received at two-year institutions influenced minority student program selection (Roble,

1977), Atkinson, Morten, and Sue (1983) reported that traditional means of counseling minority students were ineffective in that they did not focus on the particular needs of members of ethnic minorities. Counseling approaches, rather, that incorporated cultural elements were recognized as effective means of meeting the needs of minorities. These researchers found that ideal counseling for minorities entailed a consideration of language differences, class-bound values, and cultural-bound values.

Another study conducted by Rollins (1982) on the counseling needs of older black students in urban community colleges revealed that "the students' age and sex had the greatest influence on their expressed counseling needs" (p. 78). Since the officials involved in the programs of all community colleges enrolled minorities of different ages and sexes as a result of the changing needs of the job market, Rollins' finding could aid community college counselors in focusing attention to the specific needs of older minority students. Rollins (1982) found, for example, that "the greatest counseling needs expressed by older adult community college students were educational, vocational, personal adjustment, social-interpersonal adjustment, and adjustment to life situations, respectively" (p. 78).

It could be argued from Rollins' finding that students of different age groups have different kinds of need. For minority students, meeting those specific needs could result in an increase in their enrollment and retention in the vocational-technical education

programs. Moyer et al. (1978), for example, reported that such a step was undertaken during the late 70's at Stark Technical College when a project to increase minority opportunities and participation in technical education was launched. The project involved three task forces that incorporated role model recruitment programs; summer technical camp for junior high students; topical training programs for faculty, staff and students; campus satellite course programs; and a slide presentation about student life at the college. Two of the major recommendations made by the task forces as a result of the project were to implement strategies to: (a) encourage adult minority enrollment through off-campus learning activities, and (b) establish an older student office on campus due to their special counseling needs.

Individuals involved in counseling minority students should recognize that there were barriers in the occupation. Such barriers were recognized by Atkinson, Morten, and Sue (1983). These researchers identified and defined intra-minority group counseling as one in which the counselor and counselee were of same ethnicity and inter-minority group counseling as one in which the reverse was the case. To reduce the barriers encountered in both kinds of counseling, they recommended that a cross-cultural counseling approach should be employed when counseling minority students in order to avoid unwanted dilemmas.

Finally, Eason (1981) conducted a study on the time of day, age, sex, and race as variables of personal spacing between community

college students and their instructors. She found that no difference appeared in the spacing between white students and white instructors, black students and black instructors, and Mexican students and Mexican-American instructors. She also found that:

Male and female students spaced male and female instructors an equal distance.... White, Black, and Mexican students spaced equal distances from all instructors.... Male students spaced equal distances from same-age instructors and older instructors. Female students spaced equal distances from same-age instructors and older instructors. Male and female students spaced equal distances from older instructors. Male and female students spaced equal distances from same-age instructors.... (p. 120)

Relating these findings to the counseling needs of the students, she however, cautioned that although the findings did not indicate any difference in the personal spacings of the different ethnic groups relative to their instructors, "non verbal awareness may be needed for counselors and instructors at the community college. Often, both interact with students in the registration and advisement process as well as on a continuing basis. Inservice workshops and teacher education classes could be devoted to this subject" (p. 129).

Influences of Accessibility and Grade Point Average

Roble (1977) found that (a) academic motivation, (b) accessibility to the community college, (c) father's occupation, (d) high school grade point average, (e) racial composition of high school attended, (f) sex, and (g) number of years of education and training planned after high school were weak predictors of program selection of black students. Singletary (1982), however, indicated that most black students surveyed in his study responded positively

to the option of variable b above: that the ease of access to the community college had a bearing on their selection of a program of study. Singletary also found that more black students responded to the option of not living with their parents than white students, and that all three schools he studied responded highly to the option of the community college being close to home as their reason for attending it. Moreover, more black students responded that they were married than were white students, and twice as many white student's parents held professional jobs than did the black student's parents.

In a similar study, Hansford (1979) studied the predictive value of selected variables on the achievement of black undergraduate students at the University of North Florida. The problem of her study was to determine if one could differentiate between Black students who earned a grade point average of 2.00 or above and the Black students who earned a grade point average below a 2.00. Retrieving and analyzing pertinent data from the students' record at the university, she found that "entering grade point average, sex, and veterans' benefits were the three most significant variables in predicting the achievement of black undergraduates" (p. 52). These findings were important in that integrating such variables into recruitment programs might help in attracting minorities who could successfully complete their programs of study.

Influences of Ethnic Culture, Role Models, and Support Services

Collymore (1972), in his study of Mexican and black students in two white majority community institutions, reported that Negro and

Mexican-American students expressed the need for community colleges to offer instructional programs adequately reflecting Negro and Mexican-American culture. Collymore also found that the two participating community colleges he studied were not meeting the cultural needs of Negro and Mexican-American students. This finding was further supported by Singletary's (1982) finding in a study conducted at Compton Community College, San Diego City College, and San Diego Mesa College. Singletary found that "there was a statistically significant difference between black and white students' perception of social satisfaction in the three community college environments" (p. 114). Although Singletary's study was done in an environment where black students were the majority, Singletary concluded that there was more interaction among black students in the community college environment. To meet this need in an environment where black students were the minority, Collymore (1972) recommended that community colleges hire more Negro and Mexican-American faculty instructors who were capable of communicating with the students.

Collymore's recommendation was crucial because "the greater a student's social and academic integration, the more intense his or her commitment to the college" (Boyer, 1987, p. 47). This was recommended by the members of the American Association of Community and Junior Colleges (1988). They emphasized that "The community college should encourage greater intellectual and social contacts among students at the institution, seeking to bring together older and younger students and those from different ethnic and racial

backgrounds so that learning for all can be enriched" (p. A18).

Wright (1987) also stated that:

Studies of minority students have shown that an important ingredient in their college survival is the involvement of minority staff and faculty with minority students. Minority faculty contribute to the student's sense of belonging and provide adult role models that may be emulated later. This finding suggests a need for more intensive minority recruitment, directed toward visibility of minority faculty and staff in all areas, including the upper posts in the student affairs administration. (Wright, 1987, p. 96.)

Dean Paul Uselding, Dean of College of Business, University of Northern Iowa, was also interviewed on the cultural issue relative to minority student enrollment in his college. He was of the opinion that as more minority students were recruited into the business programs, an ideal ethnic culture would be created in the department which will make the programs more attractive to minority students. He stated that his program "is more than just a recruitment tool; it is also a retention program". The Dean was optimistic that his college would enjoy a larger enrollment of minority students in the immediate future.

Also related to this were the counseling approaches that incorporated pertinent cultural elements that related to minority students. These were recognized as effective means of meeting the needs of minority students (Atkinson, Morten, & Sue, 1983). To this end, both researchers in Project P.A.C.E. (1984) and Erickson (1985) recommended, after their studies on how to attract minority students, that minority teachers who act as role models to minority students were vital to minority student recruitment in a program. The members

of the American Association of Community and Junior Colleges (1988) also recommended the employment of role models when they stated that:

The percentage of minority faculty members who are Black, Hispanic, and Asian should be increased. For this to be accomplished, future teachers should be identified from among minority students in high schools and community colleges. Such students should be assigned mentors who encourage them to consider teaching. (p. A18)

Support activities such as improved counseling, career guidance, financial support, and generalizable skills were also recommended by Boyd (1981), the researchers in the Executive Roundtable (1981), and Orr (1987). Orr recommended that:

Community agencies and business groups interested in encouraging students to complete their education are well suited to devising support service programs. They can more easily recruit adults to serve as role models and provide or solicit part-time and summer jobs. Moreover, support groups and part-time employment are inexpensive ways of assisting drop-out prone youth and are particularly effective for those who may feel directionless. (p. 26)

Boyer (1987), moreover, stated that colleges had a special obligation to maintain diversity on the campus by providing mentoring and summer services for minority students who should be given encouragement and tutoring during the early years of formal education.

Other Variables

Although the members of Carnegie Commission on Higher Education (1971) found that low family financial resources impeded and postponed the entry of black students into institutions of higher learning, Farmer (1980) discovered that black students of the 80's did not necessarily choose higher education on the basis of socioeconomic background. In fact, she found that "black four-year

and two-year students were the products of different socioeconomic backgrounds, different educational preparations, and had different career or future plans" (p. 88). Farmer also indicated that the two-year institution was one of the most effective and accessible means by which many black students could obtain a higher education.

In a study on comparison of the perceptions of white and minority high school seniors regarding community institutions, Goldstein (1985) found that although minorities perceived two-year institutions as those from which to receive vocational training, "the more easily a [any] college can be attended, the more likely a student is to enroll" (p. 32). He also found that a "significantly large percentage of black students would train for shorter periods of time than would their white counterparts" (p. 74). Cohen and Brawer (1972) also found that college recruiters who diligently recruited minority students from segments of the society who had not previously attended a college yielded significant increases in the institution attendance by members of ethnic minorities. Consequently, it would be well worth it if "professional community college educators begin to continually reexamine the goals and objectives of their particular college in connection with minority students on campus" (Collimore, 1972, p. 26). In addition, Goldstein noted that college recruiters spent the largest percentage of their time speaking to students in the county within which their college's main campus is located, but other counties received minimal information.

Goldstein (1985) also recommended that minority student recruiters should begin recruitment very early when the students were

in the ninth and tenth grades. This was a result of his finding that minority students did not have early knowledge of vocational education and, as a result, did not select the programs for post-secondary studies after high school. A similar observation was made by Weber (1988) who noted that:

in vocational governance structures in many states, areas, and local school districts, students are excluded from participating in certain, if not all, vocational programs until at least the 11th grade. As a result, many student responses during the 10th grade reflected interests or intent but not actual experiences with regard to participation in vocational education. (p. 37)

The members of the American Association of Community and Junior Colleges (1988) recognized the need for early community college program identification to minority students. In their text of key recommendations to the future of 2-year colleges, they stated that:

The nation's community colleges should vigorously reaffirm equality of opportunity as an essential goal. Every college should declare, with pride and conviction, its determination to serve all ages and racial and ethnic groups. In pursuit of this objective, we urge that every college develop an aggressive outreach plan for disadvantaged students. Specifically, each college should create an Early Identification Program with surrounding schools, focusing first on the junior high students. The emphasis of such a program should be on counseling, on language proficiency, and on the academic preparation of students in order to increase the number of minority members.... (p. A18)

In their study on determining and examining the barriers to student enrollment in vocational education programs as they related to ethnic minorities in the Yakima school district, Akamine and Dillard (1986) conducted an on-site survey of 1,783 10-12 graders and mailed questionnaires to 200 parents and 49 vocational advisory committee members. The data from the respondents revealed that inadequate vocational counseling and lack of information regarding

vocational education were some of the significant barriers to vocational education and consequent employment perceived by the students, parents, and the advisory committee members.

Tschechtelin (1981) and Wilms (1980) both found that Black and Hispanic students did not persist as well as white students in vocational education programs. But Kinnebrew's (1984) finding indicated otherwise. Kinnebrew found that "the black students at Sweetwater, for example, were between whites and Hispanics in achievement, but were highest as regards to persistence" (p. 150). He also found that there was a strong relationship between students' ability to persist and the students' achievement in a program of study. Kinnebrew also found that older students did not persist in their studies to the extent of younger students, but that older students achieved at a higher level than younger students.

Finally, to the notion that community schools were overrepresented by high school underachievers, several researchers, notably Singletary (1982), indicated a contrary finding. Singletary found that most community college students he studied responded that their high school GPA was between 2.50 and 3.50.

Summary of Related Research and Information

Several salient points could be gleaned from the discourse on the review of literature. The review opened up the possibility of employing minority instructors and workers to act as role models to minority students. The idea was to use minority instructors and staff to attract and retain minority students in vocational-technical education programs. Similarly, employment of support group

activities such as counseling, special financial support programs, minority student organizations, and sports might help to attract minorities into the programs.

Several findings by some researchers suggested that minority students had not only a positive attitude toward vocational-technical education programs, but that they could be effectively recruited. Positive attitude was indicated by such findings as (a) more minorities in 2-year community institutions than any other segments of higher education, (b) more ease of recruiting minorities into 2-year community institutions, and (c) increased satisfaction level when an ideal ethnic culture was present.

It was revealed in the preliminary literature review that many minority students had the least knowledge about vocational-technical education programs due to the fact that they were not informed earlier on in life. Consequently, it was suggested that recruiters should begin when minorities were in the ninth and tenth grades to make known to them that the programs of vocational-technical education did exist.

Moreover, the review of literature revealed that parents, friends, high school counselors, and high school teachers had significant but varying degrees of influence on college and program selection of high school seniors. Hence, such individuals could be targeted as possible helpers in disseminating pertinent information about vocational-technical education programs of study.

The review of literature brought up two conflicting viewpoints about minority students' opinion about vocational-technical

education. One group of thought posited that minorities perceived the programs as demeaning and detrimental to upward mobility, while some researchers found otherwise. Some researchers also reported that age, sex, parents' education/occupation, program requirements, fear of failure, presence of counseling, extra-curricular activities, accessibility to institution, GPA, and socioeconomic background affected minority students' choice of program selection and enrollment.

Also, it was found that minority students of the 80's were different from those before. Although many minorities still came from families of low socioeconomic background, their selection of programs of study was not necessarily based on that background. In essence, today's minority students were more easily attracted to vocational-technical education programs than those of the 60's. In addition, the review indicated that there was a wide pool of students from which to recruit. But in order to accomplish that, recruiters should not relax and expect minority students to come, but they should go after them wherever they are found.

CHAPTER 3

METHODOLOGY

Several steps were followed to accomplish this study. The procedure for the study involved designing the survey instruments, organizing a jury of experts who validated the instruments, identifying the populations, selecting the subjects (samples), administering the pilot survey, conducting the survey, analyzing the data collected, and writing and disseminating the report.

Preparation of the Survey Instruments

Two different questionnaires (Appendix E) were used as data collection instruments. One of the instruments was for post-secondary minority students and the other was for high school seniors. The printed questionnaire survey technique was determined to be more appropriate for the study than other survey techniques because of the many items contained in each instrument and also because the subjects were scattered throughout Iowa. Clover and Balsley (1984) noted that:

Mail questionnaires can be sent to persons in widely scattered locations covering a large geographical area. Prospective respondents can be reached at relatively low cost.... Mail questionnaires can be answered more carefully than personal or telephone questionnaires because more time can be allowed for thinking through the answers. (p. 125)

Before designing the instruments, considerable study of several related questionnaires that were previously used for similar surveys was completed. Previous instruments used by other doctoral candidates were also examined. The doctoral committee members were

consulted at this point and their suggestions sought. Moreover, several books on how to design survey instruments were reviewed before engaging in writing the instruments.

The first drafts of the instruments were developed by employing the findings from the review of literature. Questionnaire items were written to revolve around those pertinent factors gleaned from the review of literature.

At this juncture, the doctoral committee members were contacted. Each was given a copy of the instruments and asked to critique them and provide their comments. The comments provided by these professors centered on (a) the format of the instruments, (b) suggestions to add room for open-ended responses, (c) suggestions to rephrase some sentences, (d) suggestions to omit irrelevant items, (e) suggestions to change some wording, and (f) suggestions to print more legibly the capping explanatory words for the Likert scales.

In consultation with some members of the researcher's doctoral committee and the coordinator of institutional research for the University of Northern Iowa, Dr. Gerald D. Bisbey, several statistical models were determined to be appropriate for analyzing the data. They included (a) related t test, (b) Mann-Whitney test, (c) Kruskal-Wallis test, and (d) tables of classification.

Based on the approval of the doctoral committee members and the recommendations of Long, Convey, and Chwalek (1985), a five-member jury of experts was formed who critiqued and validated the instruments. The names and titles of these jury members are shown in

Appendix F. Each of these experts was contacted and requested to serve in the jury. A memorandum (Appendix F) and a copy of the instruments were mailed to each of the jury members to critique, offer suggestions, and return within two weeks.

The comments and suggestions of the jury members were collated as follows:

1. Suggestions to print more legible the capping explanatory words for the Likert scale on each of the columns for both instruments.
2. Suggestions to change the following questionnaire phrases as follows: "easy grants" to "grants"; "bad program" to "poor program"; "other minority student activities" to "minority student activities"; and "friends advise me" to "friends like the program".
3. Suggestions that the researcher should be present to administer the survey personally in order to answer questions.
4. Suggestions to use the first person in addressing some of the questionnaire items.
5. Suggestions to give an oral explanation to the students before administering the survey.
6. Suggestions to contact the administrative office of the Waterloo schools in order to complete some research request forms as soon as possible since high school seniors in the area were to be surveyed.
7. Suggestions to omit some irrelevant or confusing items.

Each of the instruments contained instructions that guided the students on how to properly complete the questionnaires. Questions were structured to address all pertinent factors identified from the review of literature with space for the respondents to write in additional factors where applicable. The level of grammar used to write the questionnaire items was particularly guarded so as to meet the subjects' reading ability. All leading, misleading, ambiguous, double meaning, uninformative, and difficult questions were carefully avoided.

Section One of the Instruments

The instruments for the two populations of students had two sections respectively. Section one of the questionnaire for post-secondary students contained two columns addressing the same variables. Column A was designed to retrieve how the variables actually influenced minority postsecondary students in their selection of programs of study. Column B, however, was designed to retrieve from the students what they thought the influences of those variables should ordinarily be. Hence, questionnaire items in both columns A and B for post-secondary students, though addressing the same variables, were worded to convey two different thoughts since the two columns were used for different objectives. Respondents' results on these two columns were used to answer part of research question number one and research question number three.

Each of the 10 variables in research question number one had a cluster of sub-items in each questionnaire addressing that variable.

For example, the variable 'role model' had a cluster of the following items addressing it: minority instructors or workers who were (a) teaching in my current school, (b) teaching in my current program, (c) working in my current school, (d) acting as mentors in my high school, and (e) acting as mentors in my current school.

Column B of section one for postsecondary students and section one for the high school seniors both addressed the same thoughts and like variables, but were worded differently because the two populations were not the same. A rationale for this was the fact that while postsecondary minority students were already enrolled in the programs and therefore had experienced the influences of the variables, the high school seniors were looking at the programs from a futuristic perspective. Hence, while postsecondary students responded to the items based on their experiences, the high school seniors responded based on what they expected. These sections were devised to answer part of research question number one and research question number two.

Section Two of the Instruments

Section two of both questionnaires contained questions that were used to answer research questions number four and number five which addressed: (a) from what sources minority students learned the most about vocational-technical education programs of study, and (b) whether the students perceived the programs positively or negatively. This section also contained items that were used to gather all the

demographic data, as well as other supportive data that had significant bearing to the study.

Section two for high school seniors also contained an item that was carefully designed and used to selectively group the students into three distinctive and different career-minded categories, namely: college-bound seniors, non-college/non-vocational-technical-bound seniors, and vocational-technical-bound seniors. The questionnaire item employed to group the students into these groups contained several options each of which must fall into any of the three career classifications. This helped to classify the high school seniors into the three career goals and was used for answering part of research question number two. These three categories should be explained to clarify their use in this study.

College-bound minority seniors were all the high school seniors who indicated that they would attend a two- or four-year postsecondary institution of learning to study something other than vocational-technical education program of study. Some of these indicated that they would attend a college but did not know what they would study. Others indicated that they planned to work for a while before attending a college. Although some of these students indicated that they would consider enrolling in vocational-technical education programs of study and that they liked the programs, they however, preferred to study something else that was a college preparatory program of some type.

Non-college/non-vocational-technical-bound students included all students who indicated that they would neither attend a two- or four-year college, nor any vocational-technical education program of study. This group contained those minority students who did not know what they would do after high school, and those who, on graduating from high school, would (a) join the military, (b) look for a job, or (c) not attend a college at all. Some students in this group also indicated that they liked vocational-technical education programs of study and would consider enrolling in them.

Vocational-technical-minded high school students were those students who indicated that they would actually study a program of study in vocational-technical education programs. Some planned to work for a while after high school before attending a two-year college while some planned to enroll immediately after high school graduation.

Selection of the Subjects for the Study

Minority people are classified into four major groups in America: Blacks, Hispanics, Asian/Pacific Islanders, and American Indians (Philips, 1985). Representatives of each of these groups are found in varying proportions in the state of Iowa. The process of selecting the subjects for this study demanded much caution because of the following reasons: (a) many of the so-called minority students in the state of Iowa were actually aliens who were on permanent residence status, and (b) minorities who were residents of Iowa were not evenly distributed in the state.

All minority students who were not citizens of the United States were not surveyed in this study. All aliens, however, who had acquired the status of citizenship were surveyed.

Iowa has a total of 99 counties, however many of these counties have none or a very small number of minority persons living in them. For the most part, minorities live in clusters in the major cities such as Waterloo, Des Moines, Davenport, and Cedar Rapids. The city of Waterloo has the highest percentage of them (Iowa Department of Employment Services, 1987).

The Populations

The populations used for the study consisted essentially of two different groups of minority students. They included: (a) those students who had already enrolled in the trade and technical programs of study in two-year community institutions, and (b) those high school seniors who had not enrolled in the trade and technical programs.

The postsecondary students were considered a homogenous group because they were already in the programs and consequently had a unanimous commonality with one another. They were the ones studying the courses and had similar experiences about the programs of study.

All the high school seniors were considered a heterogeneous group because they were not yet enrolled in any vocational-technical program of study. In fact, some of the seniors had not made any decisions yet about a specific area of study. Minority high school seniors contained different career minded students. Some of them

would attend four-year colleges to study liberal arts, sciences, and so forth. Some might attend community institutions to study vocational-technical education courses or college preparatory programs. Still, others might not have any plans of attending a college at all. Moreover, some might join the military, while some might look for a job.

The Samples

In consultation with a minority student affairs director in an area community institution, the institutional research director at the University of Northern Iowa, and using the Affirmative Action Data for 1986 (Iowa Department of Employment Services, 1987), seven area community institutions and two Waterloo public high schools were utilized as representative samples for the study. All the minority seniors in the two Waterloo high schools and all the minority students in vocational-technical education programs in seven community institutions were used as the subjects for the study. The seven community institutions were: Des Moines Area Community College, Des Moines; Hawkeye Institute of Technology, Waterloo; Iowa Central Community College, Fort Dodge; Kirkwood Community College, Cedar Rapids; Muscatine Community College, Muscatine; Scott Community College, Bettendorf; and Western Iowa Technical Community College, Sioux City. The two Waterloo, Iowa senior high schools were East Waterloo and West Waterloo.

Institutions were selected based on minority population available in the particular area and the counties surrounding it. The two

Waterloo high schools were selected because they had relatively large concentrations of minority seniors (20%) (Iowa Department of Education, 1988). Because of the financial limitations of the researcher and the logistics, no randomized sampling was made. There were 485 high schools and 15 postsecondary area institutions in Iowa in the fall of 1988 and if the students were to be contacted and sampled in each of these schools, considerable funds and time would have been required. These samples were considered appropriate because (a) they contained most of the enrolled postsecondary vocational-technical education minority students in Iowa, and (b) the seniors in the two Waterloo high schools were large enough to provide important information that could relate to other minority students in the state of Iowa.

It was estimated that there would be about 100 American citizen trade and technical program students in the seven selected postsecondary community institutions, and 150 high school seniors in the Waterloo public school system during the spring term of 1989 when the survey was administered. Officials of the two Waterloo high schools, however, revealed that only 110 seniors were enrolled in the semester when the survey was actually conducted.

Because of the low enrollments of minority students in the period when the survey was conducted, absences of some students on the days of the survey, and perhaps a negative effect due to the literacy levels of the subjects (the more literate the subjects are, the higher the response rate), 55 postsecondary students and 82 high

school seniors participated in the survey. These figures represented 55% and 75% response rates for the two populations respectively.

These percentages, nevertheless, appeared adequate for the study, considering the nature and composition of the samples. Clover and Balsley (1984) noted that "A relatively large percentage, even 50 percent to 90 percent of mail questionnaires will usually not be returned" (p. 126). The relatively high response rates in this study were particularly due to the fact that the individual institutions were visited and the questionnaires were personally handed to the students. This personal contact helped to increase the return rates by perhaps as much as 30%.

Pilot Test of the Instruments

The questionnaires were pilot-tested during the 1988 fall semester with minority students enrolled in vocational-technical education programs at Clinton Community College, Clinton, Iowa, and minority seniors at Cedar Falls High School, Cedar Falls, Iowa. The president of Clinton Community College, Dr. Adelbert J. Purga, and the Director of Secondary Education, Cedar Falls Schools, Mr. Floyd G. Winter, were formally contacted on September 9, 1988 and October 27, 1988, and their permissions were obtained to use their schools for the pilot tests (Appendix G). They were also requested to provide the number of minority students who were enrolled in their institutions who met the criteria, the date, location, and time they wanted the survey to be administered.

The instrument for high school seniors was pilot-tested on November 11, 1988, in the Cedar Falls High School guidance office between 8:00 A. M. and 9:00 A. M. All eight minority seniors enrolled in the school were present for the survey. The researcher administered and supervised the exercise under the direction of a high school counselor, Mr. Jerry Purcell. The students had no difficulty in reading and completing the questionnaire.

The instrument for postsecondary minority students was pilot-tested at Clinton Community College on December 13, 1988 from 10:00 A. M. to 4:30 P. M. in an unused office under the direction of the college president, Dr. Adelbert Purga. All five minority students who met the criteria were present for the exercise at different times. Some of these students forgot about the survey and had to be contacted and reformed. The students had minor difficulty in understanding and completing the instrument.

Modification of the Survey Instruments

In general, students who participated in the pilot exercise had few but useful comments. The manner of their responses and the comments they made provided further opportunities for improving the survey instruments and administration in three areas: (a) the additional individual factors they wrote within the spaces that were provided, (b) the failure of some students to read instructions, and (c) suggestions by some postsecondary students to add the phrase "don't know" as a third option to questionnaire item number 22.

The individual factors that the students wrote down and ranked (Table H-1 of Appendix H) were in general not in agreement with one another. Moreover, only a few students attempted to write in some extra factors. Because of this disagreement and the fact that only few students offered the suggestions, none of the suggested factors were incorporated in any of the survey instruments.

An important observation, however, which assisted in administering the main survey was the fact that a few students who participated in the pilot survey checked more than one item where only one was asked for. A vigilant effort after this observation helped to ensure that the main survey was completely free of such practices. Every subject's instrument was visually checked before he/she was allowed to leave the venue.

The "don't know" option that was added to item 22 of the instrument for postsecondary students proved to be very useful in retrieving pertinent data from the students concerning that variable. It was later discovered that many postsecondary students did not know whether that variable was being offered by their institution.

These comments, together with the suggestions from the members of the jury of experts and doctoral advisory committee, were used to modify the test instruments. They helped to ensure a trouble-free exercise during the main survey administration.

Administering the Survey Instruments

The personnel and administrators of the seven community colleges and two high schools were formally informed in writing about the survey on September 9, 1988. They were requested to grant permission and also to cooperate in the exercise. These letters of transmittal are shown in Appendix I.

All the administrators of the selected institutions agreed to participate in the survey. Each institution's administrators and personnel were also formally contacted (Appendix J), and asked to indicate (a) the number of minority students enrolled in their institution who met the criteria, (b) the most convenient date they wanted the survey to be administered, (c) the location for the exercise, and (d) the time of the day they wanted the survey to be administered. Officials of some of the institutions gave formal feedback (Appendix J). Others were contacted again on the telephone and dates and times scheduled.

The survey was personally supervised by the researcher so it would be possible to answer questions that might be asked and also to explain the instructions to students who had difficulty understanding them. Each institution was visited on the date scheduled. Officials of some institutions had rooms reserved for the exercise and their students were informed. Others made arrangements whereby their students were visited in their classrooms, laboratories, libraries, or offices where they completed the instruments.

In general, the personnel of all the institutions who participated in the survey were very helpful. Their students, for the most part, were also cooperative. Some of these students helped to track and inform other absent students about the survey. All the students who participated did so on a voluntary basis. In Table 1 are shown the dates when minority students who were enrolled in the individual institutions were surveyed.

Table 1

Survey Administration Dates as Scheduled by Institutions

Name of Institution	Date of Survey
Waterloo West High School	January 10, 1989
Hawkeye Institute of Technology	January 11, 1989
Waterloo East High School	January 16, 1989
Kirkwood Community College	January 23, 1989
Western Iowa Technical Community College	February 2, 1989
Des Moines Area Community College	February 6, 1989
Iowa Central Community College	February 9, 1989
Scott Community College	February 15, 1989
Muscatine Community College	February 15, 1989

Most of the survey administration took whole days to accomplish. This was a result of the various institutional class schedules. Some students were available during the morning hours while some had classes during the afternoon periods. Consequently, it was necessary to wait until their free periods arrived. Minority students at Hawkeye Institute of Technology, for example, had such schedules. Some of the students were surveyed during the afternoon classes while some were surveyed during the evening periods.

A series of follow-ups was undertaken on minority students who were absent on the days of the survey administration. Because of cost and time factors, the personnel of the respective postsecondary institutions were carefully informed on how the instruments should be completed and asked to track as many of the absent students as possible and have them complete the questionnaires. Five of these instruments were completed and returned.

All the follow-ups on the minority high school seniors in the two Waterloo High Schools were meticulously undertaken. East High School was revisited on February 16, 1989 and on March 10, 1989, and all the seniors that could be tracked were surveyed. The officials of West High School decidedly provided the researcher a list of names and addresses of 24 seniors who were absent on the day the survey was conducted at the school. Four of these students were personally contacted and they agreed to complete the questionnaires. Questionnaires, together with letters of transmittal (Appendix K) and

stamped, addressed envelopes, were mailed to 20 other students. Five (25%) of these were completed and returned.

CHAPTER 4

DATA PRESENTATION

Demographic and research data from the survey participants are presented in this chapter. All collected data are presented and analyzed for the purpose of answering the five research questions. In some cases, other supporting information is given as appropriate.

Demographic Data

Information gathered from all the students surveyed in this research was tabulated by institution, race, and gender. In addition, the minority high school seniors were tabulated by career aspirations and the postsecondary students by age. The numbers and percentages of minority student participants relative to the estimated number of enrolled minority students for both postsecondary students and high school seniors were tabulated. The respondents were also tabulated by gender for the purpose of determining the current male/female ratio of minority students who were engaged in post-secondary vocational-technical education programs of study. Moreover, the three categories of minority high school seniors with their different career aspirations were tabulated to show the number in each. The number of minority postsecondary student and high school senior respondents by institution is shown in Table 2. Scott Community College had more minority students enrolled in vocational-technical education programs than other participating institutions. Consequently, it had more minority student participation (17) than other institutions.

Table 2

Survey Participation by Institution

Institution	Estimated Enrollment	Number Surveyed	% Participation
IOWA POSTSECONDARY INSTITUTIONS			
Central Iowa Community College	10	6	60
Des Moines Area Comm. College	20	10	50
Hawkeye Institute of Technology	10	10	100
Kirkwood Community College	10	1	10
Muscatine Community College	10	1	10
Scott Community College	25	17	68
Western Iowa Community College	<u>15</u>	<u>10</u>	<u>67</u>
TOTAL POSTSECONDARY STUDENTS	100	55	55
WATERLOO PUBLIC HIGH SCHOOLS			
East High School	52	42	81
West High School	<u>58</u>	<u>40</u>	<u>69</u>
TOTAL MINORITY SENIORS	110	82	75

Kirkwood and Muscatine community Colleges both had the least number (one student each) of postsecondary minority student participation in the survey. This was because most of their minority

students are non citizens, and as a result, were not allowed to participate in the survey. Hawkeye Institute of Technology was the only institution at which all (100%) enrolled vocational-technical education minority students participated in the survey.

Minority high school seniors had a relatively higher participation rate (75%) than postsecondary students (55%). Waterloo East High School minority seniors had a higher participation rate (81%) than those of Waterloo West High School (69%).

In Table 3, the participants are shown by sex, while Table 4 contains a profile of minority student participation by race. As shown in Table 3, there were more male than female postsecondary

Table 3

Survey Participants by Sex

Educational Level of Students	<u>N</u>	Males	Females
Postsecondary	55	31	24
High School Seniors	<u>81</u>	<u>39</u>	<u>42</u>
TOTAL	136	70	66

students. For high school seniors, there were about the same number of boys as there were girls. Black students were the largest group

for both postsecondary students and high school minority seniors. For high school seniors, Black students had higher participation rate (90.2%) than for Blacks in the postsecondary minority student group (65.5) (Table 4).

Table 4

Minority Student Participants by Race

Race	<u>n</u>	<u>%</u>
POSTSECONDARY STUDENTS		
Blacks	36	65.5
Indians (Native Americans)	8	14.5
Asians	6	10.9
Mexican-Americans	3	5.5
Hispanics	<u>2</u>	<u>3.6</u>
TOTAL	55	100.0
HIGH SCHOOL SENIORS		
Blacks	74	90.2
Mexican-Americans	5	6.1
Indians (Native Americans)	2	2.4
Other	<u>1</u>	<u>1.2</u>
TOTAL	82	100.0

The number of minority high school seniors in each of the three categories who participated in the survey is shown in Table 5,

Table 5

Classification of Minority High School Seniors by Career Aspirations

Career Goal	<u>n</u>	<u>%</u>
College-Minded	38	46.3
Non-College/Non-Technical-Minded	27	33.0
Technical-Minded	<u>17</u>	<u>20.7</u>
TOTAL	82	100.0

while postsecondary minority student participants by age are shown in Table 6. Most of the high school seniors (46.3%) indicated that they would attend a college to study something else other than vocational-technical education program (Table 5). About 21% indicated that they would attend a postsecondary vocational-technical institution to study vocational-technical education programs of study. As shown in Table 6, more postsecondary students were between the ages of 25 and 35 than any other age bracket, although the 18- to 24-year olds were very nearly the same in number.

Table 6

Postsecondary Minority Student Participants by Age

Age Bracket	<u>n</u>	<u>%</u>
18-24	25	45.5
25-35	26	47.3
36-45	3	5.4
Over 45	<u>1</u>	<u>1.8</u>
TOTAL	55	100.0

For the postsecondary students, typical survey participants included adult minority students most of whom were Black males. Black Americans, American Indians, Asian Americans, Mexican Americans, and Hispanics were representative minority participants in this group with Blacks exceeding in number and Hispanics trailing with two students participating. For the minority high school seniors, typical survey participants included the usual 17- and 18-year-olds about half of who planned to attend a four-year college to study something else other than vocational-technical education programs of study. This group was not only dominated by black minority high school seniors but also contained about twice more black students than had the group of the postsecondary students.

Data Presentation

The information presented in this section consists of all pertinent data that relate to the five research questions. Therefore, the presentation and analyses of the data are numerically undertaken relative to the five research questions. Classification tables, t-tests, Kruskal-Wallis and Mann-Whitney tests of significance were employed in analyzing the collected data.

Data Presentation for Research Question Number One

The first of the five research questions was used to ascertain the extent to which the following ten factors influenced minority student selection and enrollment in vocational-technical education programs of study: role models, support groups, ethnic culture, program requirements, fear of failure, counseling, extra-curricular activities, accessibility to an institution, and grades. The 10 factors were broken into 37 sub-factors which the students ranked on a 1 to 5 Likert scale.

The respondents' average rankings of the 10 factors were respectively grouped for five divisions of students. These were postsecondary students' average rankings, average rankings of all the high school seniors, average rankings of all the technical-bound minority high school seniors, those for all the college-bound minority high school seniors, and those for all the non-college/non-technical-bound minority high school seniors.

The mean scores and standard deviations of all the 10 factor areas on their actual and opinionative influences in section one of

the instrument for postsecondary minority students were tabulated. Similarly, the mean scores for high school seniors were first tabulated for all the students polled together and then for each of the three categories of seniors for comparison purposes.

For the purpose of this study, in order to validate a factor, the 3.5 point on the Likert scale of 1-5 was selected as a determining point for the importance of that variable. The basis for selecting this point was the fact that it lies midway between 3.0 and 4.0 points ("average importance" and "greater importance") of the Likert scale used in the survey instruments. Having the 3.5 point leaning somewhat on the positive side of the "average importance" point helped to ensure that recommendations were safely made. For example, if all the opinionative scores on the influence of a factor by postsecondary students or technical-bound high school seniors averaged 3.5 or more, then that variable was recognized as an influential factor on program selection of minority students. Such a high score on any of the factors on their actual influence for postsecondary minority students was a good indication that minority students were actually influenced by the relative variable. This applied to all variables in research question number one.

The rankings of the 10 factors by the 55 postsecondary minority students are shown in Table 7. Shown in the table are the students' rankings of how the factors actually influenced their selection and

Table 7

Mean Scores of Actual and Opinionative Influences of Variables on
Postsecondary Minority Student Selection of Programs of Study

Factor	Mean Scores			
	Actual		Students'	
	Influence		Opinions	
	<u>N=55</u>	<u>SD</u>	<u>N=55</u>	<u>SD</u>
MINORITY INSTRUCTORS OR WORKERS WHO WERE:	2.3	(1.1)	4.0	(0.8)
(A) Teaching in my current school	2.0	(1.3)	4.1	(1.0)
(B) Teaching in my current program	2.0	(1.4)	4.0	(1.0)
(C) Working in my current school	2.6	(1.6)	4.0	(1.1)
(D) Acting as mentors in my high school	2.5	(1.5)	4.0	(1.1)
(E) Acting as mentors in my current school	2.2	(1.3)	3.8	(1.1)
SUPPORT SERVICES THAT HELP PROVIDE:	3.4	(1.2)	4.3	(0.8)
(A) Grants	3.8	(1.4)	4.4	(0.9)
(B) Scholarships	3.1	(1.7)	4.3	(1.1)
(C) Employment/Workstudy	3.2	(1.5)	4.1	(1.1)
(D) Other forms of financial aid	3.3	(1.5)	4.3	(0.9)
(E) Tutorial services	3.5	(1.4)	4.3	(1.0)

(Table 7 Continued)

SOCIAL LIFE ON CAMPUS ENCOURAGED BY:	2.8	(1.2)	4.0	(1.0)
(A) Minority student organizations in current school	2.6	(1.5)	4.0	(1.1)
(B) Minority students in the same program	2.7	(1.5)	4.1	(1.1)
(C) Minority students in current school	3.0	(1.5)	4.0	(1.2)
(D) Social life on current school's campus	2.7	(1.3)	3.7	(1.2)

I CHOSE THIS PROGRAM OF STUDY BECAUSE I WAS:	1.8	(1.0)	2.2	(1.2)
(A) Too young for other programs of study	1.7	(1.2)	2.1	(1.4)
(B) Too old for other programs of study	1.5	(1.0)	1.9	(1.3)
(C) The right age for this program of study	2.4	(1.5)	2.6	(1.5)

THE PROGRAM COURSES:	3.5	(0.8)	4.0	(0.8)
(A) Are what I need	3.8	(1.1)	4.2	(1.0)
(B) Are of the right length	3.4	(1.1)	3.9	(1.1)
(C) Are very enjoyable	3.9	(1.0)	4.4	(0.7)
(D) Have simple requirements to fulfill	2.8	(1.2)	3.4	(1.3)

FEARS OF:	3.3	(1.2)	3.8	(1.1)
(A) Failing a different course of study	2.9	(1.5)	3.4	(1.5)
(B) Becoming a failure in life	3.1	(1.6)	3.8	(1.6)
(C) Not being able to get a job	3.7	(1.5)	4.3	(1.2)

(Table 7 Continued)

COUNSELING SERVICES RECEIVED FROM:	2.9	(1.2)	3.8	(0.9)
(A) Current school's recruiters	2.7	(1.4)	3.6	(1.2)
(B) High school level	2.9	(1.4)	3.8	(1.4)
(C) Current school	3.0	(1.4)	3.9	(1.1)

EXTRA-CURRICULAR ACTIVITIES SUCH AS:	2.2	(1.1)	3.0	(1.1)
(A) Sports in the current school	2.4	(1.4)	3.0	(1.4)
(B) Clubs in the current school	2.5	(1.4)	3.3	(1.3)
(C) Music in the current school	2.0	(1.2)	2.9	(1.4)
(D) Dramatics in the current school	2.0	(1.3)	2.8	(1.3)

CURRENT SCHOOL BEING:	3.3	(1.1)	3.5	(1.0)
(A) Close to home	3.3	(1.5)	3.3	(1.5)
(B) Simple to gain admission	3.3	(1.2)	3.5	(1.1)
(C) One that has good transportation service	3.3	(1.6)	3.7	(1.5)

I WAS ADMITTED TO MY CURRENT PROGRAM BECAUSE:	2.1	(0.9)	2.8	(1.1)
(A) Of my high grade point average	2.3	(1.3)	3.2	(1.5)
(B) Of my low grade point average	1.7	(0.9)	2.4	(1.4)
(C) It required no grade point average	2.4	(1.6)	3.0	(1.5)
GRAND MEANS	2.8	(0.7)	3.6	(0.6)

enrollment in vocational-technical education programs of study, and what the students thought the influences of those factor areas should be. The numbers in parentheses were the respective standard deviations.

The average scores of all the minority high school seniors on the 10 factors are shown in Table 8. In the table is shown how the three different career-minded groups of seniors (college-bound, technical-bound, and non-college/non-technical-bound) ranked the 10 factors areas. The inclusion of the average scores of all the high school seniors polled together resulted in the four columns of scores on the variables.

Table 8

Mean Scores for Vocational-Technical-Bound, College-Bound, and Non-College/Non-Technical-Bound Minority Seniors on the Influence of Factors on their Selection of Vocational-Technical Education Programs

Factor	Mean Scores			
	Vo-Tech Bound <u>N1=17</u>	Coll. Bound <u>N2=38</u>	Non-Coll Bound <u>N3=27</u>	All Seniors <u>N=82</u>
	MINORITY INSTRUCTORS OR WORKERS WHO:	3.7	3.6	3.4

(Table 8 Continued)

(A) Teach in vocational-technical education schools	4.1	3.6	3.2	3.6
(B) Teach in vocational-technical education programs	3.8	3.6	3.3	3.5
(C) Work in vocational-technical education school	3.5	3.4	3.6	3.5
(D) Act as mentors in vocational-technical education programs	3.6	3.7	3.6	3.7
(E) Act as mentors in vocational-technical education schools	3.5	3.7	3.4	3.6
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SUPPORT SERVICES THAT WILL HELP PROVIDE:	4.3	4.5	4.0	4.3
(A) Grants in vocational-technical education schools	4.1	4.7	4.2	4.4
(B) Scholarships in vocational-technical education schools	4.6	4.6	4.4	4.5
(C) Employment/workstudy in vocational-technical schools	4.3	4.3	4.1	4.2
(D) Other forms of financial aid in the programs	4.3	4.5	4.0	4.3
(E) Tutorial services in the programs	4.0	4.4	3.5	4.1
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SOCIAL LIFE ON VOCATIONAL-TECHNICAL SCHOOL ENCOURAGED BY:	4.0	3.9	3.5	3.8
(A) Minority student organizations	4.1	4.1	3.5	4.0
(B) Minority students in the same courses	3.8	3.9	3.4	3.7
(C) Minority students in vocational-technical school	3.8	3.8	3.4	3.7
(D) Ideal social climate on Vocational-technical education school campus	4.1	3.7	3.5	3.7

(Table 8 Continued)

ENCOURAGING MINORITIES WHO ARE:	3.8	3.8	3.4	3.7
(A) Younger to enroll in vocational-technical education	4.0	3.8	3.3	3.7
(B) Older to enroll in vocational-technical education	3.5	3.7	3.4	3.6
(C) The right age to enroll in vocational-technical education	3.8	3.9	3.5	3.7
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VOCATIONAL-TECHNICAL EDUCATION PROGRAMS COURSES THAT:	3.9	3.5	3.8	3.7
(A) Offer what minorities need	4.6	4.5	4.2	4.5
(B) Are short in length	2.6	2.4	3.1	2.7
(C) Minorities will enjoy	4.5	3.9	4.2	4.1
(D) Have requirements which are not too hard to fulfill	3.8	3.0	3.8	3.5
<hr/>				
REMOVING ALL FEARS OF:	4.4	4.4	4.0	4.3
(A) Failing other courses of study	4.4	4.1	4.0	4.2
(B) Becoming a failure in life	4.2	4.6	4.0	4.4
(C) Not being able to get a good job	4.5	4.5	4.0	4.4
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HAVING COUNSELING SERVICES THAT INVOLVE:	3.9	3.9	3.6	3.8
(A) Recruiters from vocational-technical school	3.6	3.8	3.6	3.7
(B) High school counselors	3.9	3.8	3.4	3.7
(C) Vocational-technical education counselors	4.1	4.0	3.8	4.0
<hr/>				
HAVING EXTRA-CURRICULAR ACTIVITIES SUCH AS:	3.7	3.5	3.5	3.6

(Table 8 Continued)

(A) Sports in vocational-technical education schools	3.8	3.6	4.0	3.8
(B) Clubs in vocational-technical education schools	4.0	3.7	3.4	3.7
(C) Music in the vocational-technical schools	3.5	3.3	3.8	3.5
(D) Dramatics in the vocational-technical schools	3.5	3.5	2.9	3.4
<hr/>				
HAVING EASY ACCESS TO VOCATIONAL-TECHNICAL SCHOOL BY:	4.1	3.8	3.9	3.9
(A) Locating school close to home	4.1	3.4	3.5	3.6
(B) Making admission into school easy	4.1	3.7	3.9	3.8
(C) Providing good transportation services to and from school	4.1	4.2	4.2	4.2
<hr/>				
VOCATIONAL-TECHNICAL EDUCATION PROGRAM REQUIRING:	3.2	2.9	3.0	3.0
(A) High grade point average	3.6	3.6	3.6	3.6
(B) Low grade point average	3.3	2.7	2.8	2.9
(C) No grade point average	2.7	2.3	2.5	2.5
GRAND MEANS	3.9	3.8	3.6	3.8

Some minority postsecondary student and high school senior respondents also wrote down and ranked additional factors in the space provided in the survey instruments. These factors are shown in Table H-2 of Appendix H.

Data Presentation for Research Question Number Two

This question was answered by comparing the results of: (a) postsecondary minority students against the results of vocational-technical-minded minority high school seniors, and (b) the respective scores of all the three categories of minority high school seniors in order to determine if there was any significant difference in the perceptions of the different groups of students regarding vocational-technical education programs of study. These comparisons were all tests of significance involving Mann-Whitney test (U-test) for postsecondary students and vocational-technical-minded minority high school seniors, and Kruskal-Wallis test (H-test) for the three categories of minority high school seniors. If the result of each of the two tests on the overall scores of the groups indicated a significant difference in the groups' perception regarding the 10 factors, a second test was conducted on every one of the factors to determine the factor areas where the groups had the significant difference. Otherwise, no second test of significance involving any groups was conducted if the first test showed no significant difference.

The personnel of the Academic Computing Service, University of Northern Iowa, provided the statistical package that was employed to perform these analyses. Known as the statistical package for social sciences (SPSS), it also included ideal statistical models for the particular analyses involved in this study. The results to all the research questions involving tests of significance were generated by

feeding coded data collected from the survey respondents into specific computer programs. All significant differences were comparatively interpreted on the basis of what the data indicated.

Postsecondary Students Versus Technical-Minded Seniors

A comparative study of the mean scores of postsecondary students and vocational-technical-minded seniors on all the 10 factors in section one of the instruments was performed using Mann-Whitney U test of significance. In essence, this test helped to determine if the two compared groups of students came from the same or different populations (test of independence). Siegel (1956) recommended that:

When at least ordinal measurement has been achieved, the Mann-Whitney U test may be used to test whether two independent groups have been drawn from the same population. This is one of the most powerful of the nonparametric tests, and it is a most useful alternative to the parametric t test when the researcher wishes to avoid the t test's assumptions, or when the measurement in the research is weaker than interval scaling. (p. 116)

Computing the statistic U involved combining the respective scores from both groups of students and ranking them in order of increasing size. Siegel stated that in a situation where there are n₁ and n₂ numbers of cases, the statistic U "is given by the number of times that a score in the group with n₂ cases [the smaller of the two groups] precedes a score in the group with n₁ cases [the larger of the two groups] in the ranking" (p. 116). Siegel also noted that because the sampling distribution of U under the null hypothesis (H_0) is known, the probability associated with the occurrence under H_0 of any U could be determined. It was on this basis that the stated hypotheses were established.

Research Hypothesis: The perceptions of postsecondary minority students about vocational-technical education programs of study were not different from the perceptions of technical-bound minority seniors about vocational-technical education programs of study. This research hypothesis was arbitrarily selected for this particular analysis. It was assumed that since the relative groups of students exhibited some degree of similarity regarding career aspirations, they might consequently bear similar perceptions regarding the programs.

Statistical Hypothesis: The mean ratings by postsecondary minority students of the influences of variables on their selection of programs of study were not different from the mean ratings of vocational-technical-minded minority seniors of the influences of variables on their selection of programs. Incidentally, the statistical hypothesis read like the null hypothesis for this particular research question.

Null Hypothesis: The mean ratings (U1) by postsecondary minority students of the influences of variables on their selection of programs of study were the same as the mean ratings (U2) by technical-bound minority seniors of the influences of the variables on their program selection. The null and alternate hypotheses are then stated as follows:

H0: $U1 = U2$

H1: $U1 \neq U2$

The respective scores of both groups of students and how they compared on the Mann-Whitney test at a .05 level of significance are shown in Table 9. The respective U values have been corrected for ties and are shown in the parentheses beside each pair of scores.

Table 9

Comparison of Mean Scores for Postsecondary Minority Students and Technical-Bound Minority High School Seniors Regarding the Influence of Factors on their Enrollment in Vocational-Technical Programs

Factor	Mean Scores		
	Post- Secondary	Tech-Bound Seniors	<u>U</u>
	<u>n1=55</u>	<u>n2=17</u>	Value
MINORITY INSTRUCTORS OR WORKERS WHO WERE:	4.0	3.7	(373)
(A) Teaching in my current school	4.1	4.1	(430)
(B) Teaching in my current program	4.0	3.8	(383)
(C) Working in my current school	4.0	3.5	(376)
(D) Acting as mentors in my high school	4.0	3.6	(346)
(E) Acting as mentors in my current school	3.8	3.5	(389)
SUPPORT SERVICES THAT HELP PROVIDE:	4.3	4.3	(445)
(A) Grants	4.4	4.1	(341)

(Table 9 Continued)

(B) Scholarships	4.3	4.6	(390)
(C) Employment/Workstudy	4.0	4.3	(429)
(D) Other forms of financial aid	4.3	4.3	(433)
(E) Tutorial services	4.3	4.0	(411)
<hr/>			
SOCIAL LIFE ON CAMPUS ENCOURAGED BY:	4.0	4.0	(416)
(A) Minority student organizations in current school	4.0	4.1	(463)
(B) Minority students in the same program	4.1	3.8	(398)
(C) Minority students in current school	4.0	3.8	(370)
(D) Social life on current school's campus	3.7	4.1	(405)
<hr/>			
I CHOSE THIS PROGRAM OF STUDY BECAUSE I WAS:	2.2	3.8	(135*)
(A) Too young for other programs of study	2.1	4.0	(160*)
(b) Too old for other programs of study	1.9	3.5	(166*)
(C) The right age for this program of study	2.6	3.8	(268*)
<hr/>			
THE PROGRAM COURSES:	4.0	3.9	(446)
(A) Are what I need	4.2	4.6	(355)
(B) Are of the right length	3.9	2.6	(182)
(C) Are very enjoyable	4.4	4.5	(399)
(D) Have simple requirements to fulfill	3.4	3.8	(383)
<hr/>			

(Table 9 Continued)

FEARS OF:	3.8	4.4	(327)
(A) Failing a different course of study	3.4	4.4	(280)
(B) Becoming a failure in life	3.8	4.2	(398)
(C) Not being able to get a job	4.3	4.5	(449)
<hr/>			
COUNSELING SERVICES RECEIVED FROM:	3.8	3.9	(459)
(A) Current school's recruiters	3.6	3.6	(463)
(B) High school level	3.8	3.9	(446)
(C) Current school	3.9	4.1	(453)
<hr/>			
EXTRA-CURRICULAR ACTIVITIES SUCH AS:	3.0	3.7	(277*)
(A) Sports in the current school	3.0	3.8	(324)
(B) Clubs in the current school	3.3	4.0	(313*)
(C) Music in the current school	2.9	3.5	(334)
(D) Dramatics in the current school	2.8	3.5	(310*)
<hr/>			
CURRENT SCHOOL BEING:	3.5	4.1	(323)
(A) Close to home	3.3	4.1	(317)
(B) Simple to gain admission	3.5	4.1	(344)
(C) One that has good transportation service	3.7	4.1	(451)
<hr/>			
I WAS ADMITTED TO MY CURRENT PROGRAM BECAUSE:	2.8	3.2	(390)
(A) Of my high grade point average	3.2	3.6	(374)

(Table 9 Continued)

(B) Of my low grade point average	2.4	3.3	(280)
(C) It required no grade point average	3.0	2.7	(442)
GRAND MEANS	3.6	3.9	(313*)

*P < .05.

Notes. Significant for the polled overall scores on the 10 factors and also for the indicated factor areas.

College-, Non-College/Non-Technical-, and Technical-Bound Minority High School Seniors

The mean scores of college-minded, non college/non-technical-minded, and vocational-technical-minded minority high school seniors on all the 10 factors in section one of the instrument were also compared using the Kruskal-Wallis test of significance. As in the Mann-Whitney test of independence just described, this test was used to determine if the three categories of minority high school seniors came from the same or different populations. This test is suitable when testing whether three or more independent samples came from the same or different populations (Siegel, 1956). Siegel noted that:

The Kruskal-Wallis one-way analysis of variance by ranks is an extremely useful test for deciding whether k independent samples are from different populations. Sample values almost invariably differ somewhat, and the question is whether the differences among the samples signify genuine population differences or whether they represent merely chance variations such are to be expected among several random samples from the same population. The Kruskal-Wallis technique tests the null hypothesis that the k samples come from the same population or identical populations with respect to averages. (p. 184)

Computation of the Kruskal-Wallis test involved first combining all the scores from all the three groups of students and then ranking them (Siegel, 1956). The sum of ranks in each group was also found. "The Kruskal-Wallis test determines whether these sums of ranks are so disparate that they are not likely to have come from samples which were all drawn from the same population" (p. 185). If the three groups were from the same populations, then H (the statistic used in the Kruskal-Wallis test) has a chi square distribution with a degree of freedom equal to the number of the groups minus one ($K-1$ or $3-1=2$) as long as the number of cases in each group is more than 5 (Siegel, 1956). It was on this basis that all the stated hypotheses were made.

Research Hypothesis: The perceptions of college-bound, technical-bound, and non-college/non-technical-bound minority high school seniors about vocational-technical education programs of study were not the same. This hypothesis was made on the ground that since minority high school seniors had three clearly identifiable areas of career aspirations, their perceptions of vocational-technical education programs might not be the same.

Statistical Hypothesis: There were significant differences in the mean scores of college-bound, technical-bound, and non-college/non-technical-bound minority high school seniors on the influences of variables on their selection of programs of study. This was not a directional test of significance since there was no way of knowing how the three groups of students would perceive the

variables. What was assumed was that one group of students might have more preference for some factors while the reverse might be the case for others. If this assumption was true, then the results would be either neutral, left- or right-handed. It was only then that the true nature of the results could be known based on the responses of the individual groups of students. Based on such a knowledge, the characteristics of the students could then be predicted.

Null Hypothesis: There was no significant difference among the mean scores of college-bound (U1), technical-bound (U2), and non-college/non-technical-bound (U3) high school minority seniors on the level of influences of variables on their selection of programs of study. The null and alternate hypotheses are as follows:

$$H_0: U_1 = U_2 = U_3$$

$$H_1: U_1 \neq U_2 \neq U_3$$

A comparison of the respective mean scores at a level of significance of .05 on the Kruskal-Wallis test is shown in Table L-1 of Appendix L. The respective H values, corrected for ties, are shown in parentheses beside each trio. The number of minority high school seniors in each of the three career classifications are also shown on top of the respective columns. Since this particular test indicated no significant difference in the overall polled scores of the three groups of seniors, no second test of significance involving the individual factors was conducted.

Data Presentation for Research Question Number Three

The means of the actual and opinionative scores for postsecondary students were compared using the related t test. Known as a test for matched pairs, this test helped to determine whether there were significant differences in the ways the 10 factors actually influenced minority students in their enrollment into vocational-technical education programs of study (before situation) and the ways the students thought the factors should influence them (after situation).

Brase and Brase (1983) stated that:

Data pairs occur naturally in 'before and after' situations, where the same object or item is measured both before and after a treatment. Applied problems in social science, natural science, and business administration frequently involve a study of matching pairs. (p. 265)

Siegel (1956) also noted that "a difference score may be obtained from the two scores of each subject under the two conditions. The t test assumes that these difference scores are normally and independently distributed in the population..." (p. 62). Similarly, the results of columns A and B of section one for post-secondary students underwent a test for matched pairs using the related t test. It was on this basis that all the stated hypotheses were made regarding research question number three.

Research Hypothesis: There was little influence of the 10 factors on minority student enrollment into postsecondary vocational-technical education programs. The only rationale for this particular hypothesis was the assumption that since few minority students were

enrolling in the programs of vocational-technical education, the factors were not influencing them to a great extent.

Statistical Hypothesis: The mean scores of postsecondary minority students on the actual influences of the 10 factors on their selection of programs of study were less than the mean scores of the students' opinionative ratings of those factors. This in essence indicated a directional test of significance since it was assumed that the students were not being greatly influenced by the factors.

Null Hypothesis: The mean scores of postsecondary minority students on the actual influences of the 10 factors on their selection of programs of study were the same as the mean scores of the students' opinionative ratings of those factors. Symbolically, then, the null and the alternate hypotheses are:

$$H_0: U_d = 0$$

$$H_1: U_d < 0$$

All the 55 postsecondary students participated in ranking the 10 factors which resulted in the paired data sets. The mean scores of the students on the actual and ideal influences of the compared variables are shown in Table 10. The respective t values were shown in parentheses beside each pair of scores. Because this test indicated that there was a significant difference on the overall scores of the students, a second test was conducted to determine the particular factor areas where significant differences existed.

Table 10

A Comparison of the Mean Scores for the Actual and Opinionative
Influences of Variables on Postsecondary Minority Student Program
Selection

Factor	Mean Scores		
	Actual	Students'	<u>T</u>
	Influence	Opinions	
<u>N</u> = 55	<u>N</u> = 55	Value	
MINORITY INSTRUCTORS OR WORKERS WHO WERE:	2.3	4.0	(-9.2*)
(A) Teaching in my current school	2.0	4.1	(-9.7*)
(B) Teaching in my current program	2.0	4.0	(-9.6*)
(C) Working in my current school	2.6	4.0	(-5.6*)
(D) Acting as mentors in my high school	2.5	4.0	(-7.1*)
(E) Acting as mentors in my current school	2.2	3.8	(-7.2*)
SUPPORT SERVICES THAT HELP PROVIDE:	3.4	4.3	(-6.0*)
(A) Grants	3.8	4.4	(-3.9*)
(B) Scholarships	3.1	4.3	(-5.2*)
(C) Employment/Workstudy	3.2	4.0	(-4.5*)
(D) Other forms of financial aid	3.3	4.3	(-5.3*)
(E) Tutorial services	3.5	4.3	(-4.3*)

(Table 10 Continued)

SOCIAL LIFE ON CAMPUS ENCOURAGED BY:	2.8	4.0	(-6.8*)
(A) Minority student organizations in current school	2.5	4.0	(-6.7*)
(B) Minority students in the same program	2.7	4.1	(-6.3*)
(C) Minority students in current school	3.0	4.0	(-4.8*)
(D) Social life on current school's campus	2.7	3.7	(-5.3*)
I CHOSE THIS PROGRAM OF STUDY BECAUSE I WAS:	1.8	2.2	(-3.0*)
(A) Too young for other programs of study	1.7	2.1	(-3.0*)
(b) Too old for other programs of study	1.5	1.9	(-2.9*)
(C) The right age for this program of study	2.4	2.6	(-1.6)
THE PROGRAM COURSES:	3.5	4.0	(-5.3*)
(A) Are what I need	3.8	4.2	(-3.9*)
(B) Are of the right length	3.4	3.9	(-3.4*)
(C) Are very enjoyable	3.9	4.4	(-3.8*)
(D) Have simple requirements to fulfill	2.8	3.4	(-4.1*)
FEARS OF:	3.3	3.8	(-3.5*)
(A) Failing a different course of study	2.9	3.4	(-2.2*)
(B) Becoming a failure in life	3.1	3.8	(-3.3*)
(C) Not being able to get a job	3.7	4.3	(-3.4*)

(Table 10 Continued)

COUNSELING SERVICES RECEIVED FROM:	2.9	3.8	(-6.2*)
(A) Current school's recruiters	2.7	3.6	(-4.9*)
(B) High school level	2.9	3.8	(-4.7*)
(C) Current school	3.0	3.9	(-5.5*)
<hr/>			
EXTRA-CURRICULAR ACTIVITIES SUCH AS:	2.2	3.0	(-5.4*)
(A) Sports in the current school	2.4	3.0	(-4.6*)
(B) Clubs in the current school	2.5	3.3	(-4.9*)
(C) Music in the current school	2.0	2.9	(-4.8*)
(D) Dramatics in the current school	2.0	2.8	(-3.7*)
<hr/>			
CURRENT SCHOOL BEING:	3.3	3.5	(-1.9)
(A) Close to home	3.3	3.3	(-0.1)
(B) Simple to gain admission	3.3	3.5	(-1.9)
(C) One that has good transportation service	3.3	3.7	(-2.3*)
<hr/>			
I WAS ADMITTED TO MY CURRENT PROGRAM BECAUSE:	2.1	2.8	(-6.1*)
(A) Of my high grade point average	2.3	3.2	(-5.4*)
(B) Of my low grade point average	1.6	2.4	(-4.9*)
(C) It required no grade point average	2.4	3.0	(-3.9*)
GRAND MEANS	2.8	3.6	(-9.0*)

*P < .05.

Notes. Significant for the polled overall scores and also for the indicated factor areas.

Data Presentation for Research Question Number Four

This question was designed to reveal where minority students learned the most about vocational-technical education programs of study. A supportive item that went with question four was designed to ascertain the particular grade level at which the students primarily learned about the programs. Inferences were made based on percentages of the students' responses. Student responses to the question about the sources where they learned about vocational-technical education programs of study are shown in Table 11.

Table 11

Sources from Which Minority Students Learned the Most About Vocational-Technical Education Programs of Study in Iowa

Source	<u>n</u>	<u>%</u>
POSTSECONDARY STUDENTS		
By Visiting School	10	18.2
High School Counselors	8	14.5
Two-Year College Handout	8	14.5
Friends	8	14.5
Other	7	12.7
Parents	5	9.1
High school teachers	4	7.3

(Table 11 Continued)

Television/Newspaper Ads	3	5.4
Recruiters	<u>2</u>	<u>3.6</u>
TOTAL	55	100.0
<hr/>		
HIGH SCHOOL SENIORS		
High School Counselors	17	20.7
High School Teachers	9	11.0
Other	9	11.0
Recruiters	8	9.8
Parents	8	9.8
Friends	8	9.8
Two-Year College Handout	8	9.8
Television Advertisement	5	6.1
Not Applicable	4	4.9
By Visiting School	3	3.7
Newspaper Advertisement	<u>2</u>	<u>2.4</u>
TOTAL	81	100.0

A complementary part to research question number four was a questionnaire item included to show the specific times and grade levels at which minority students learned about the programs. While

postsecondary students were asked to indicate the particular grade levels when they first learned about their selected courses of study, high school seniors were asked to indicate the grade levels when they first learned about vocational-technical education programs in general. Their responses to that question are shown in Table 12 in numbers and percentages.

Table 12

When Minority Students First Learned About Vocational-Technical Education Programs of Study

Time	<u>n</u>	<u>%</u>
POSTSECONDARY STUDENTS		
After High School	24	43.6
When I was Ready to Register	16	29.1
In the Twelfth Grade	5	9.1
In the Eleventh Grade	4	7.3
I Do Not Know	2	3.6
In the Tenth Grade	2	3.6
In the Ninth Grade	1	1.8
Before Ninth Grade	<u>1</u>	<u>1.8</u>
TOTAL	55	100.0

(Table 12 Continued)

HIGH SCHOOL SENIORS

In the Eleventh Grade	24	29.3
In the Twelfth Grade	17	20.7
In the Tenth Grade	16	19.5
In the Ninth Grade	15	18.3
Before Ninth Grade	<u>10</u>	<u>12.2</u>
TOTAL	82	100.0

Data Presentation for Research Question Number Five

Research question number five was designed to ascertain how positively or negatively minority students perceived vocational-technical education programs of study. Like research question number four, respondents' results were tabulated and inferences were made based on percentages of responses to the relative questionnaire items.

The results of all the postsecondary minority students who responded to this question were tabulated separately. The high school seniors' were similarly tabulated since the questions were worded differently because of the educational level differential.

Two primary points were of concern: (a) whether the students had positive or negative opinions about the programs, and (b) the extent (poor, somewhat good, or good) to which those opinions were positive or negative. Part a was addressed to simply retrieve a yes or no

answer from the students. For postsecondary minority students, the question put forward was: "Do you like your program of study?" Their responses are shown in Table 13 in numbers and percentages of responses to the two options.

Table 13

Postsecondary Minority Students' Responses to Whether They Liked or Disliked Their Programs of Study

Kind of Response	<u>n</u>	<u>%</u>
I Like my Program of Study	52	94.5
I Don't Like my Program of Study	0	0.0
I Don't Know	<u>3</u>	<u>5.5</u>
TOTAL	55	100.0

For minority high school seniors, the question was asked differently. The seniors were not only asked why they liked or disliked the programs but also whether they would or would not consider enrolling in a vocational-technical education program of study (Table 14).

Questions were also designed which were used to ask the seniors why they thought they would like or not like vocational-technical education programs of study. Table 15 contains the frequencies of

Table 14

Seniors' Responses to Whether They Would Consider Enrolling in a
Postsecondary Vocational-Technical Education Program of Study

Type of Response	<u>n</u>	<u>%</u>
Would Consider Enrolling in Program	56	68.3
Would Not Consider Enrolling in Program	20	24.4
Don't Know	<u>6</u>	<u>7.3</u>
TOTAL	82	100.0

Table 15

Why Seniors Liked Vocational-Technical Education Programs of Study

Type of Response	Frequency
To Get a Job	30
Program is Short	16
Requirements are Easy	14
School is Close to Home	13
I Just Like the Program	11
Other	10
Friends Like the Program	2

students' responses to why they would like the programs, while Table 16 contains the frequencies of their responses to why they

Table 16

Why Seniors Disliked Vocational-Technical Education Programs

Type of Response	Frequency
Other (Have nothing against program)	59
I Just Don't Like the Program	14
It is a Demeaning Program	6
It Is too Hard to Study	3

would not like the programs. The students were asked to check as many options as possible. Some of the minority high school seniors checked only one item to this question while some checked more than one.

The b part of research question number five helped to determine the percentage of the students who had negative or positive opinions, and the extent (poor, somewhat good, or good) to which those opinions were positive or negative toward vocational-technical education programs of study. Table 17 contains a numerical listing of their responses.

Table 17

Minority Student Opinions About Vocational-Technical Education Programs

Opinion	<u>n</u>	<u>%</u>
POSTSECONDARY STUDENTS		
Good Program; Should be Encouraged	47	85.5
Somewhat Good Program	6	10.9
I Do Not Know	2	3.6
Poor Program; Should be Discouraged	<u>0</u>	<u>0.0</u>
TOTAL	55	100.0
HIGH SCHOOL SENIORS		
Good Program; Should be encouraged	44	53.7
Somewhat Good Program	19	23.2
I Don't Know	16	19.5
Somewhat Poor Program	2	2.4
Poor Program; Should be Discouraged	<u>1</u>	<u>1.2</u>
TOTAL	82	100.0

Other Supportive Data

Additional supportive data were also retrieved from postsecondary minority students and were used as supplementary information to the

data relating to the five research questions. Table 18 contains a profile of how the students responded to the question on whether their colleges provided selected support services.

Postsecondary minority students were also asked to indicate how far away from school they lived and how they commuted to their colleges. Table 19 contains their responses to how far away from school they lived, while their responses to how they commuted to school are shown in Table 20. As shown in Table 19, most of the students (70.9%) lived more than five miles from their schools. This

Table 18

Postsecondary Minority Student Responses to Whether Support Services Were Available at Their Colleges

Kind of Service	Frequency					
	Yes	%	No	%	Don't Know	%
Financial Aid	42	76.4	13	23.6	0	0
Minority Instructors	7	12.7	48	87.3	0	0
Counseling Services	38	69.1	17	30.9	0	0
Placement Services	41	74.5	4	7.3	10	18.2

Table 19

Distance From School Postsecondary Minority Students Lived

Distances	<u>n</u>	<u>%</u>
Within Two Miles	9	16.4
Within Five Miles	7	12.7
Within Ten Miles	16	29.1
Over Ten Miles	<u>23</u>	<u>41.8</u>
TOTAL	55	100.0

Table 20

How Postsecondary Minority Students Commuted to School

Type of Transportation	<u>n</u>	<u>%</u>
Own Auto	28	50.9
Bus	15	27.3
Ride With Friend	6	10.9
Parent's Auto	4	7.3
Walk	<u>2</u>	<u>3.6</u>
TOTAL	55	100.0

suggested that most of the students commuted to their schools by some means of mechanical transportation. This was confirmed by their responses in Table 20 where most of the students (78.2%) indicated that they commuted to their schools by their own auto and by bus.

Table 21 contains postsecondary minority students' most important reasons for selecting their programs of study, while the students' responses to the question on whether they were contacted and encouraged by recruiters to attend their school are shown in Table

Table 21

Reasons Why Postsecondary Minority Students Selected Programs

Reasons	Frequency
I Liked the Program	32
To Get a Job	23
To Transfer to 4-Year College	7
Other	6
The Short Time it Takes to Complete	5
School Close to Home	4
Someone Made the Choice for me	2
My Low High School GPA	1

22. Most of the students who responded to the items in Table 21 indicated that their most important reasons for selecting vocational-technical education programs of study were likeness for the programs and to get a job. As shown in Table 22, most minority students (69.1%) indicated that they were not contacted and encouraged by recruiters to attend their schools.

The results shown in Table 21 were in agreement with the results of research question number five in which minority high school seniors indicated that they would enroll in vocational-technical education programs of study in order to get a job. The results listed in Table 22 agreed with the results of research question number four to which most postsecondary minority students responded

Table 22

Postsecondary Minority Student Responses to Whether They Were Contacted and Encouraged by Recruiters to Attend School

Response	<u>n</u>	<u>%</u>
Yes	16	29.1
No	38	69.1
No Response	<u>1</u>	<u>1.8</u>
TOTAL	55	100.0

that they learned about their programs sometime after high school.

Table 23 contains postsecondary students' responses to the question on how many fellow minority students they had in any of their courses. The responses show that most of the students had between none and three other minority students in at least one of their courses.

Table 23

Number of Fellow Minority Students in the Same Courses

Number	<u>n</u>	<u>%</u>
0	15	27.3
1-3	32	58.2
4-6	5	9.1
7-10	2	3.6
More than 10	<u>1</u>	<u>1.8</u>
TOTAL	55	100.0

Table 24 contains the kinds of activities postsecondary students indicated they had in their schools. More students indicated that student clubs and sports were provided by their institutions than those that indicated that their schools provided music, dramatics, and minority student activities. Minority student activities were

the least indicated options that postsecondary institutions provided. These results were also supported by the responses of minority high school seniors (notably the technical-minded seniors) to research question number one in which the students highly ranked these particular options as influential factors to their selection of vocational-technical education programs of study.

Table 24

Activities Provided in Postsecondary Institutions

Activity	Frequency
Student Clubs	35
Sports	28
Music	13
Dramatics	10
Minority Student Activities	9

CHAPTER 5

DATA ANALYSES

The data analyses on the five research questions led to the results and discussion which are presented in this chapter. The results of each of the five research questions were treated individually and sometimes with supportive information for the particular question.

Analyses of Research Question Number One

Research question number one addressed the issue of the extent to which the 10 variables influenced minority student enrollment in postsecondary vocational-technical education programs in the state of Iowa. The results of this question were also used to validate selected factors which were reported in the literature to influence minority student enrollment in the vocational-technical education programs. It was determined that the students who could best provide information regarding this particular research question were the postsecondary minority students and the technical-bound minority high school seniors. They were the ones who associated their career goals with the programs.

The information retrieved from postsecondary students consisted of two categories: (a) how the factors actually influenced them regarding their enrollment in the programs, and (b) what they thought the influences of those factors should be. Each of the 10 factors was broken into several factor areas which resulted in a total of 37

sub-factors to help reveal how different areas of the variables influenced the students.

The results of research question number one, as indicated by the composite scores of postsecondary minority students, showed that the actual and opinionative levels of influence on the students by the 10 factors were respectively as follows: role models 2.3, 4.0; support groups 3.4, 4.3; ethnic culture 2.8, 4.0; age 1.8, 2.2; program requirements 3.5, 4.0; fear of failure 3.3, 3.8; counseling 2.9, 3.8; extra-curricular activities 2.2, 3.0; accessibility to an institution 3.3, 3.5; and grade point average 2.1, 2.8. In general, the students' scores on the opinionative influences were higher than their scores on the actual influences.

On the actual influences of the factors on postsecondary minority students, based on the 3.5 point criterion selected for this study, the results indicated that most of the factors had little influence on the students' enrollment in the vocational-technical education programs of study. The factors "program requirements" and "support groups" received the highest composite scores (3.5 and 3.4 respectively). The age factor received the lowest score (1.8) from the students.

The technical-bound minority high school seniors ranked the 10 factors as follows: role models 3.7; support groups 4.3; ethnic culture 4.0; age 3.8; program requirements 3.9; fear of failure 4.4; counseling 3.9; extra-curricular activities 3.7; accessibility to an institution 4.1; and grade point average 3.2. The score on the

factor of fear of failure received the highest score while the factor of grade point average received the lowest score.

For a factor to be validated, it must have received a composite score of 3.5 or above on its actual or opinionative influence for both postsecondary students and minority high school seniors. The higher of each pair of scores for postsecondary students was selected. For both groups of students, seven factors were unanimously ranked 3.5 or above on their actual or opinionative influences. Those factors and their respective composite scores for the postsecondary minority students and the technical-bound minority high school seniors are as follows:

1. Role models (4.0), (3.7).
2. Support groups (4.3), (4.3).
3. Ethnic culture (4.0), (4.0).
4. Program requirements (4.0), (3.9).
5. Fear of failure (3.8), (4.4).
6. Counseling (3.8), (3.9).
7. Accessibility to an institution (3.5), (4.1).

Analyses of Research Question Number Two

Two issues were addressed by this question. One was to determine whether there were significant differences in the perceptions of postsecondary minority students and technical-minded minority high school seniors regarding vocational-technical education programs of study. The other was to determine whether there were significant

differences in the perceptions of minority high school seniors of the three career aspirations regarding the programs.

The null hypothesis that the mean scores on the influences of the variables were the same for the postsecondary minority students and the technical-minded minority high school seniors was rejected when the scores of the respective groups on all the 10 factors polled together (grand means) were compared on the Mann-Whitney test. When the mean scores of the two groups on individual factor were compared, there were significant differences on the following two factor areas: age and extra-curricular activities. A discussion on these differences follows in the next section.

The null hypothesis that the mean scores of the three groups of minority high school seniors on the influences of the variables were the same failed to be rejected when all the mean scores (grand means) of the scores on the 10 factors polled together were compared on the Kruskal-Wallis test. No additional test was conducted on the scores of these groups following this no-reject result.

Postsecondary Students Versus Technical-Minded Minority High School Seniors.

Technical-minded minority high school seniors scored significantly higher than postsecondary minority students on the age factor. There was, however, an associated suspicion of the researcher that these students did not fully understand the meanings expressed on the questionnaire items which addressed the age variable. While the meaning expressed on the questionnaire item

addressing the age variable focused on the factor as one of influence, technical-minded minority high school seniors appeared to have understood it as saying that "minorities of every age should be admitted into vocational-technical education programs". But if their higher score on this factor was to be interpreted in the light of this study, then they appeared to be indicating that age should have an influence on minority student enrollment in vocational-technical education programs of study while the postsecondary students appeared to be indicating by their lower score that the age factor should not have a bearing on an individual's enrollment in vocational-technical education programs of study.

Perhaps the age gap between the two groups of students and the ways the two questionnaire items dealing with this question were worded had a bearing on this result. The age factor might not have accomplished what it was intended to fulfill. The high school seniors who were all 17 and 18 years of age might have read the item differently. On the other hand, most of the postsecondary students were 25 years of age or over. These students had more life experiences than the high school seniors, and therefore might see things differently. Because of the above suspicion, this significant difference should not be taken seriously. Further studies are needed to determine if there was really a significant difference in the opinions of the two groups of students.

Technical-minded minority high school seniors also scored significantly higher on these factor areas of extra-curricular

activities: (a) having clubs (4.0), and (b) dramatics (3.5) in postsecondary vocational institutions than did postsecondary students who scored only 3.3 and 2.8 respectively on the two factor areas. This, however, might be expected because postsecondary students, being older, might be more concerned with other life priorities than with extra-curricular activities at school. Some of them might have families and other commitments to worry about. The technical-minded seniors on the other hand were looking up to postsecondary life experience, and might be expecting activities such as clubs and dramatics.

Analyses of Research Question Number Three

This particular research question was a major one in this study. It was designed to determine if there were significant differences between the actual and opinionative influences of the 10 factors as rated by minority postsecondary students. The ten factors were also broken into 37 sub-factors to help determine how different aspects of the factor areas influenced the students. The null hypothesis was that there were no significant differences in the mean scores of the students' actual and opinionative ratings of the factors.

The null hypothesis was rejected on the ground that significant differences were found to exist between the actual and opinionative scores of the students on all the paired mean scores polled together. A subsequent test on the individual factors showed that only one factor (accessibility to an institution) was, statistically, ranked similarly by the students.

As was reported on the results of research question number one, all the opinionative scores of the postsecondary students were higher than their scores on the actual influences of the factors. The fact that there were significant differences between their actual and opinionative influences as revealed by the results of research question number three indicated that more needs to be done to utilize the factors' fullest influences on minority students. These extra influences might mean more minority students enrolling in the programs in the state of Iowa.

Worthy of notice was also the fact that very few of these factor areas were actually having substantial influences on the students. If the students had rated more of the factors 3.5 or above, that would have meant that these factors were actively influencing minority students in the state of Iowa. The absences of the higher scores, however, did indicate that some steps needed to be taken.

Analyses of Research Question Number Four

This question was used to retrieve the sources of information from which minority students learned the most about vocational-technical education programs in Iowa. Most postsecondary students indicated that they learned the most about their programs by visiting the schools (18.2%), through high school counselors (14.5%), two-year college handouts (14.5%), and from friends (14.5%). Parents (9.1%), high school teachers (7.3%), television/newspaper advertisements (5.4%), and recruiters (3.6%) constituted the other sources from

which postsecondary minority students learned the most about vocational-technical education programs of study.

Most seniors indicated that they learned about the programs from their high school counselors (20.7%), high school teachers (11.0%), recruiters (9.8%), parents (9.8%), friends (9.8%), and two-year college handouts (9.8%). Television/newspaper advertisements (8.5%) and visiting schools (3.7%) constituted the other sources from which minority high school seniors learned the most about vocational-technical education programs in Iowa.

Most postsecondary minority students (72.7%) also indicated that they did not learn about their programs of study in high school. Some (46.3%) indicated that they learned about their programs of study from some other sources after high school, while 29.1% learned about their programs when they were ready to enroll. Most minority high school seniors (88%) on the other hand learned about the programs at or after ninth grade, with more (29.3%) indicating the eleventh grade as the level at which they learned about the programs than at any other grade level.

Both groups of students revealed important sources of information that could be targeted: visiting schools, high school counselors/teachers, friends, recruiters, two-year college handouts, and parents. The findings from this research question also appeared to indicate that more seniors learned about the programs of vocational-technical education in high school than did postsecondary students. Perhaps the age factor (most postsecondary students were

over 25 years of age), current trends on the job market, and improved career awareness programs had some bearing on this discrepancy. The fact that most of the students learned about the programs after tenth grade, however, appeared to support the findings of Weber (1988) and Goldstein (1985) that many minority students had the least knowledge about vocational-technical education programs due to the fact that they were not informed earlier on in life.

Analyses of Research Question Number Five

This question was used to address the issue of whether minority students had positive or negative opinions, as well as the degree of those opinions (poor, somewhat good, or good), about vocational-technical education programs of study. The data retrieved from the respondents showed that an overwhelmingly 94.5 percent of all the postsecondary minority student respondents indicated that they liked their programs of study. Only three students (5.5%) indicated that they did not know, while none of the students indicated a dislike for the programs.

The minority high school seniors' responses followed a similar pattern. A total of 56 seniors (68.3%) indicated that they would consider enrolling in a vocational-technical education program of study. Only 20 seniors (24.4%) indicated that they would not consider enrolling in the programs, while six students (7.3%) indicated that they did not know. The responses of the high school seniors should, however, be taken cautiously because of two reasons: (a) they were too young to make a valid judgment about whether a

program was good or poor, and (b) most of them (79.3%) had already indicated in the demographic data that they would either attend a four-year college to study something else other than vocational-technical education, or would not attend any postsecondary institution at all after high school.

Most postsecondary minority students (85.5%) and high school seniors (53.7%) indicated that vocational-technical education programs were good programs and should be encouraged. Some 10.9% of postsecondary students and 23.2% of seniors indicated that the programs were somewhat good programs. Two postsecondary minority students (3.6%) and 16 high school seniors (19.5%) indicated that they did not know whether the programs were good or poor, while only one senior (1.2%) indicated that the programs were poor and should be discouraged. Again, it should be pointed out that the above opinions by the minority high school seniors could be "immature" since they were too young to make valid decisions regarding the particular questionnaire item which addressed this issue.

The results of this question, however, clearly indicated that minority students had a very positive opinion about the programs of vocational-technical education. This appeared to conflict with the findings of Schulman (1973), Miranda and Associates (1977), and the researchers at Stark Technical College (1977), who indicated that minorities thought of the programs as demeaning and detrimental to upward mobility. Perhaps the opinions of minorities had been changing over the years, since those studies were done more than a

decade ago. The above opinion might demand investigation because of the fact that some more recent studies appeared to agree with the results of this study. They included, in particular, the findings of Kinnebrew (1984), Philips (1985), and Weber (1988). These researchers found a strong participation of members of ethnic minorities in vocational education.

CHAPTER 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In this chapter, a general summary of the problem identification, review of the literature, and methodology used for the study is given. A summary of the results is included. Conclusions are also drawn based on the findings of the study. Moreover, recommendations for action and for further study are made.

General Summary

This study was undertaken to determine those pertinent factors that influenced minority student enrollment in vocational-technical education programs in the state of Iowa. The major problem of the study was to validate, through subjects' responses, selected factors which were reported to influence minority student enrollment in vocational-technical education programs, and to determine their levels of influence on those students. The study was also used to determine (a) whether there were significant differences in the ways different classifications of minority students perceived the programs, (b) whether the factors influenced postsecondary minority students the way the students thought they should, (c) the sources from which minorities learned about vocational-technical education programs, and (d) whether minority students had positive or negative opinions about the programs.

One major reason why the study was undertaken was because unemployment rates for members of ethnic minorities were historically higher than those for caucasians in the state of Iowa. Two reasons

were identified to be some of the major causes of higher rates of minority unemployment rates. They were: (a) lack of vocational skills, and (b) lack of education.

A major purpose of the study was to ascertain the degrees of influences those pertinent variables, identified from the review of literature, had on minority students in their enrollment in the vocational-technical education programs. Such findings, if incorporated, could aid in developing effective recruitment programs for the purpose of recruiting minorities into vocational-technical education programs. More minorities might be attracted into the programs, which would result in their gaining additional education and employable skills.

It was also discovered that minority enrollments in vocational-technical education programs in Iowa's community institutions were very low, and sometimes nil, even though the officials made some attempts to recruit more minority students. Since it was not known why minorities were underrepresented in vocational-technical education programs, it was decided to employ a research-based approach to help solve the problem.

The review of literature undertaken for this study involved consultations of key knowledgeable officials, the use of the libraries, and several computer-based searches. It was identified from the review of literature that there were 10 factors that appeared to have considerable potential for influencing minority student enrollment in vocational-technical education programs of

study. Those factors were: role models, support groups, ethnic culture, age, program requirements, fear of failure, counseling, extra-curricular activities, accessibility to institution, and grades. These 10 factors were then broken into a total of 37 sub-factors to facilitate student understanding of what those terms meant, and to help specify areas of influences more clearly.

Five research questions were answered in the course of the study relative to the problem. They were:

1. To what extent did the following factors influence minority student enrollment in vocational-technical education programs in the state of Iowa: role models, support groups, ethnic culture, age, program requirements, fear of failure, counseling, extra-curricular activities, accessibility to an institution, and grades?

2. Were there significant differences in the perceptions of (a) postsecondary minority students and technical-bound minority high school seniors, and (b) minority high school seniors of different career classifications regarding vocational-technical education?

3. Were there significant differences between the actual influences of the 10 factors on enrolled postsecondary minority students, and what the students thought the influences of those factors should be?

4. From what sources did minority students learn about vocational-technical education programs?

5. What were minority students' opinions, and to what extent were those opinions positive or negative, about vocational-technical education programs?

There were two major populations for the study. One was made up of all postsecondary minority students who were enrolled in vocational-technical education programs of study at selected Iowa community institutions during the spring semester of 1989. The other was made up of minority high school seniors who had not enrolled in the programs at selected Iowa high schools during the same period. Everyone of the subjects was also an American citizen.

The sample was selected on the basis of availability of minority population in the counties that served the particular institution, because most of Iowa's 99 counties have few or no minorities living in them. The sample representing the postsecondary students included all postsecondary minority students who were enrolled in vocational-technical education programs of study in the following institutions: Des Moines Area Community College, Des Moines; Hawkeye Institute of Technology, Waterloo; Iowa Central Community College, Fort Dodge; Kirkwood Community College, Cedar Rapids; Muscatine Community College, Muscatine; Scott Community College, Bettendorf; and Western Iowa Community College, Sioux City. The sample representing minority high school seniors included all minority high school seniors in the Waterloo, Iowa public school system.

Since the study involved postsecondary and high school seniors, two different instruments were designed for the two different

populations of students. The two instruments were validated by a five-member jury of experts and the researcher's doctoral committee. Both instruments were pilot-tested during the fall semester of 1988 with postsecondary minority students at Clinton Community College, Clinton, and minority high school seniors at Cedar Falls High School, Cedar Falls, Iowa.

The actual survey was conducted from January 1989 through March of the same year. All the participating institutions were visited by the researcher who also administered and supervised the survey. A total of 55 postsecondary minority students and 82 minority high school seniors voluntarily participated in the survey. The data retrieved from the student responses were used to answer the five research questions. T tests, Mann-Whitney (U) tests, Kruskal-Wallis (H) tests, tables of frequencies, and tables of classifications were employed in presenting and analyzing the data.

Summary of the Results

Postsecondary minority student responses to research question number one showed that most of the 10 factors were ranked low (less than 3.5 on a five-point scale) on their actual influences on minority student enrollment, which appeared to be suggesting that the students were actually not greatly influenced on their enrollment in vocational-technical education programs by those factors. On the other hand, the students' opinionative ratings and those of the vocational-technical-bound minority high school seniors of the factors were for the most part rated highly (3.5 or above).

Based on the students' responses, seven factors that were ranked 3.5 or above were validated as having great potential for influencing minority student enrollment in the vocational-technical education programs of study in Iowa. They are: role models, support groups, ethnic culture, program requirements, fear of failure, counseling, and accessibility to an institution.

Although postsecondary minority students and technical-minded minority high school seniors exhibited like perceptions on most of the 10 factor areas regarding the programs of vocational-technical education, the two groups of students, nevertheless, had different perceptions of the programs on some factors. Technical-bound minority high school seniors indicated that age and extra-curricular activities have an influence in their decision to enroll in the programs while postsecondary minority students indicated otherwise. There was no significant difference in the perceptions of the three groups of minority high school seniors (college-bound, vocational-technical-bound, and non-college/non-vocational-technical-bound) regarding vocational-technical education.

There were significant differences between the actual and ideal influences on postsecondary minority students on 9 of the 10 factors. The actual influences of these factors were significantly less than what minority students indicated they thought the ideal influences should be.

Minorities mostly learned about the programs of vocational-technical education from high school counselors/teachers, two-year

college handouts, friends, parents and by visiting the schools. Most of the postsecondary minority students learned about the programs sometime after high school, while most of the minority high school seniors learned about the programs during the 10th, 11th, and 12th grades.

Both postsecondary minority students and minority high school seniors had overwhelming positive responses to the programs of vocational-technical education. Most of the students responded to the option that it was a good program and should be encouraged. A majority of the high school seniors indicated that they would consider enrolling in the programs.

Conclusions

This study generated some important results in the course of answering the five research questions. It was on the basis of those results that the conclusions stated in this section were made. The following were the important conclusions drawn from the study.

1. Minority students are not appreciably influenced in their enrollment into vocational-technical education programs by most of the 10 factors. Their opinionative scores, though, indicated that the students would like to be influenced by the factors.

2. Technical-minded minority high school seniors and postsecondary minority students exhibited generally like perceptions about vocational-technical education programs. However, differences were evident in selected areas. Technical-bound minority high school seniors had more preference for extracurricular activities in

vocational-technical schools than did the postsecondary minority students.

3. The three categories of minority high school seniors (technical-minded, college-minded, and non-college/non-technical-minded) indicated overwhelming commonalities in their perceptions of vocational-technical education programs of study.

4. School visits, high school counselors/teachers, friends, recruiters, two-year college handouts, and parents are the most frequently reported sources from which minority students learn the most about vocational-technical education programs of study. Postsecondary minority students learned about the programs, listed in order of importance, from: visiting the schools, high school counselors, two-year college handouts, and friends. For the seniors, the most important sources of information, listed in order of importance, are: high school counselors, high school teachers, recruiters, parents, friends, and literature from two-year colleges.

5. Most minority students do not have a knowledge of vocational-technical education programs in the ninth grade and under. This situation could be improved by approaching the students during the early grades and informing them about the programs.

6. Minority students have a very positive opinion about the programs of vocational-technical education.

Recommendations for Action

The results of this study did indeed reveal many areas of concern where vocational-technical educators should focus attention in trying

to meet the needs of minority students, thereby attracting more of them into the programs. This would be very much enhanced if the recommendations made in this section are taken into consideration.

The recommendations made in this study covered two areas. One concerns what vocational-technical educators might do to attract more minorities into their programs. The other focuses on the areas where further studies might be needed. The following recommendations for action are, therefore, made.

1. Concerted effort should be made by vocational-technical educators and administrators to employ as many minority personnel as possible to teach and work in community institutions, teach in vocational-technical education programs, and act as mentors to minority students in community institutions. Minority students in general ranked the factor "role model" highly as an influential one in their enrollment the programs. Most postsecondary minority students (87.3%), moreover, indicated that they did not have a minority instructor in any of their courses.

2. Encourage social life on campus to suit minorities by having minority student organizations in the schools, minority students in the same schools, and minority students in the same programs. Technical-bound minority high school seniors indicated more of the need for having clubs and dramatics in community institutions than did postsecondary students. Decision makers should implement these extracurricular activities to attract more minority high school seniors in the programs.

3. Stress the importance of the job aspect of the programs in trying to recruit minority students. Most students enroll to prepare for a job. Recruiters should also target prospective adult students and make known to them the possibilities in the programs of vocational-technical education. Many of these adults could be contacted through agencies such as Iowa Departments of Job/Employment Services. Most of the postsecondary students, a majority of whom were adults, indicated that they were not contacted and encouraged to enroll by recruiters.

4. More effort should be made to provide adequate counseling services to minority students in high schools and postsecondary vocational-technical programs. This would particularly involve providing high school counselors and community college recruiters with adequate information about vocational-technical education programs of study.

5. Vocational-technical educators should institute recruitment strategies targeted at minority high school students all across Iowa. The goal should include informing every one of the students, particularly in grades under 10, that the programs of vocational-technical education exist and the kinds of jobs for which the students can be prepared to accept.

6. Vocational-technical educators and administrators should institute visitation programs for prospective and unemployed adult minority students, during which time they should be shown the facilities and job possibilities. This should also be extended to

high school students in liaison with high school counselors and teachers. There should be a continued effort to communicate with high school counselors and teachers. These key officials must be told clearly the intentions of vocational-technical educators and their cooperation should be sought.

7. Parents and friends of minority students should be informed about the programs of vocational-technical education and the job possibilities available for the minority students. Two-year college literature that contains pertinent information on the programs should also be mailed to targeted populations of minorities.

8. All the available services at community colleges should be made known to every minority student on campus. Some of the postsecondary student respondents (18.2%) indicated that they did not know whether there was a placement service at their colleges.

9. Recruiters should strive to recruit from all minority high school seniors irrespective of their future career aspirations. Most of these students indicated that they would consider enrolling in the programs of vocational-technical education.

Recommendations for Further Study

In view of the fact that the problem is highly complex, further study is needed. The following recommendations are made for further research to complement this doctoral level study:

1. A study should be conducted to determine the major reasons (apart from job and military reasons) why many minority high school seniors wanted to terminate their education at the high school level.

2. A study should be conducted to determine why adult postsecondary minority students enroll in the programs of vocational-technical education several years following high school graduation.

3. A study should be conducted to determine whether the age factor has different levels of influence on postsecondary minority students and technical-minded minority high school seniors.

4. A replication of this study is recommended in the future to determine the level of influence on minority students by the 10 factors and also to determine other possible factors that may be influencing the students.

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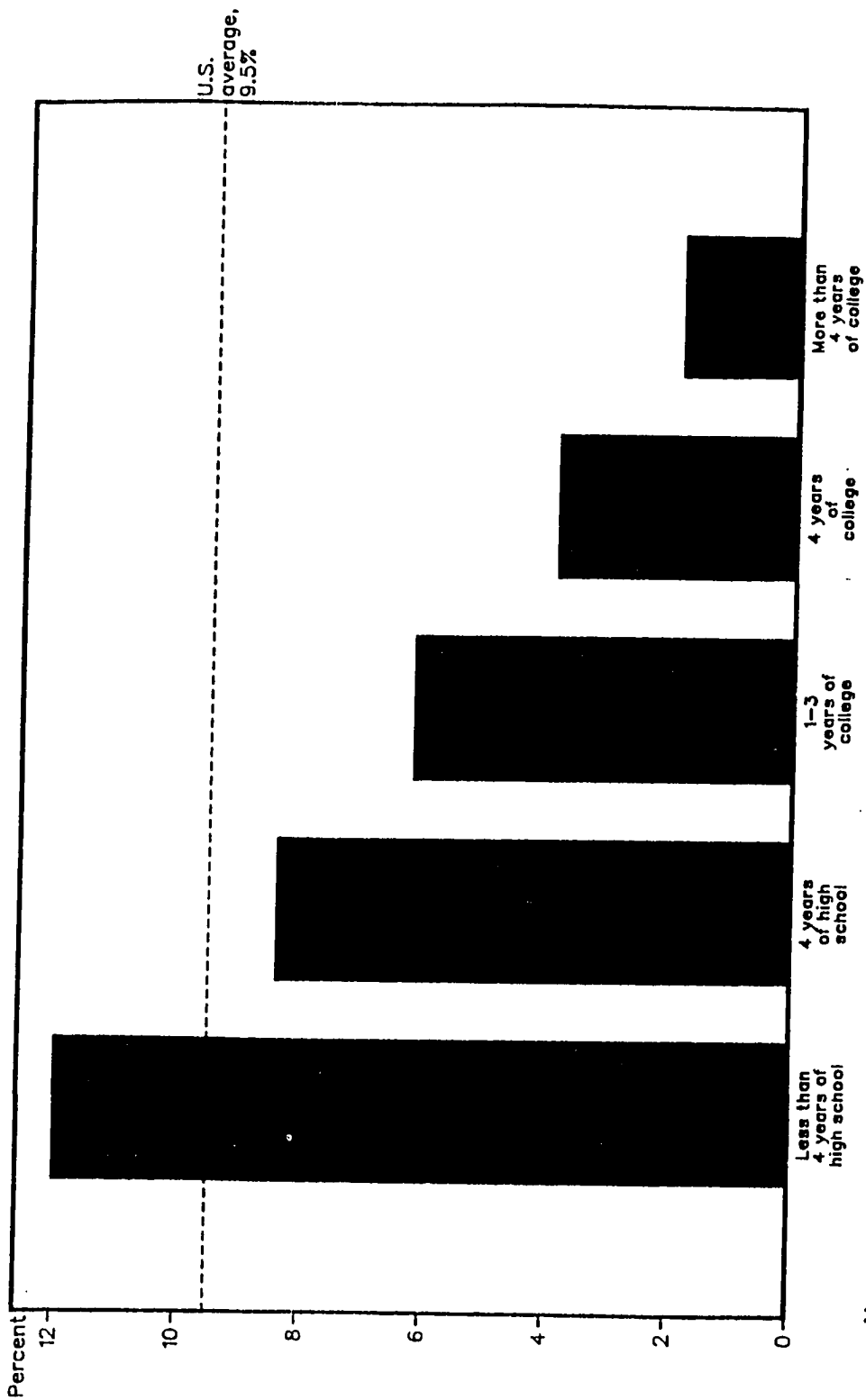
APPENDICES

Appendix A:

Labor Market Information:

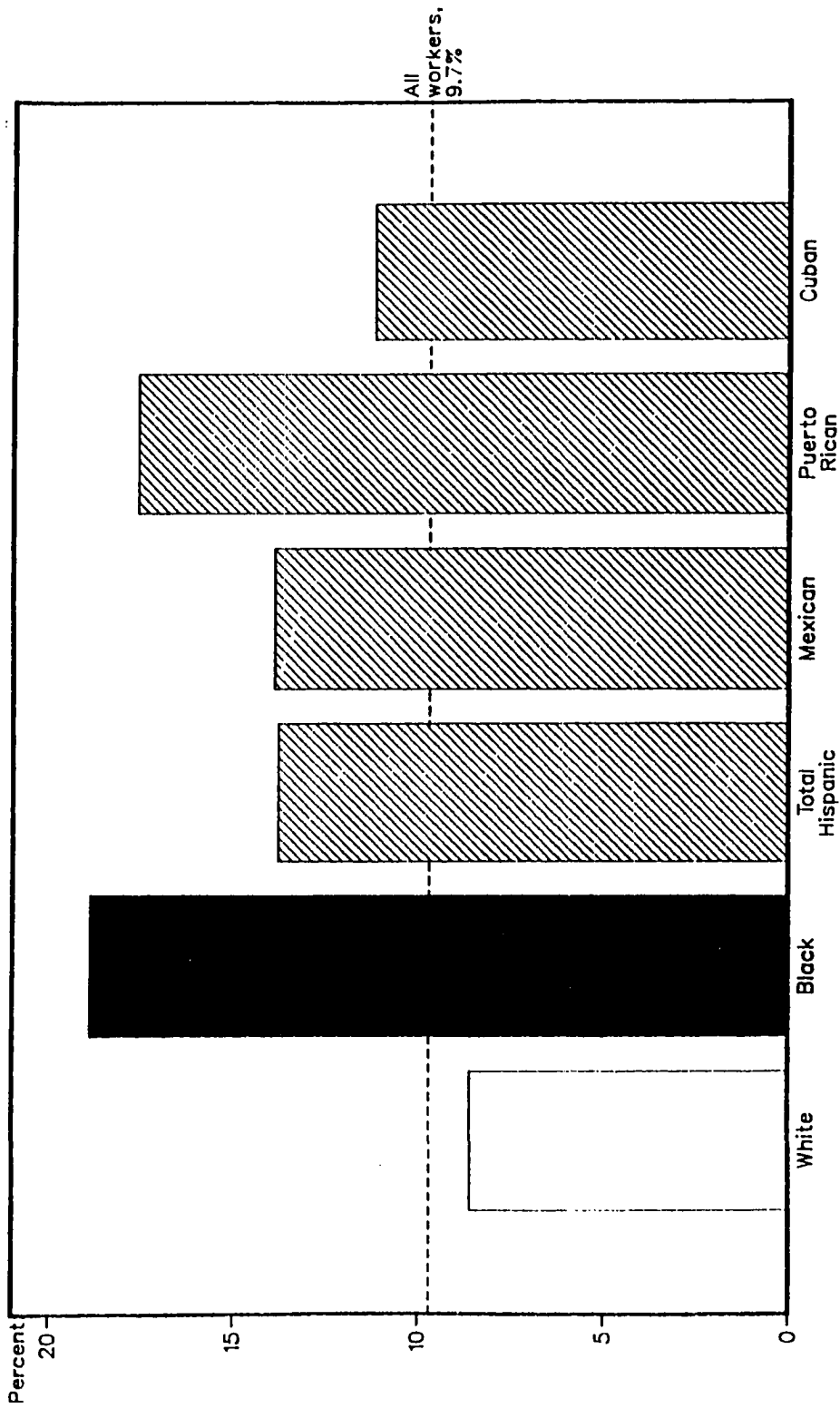
1. Unemployment Rates for Persons 25 Years of Age and
Over by Years of School Completed
2. Unemployment Rates by Race and Hispanic Origin

1. Unemployment Rates for Persons 25 Years of Age and
Over by Years of School Completed



Unemployment rates of persons 25 years of age and over by years of school completed, March 1982

2. Unemployment Rates by Race and Hispanic Origin



Unemployment rates by race and Hispanic origin, 1982

Appendix B:

Hawkeye Institute of Technology 1982/83 Minority Student Report



Hawkeye Institute of Technology
A Modern Career College

Hawkeye Institute of Technology

P.O. Box 8015, Waterloo, Iowa 50704

October 5, 1983

TO: Dr. Hawse and Gordon Fleckenstein
FROM: Sammie L. Dell, Minority Affairs Coordinator
SUBJECT: Summer 1982 - Spring 1983 HIT Minority Student Report

During academic year 1982-83, Hawkeye Institute of Technology serviced 1,488 minority students. These 1,488 students were served through the Adult Basic Education and High School Completion Program, the Vocational-Technical Division, The Developmental Education Program, the 60 and 120 Hour Nursing Assistance/Orderly Program, jointly sponsored by the Adult Education and Vocational-Technical Divisions, and the Adult Education Division. For a detailing of the statistics for each area, please note the attachments.

Submitted by,

Sammie L. Dell
Minority Affairs Coordinator

SLD/dj
attach.

1982-83 Hawkeye Institute of Technology Minority Student Enrollment Report

Vocational-Technical Division

During the 1982-83 school year, there was a total of 125 minority students enrolled in the Vocational-Technical Division. There were 116 Blacks, 4 American Indians, 3 Spanish and 2 Orientals. These totals reflect only fall through spring quarters of 1982-83, as data for the summer quarter of 1982 was not available. The Minority Affairs Coordinator feels that much was accomplished in aiding the minority students in meeting their educational and career aspirations and in aiding Hawkeye Institute of Technology in carrying out its mission to these students.

Out of these 125 students, 32 have graduated, and 52 are still in the process of matriculating towards completion of their program requirements. For a detailing of the graduates, please refer to attachment A. For the remaining 41 students, Hawkeye Institute of Technology and the students themselves were only minimally able to achieve their respective goals. Out of this 41, 31 withdrew voluntarily and ended their matriculation, and 10 were suspended for academic reasons. Most of the withdrawals were for personal reasons and not related to school. The majority of the ten (10) who were suspended for academic reasons and who chose not to return were students who were suspended more than once in 1982-83 for academic reasons, or students who were not able to maintain the grade point average necessary to be continued on probation. The Minority Affairs Coordinator believes that even though these 41 students are not in school, Hawkeye Tech did play a major role in their lives. Some were made aware of the fact that they needed to work more on their basic academic skills to ensure their survival in school; some were forced to make more definitive career choices and to come to the realization that Hawkeye Tech was not a part of that plan; and some were challenged to better assess their own value systems and their own needs which in turn resulted in those students choosing options other than Hawkeye Institute of Technology. Even though we "lost" 41 students, it is apparent to the Minority Affairs Coordinator that our impact, though small, was meaningful in most cases.

The progress that we made can well be encapsulated in the words "student development". The minority students who graduated and who are in the process of matriculating have shown both academic growth and personal growth. Exhibition of patience, hard work, understanding and dedication are behavioral characteristics that well describe the minority students at Hawkeye Institute of Technology in the 1982-83 school year.

Attachment A

Department	# Minority Students Enrolled 82-83	Graduated #	Withdrawn/ Ceased Matriculation	Suspended/ Ceased Matriculation	In Process of Matricu. at end of 82-83	Overall Dept. Total	% of Minority Enrollment
AS & Natural Resources	1 Hort. / 1	0 / 0	1 / 1	0 / 0	0 / 0	172	.005%
business	16 Acctg. 14 M. 14 BOC 6 Ex.Sec. 2 Jr.Acctg. 3 MOC 1 EFC 1 Sec. / 57	8 BOC 1 Acctg. 1 DEO / 3	4 Acctg. 2 M. 3 Ex.Cec. 1 BOC 1 Jr.Acctg. / 11	2 Acctg. 1 MOC 2 BOC 1 M. 1 Jr.Acctg. / 6	3 Ex.Sec. 3 BOC 9 Acctg. 11 M. 1 Jr.Acctg. 2 MOC 1 Sec. / 30	712	8%
Civ. Justice & Public Service	10 SLP 5 Pol.S. 2 Corr. / 17	2 Corr. 1 SLP / 3	5 SLP / 5	1 Pol.S. / 1	4 Pol.S. 4 SLP / 8	159	11%
Electronics	4 H&A 1 EEI 1 R&TV / 6	1 R&TV 2 H&A / 3	0 / 0	1 H&A / 1	1 EEI 1 H&A / 2	243	2%
Graphic & Applied Arts	6 T&F. 2 Com.A. 1 Photo / 9	2 T&F. 1 Photo 1 Com.A. / 4	1 Com.A. 2 T&F. 1 Photo / 3	2 T&F. 1 Com.A. / 2	0 / 0	346	3%
Health	5 P. 1 M.T. 2 AD. 2 RTI / 10	1 RTI 1 AD. 1 AD. 1 AD. / 4	1 P. 1 M.T. / 2	0 / 0	5 P. 5 P. 5 P. 5 P. / 20	556	2%
Industrial & Eng. Tech	5 Welding 1 Mech.Dr. 1 CET 2 MNS 2 MAG / 11	1 Welding / 1	3 Welding 2 MNS 2 MAG 1 CET / 8	0 / 0	1 Mech.Dr. 1 Welding / 2	392	3%
Power Mechanics	5 TD 8 Auto M. 3 Auto E. 1 Auto P. / 15	3 TD 3 Auto M. 3 Auto E. 1 Auto P. / 9	1 Auto M. / 1	0 / 0	4 Auto M. 1 Auto P. / 5	423	.04%
TOTALS	126	31/251	31/255	10/82	52/412	296	--

Attachment B for Specific Names

Appendix C:
Research Budget

Research Budget

<u>Activities and Materials</u>	<u>Amount in Dollars</u>
Review of literature	
including computer-based	
searches and library fees.....	\$ 150.00
Survey instruments costs,	
telephone interviews,	
typesetting and printing costs.....	400.00
Postage costs.....	50.00
Personnel, including typing/printing/photocopying fees....	590.00
Travel expenses.....	<u>300.00</u>
Total cost of study	\$1,490.00

Appendix D:

Schedule of Research Activities

Schedule of Research Activities

<u>Activity</u>	<u>Date</u>	
	<u>From</u>	<u>To</u>
Wrote letters to institutions asking for permission to conduct survey....	Sept. 9, 1988--	Sept. 24, 1988
Completed review of literature.....	Sept. 25, 1988--	Sept. 30, 1988
Developed survey instruments; content validation by jury members.....	Oct. 1, 1988--	Oct. 31, 1988
Mailed letters to selected institutions' personnel asking for schedules and cooperation.....	Nov. 1, 1988--	Nov. 17, 1988
Conducted pilot tests.....	Nov. 10, 1988--	Dec. 16, 1988
Analyzed and modified survey instruments as needed.....	Dec. 17, 1988--	Dec. 30, 1988
Administered surveys.....	Jan. 10, 1989--	Feb. 15, 1989
Followed up on absent students.....	Feb. 16, 1989--	March 15, 1989
Analyzed survey data.....	March 16, 1989--	March 30, 1989
Reported the results (finished writing dissertation).....	April 1, 1989--	June 12, 1989
Submitted and defended the research....	July 18, 1989	
Mailed copies of results and letters of appreciation to selected schools.	July 25, 1989	

Appendix E:

Survey Instruments

1. Survey Instrument for Minority Postsecondary Students
2. Survey Instrument for Minority High School Seniors

1. Survey Instrument for Minority Postsecondary Students

COMMUNITY SCHOOL STUDENTS
FACTORS INFLUENCING MINORITIES IN SELECTING TECHNICAL EDUCATION PROGRAMS

DIRECTIONS: You have been selected to participate in a state-wide survey to help determine the most influential factors on enrollment that may be employed to develop effective recruiting strategies for post-secondary vocational-technical education minority students. Please take a few minutes to answer the following questions. There are two sections of questions in this questionnaire. Each section has specific instructions on how to answer the questions under it. Please write down any item that is not listed in this questionnaire in the space provided for your comments. When you have answered all the questions, fold your questionnaire, place it in the enclosed envelope, and return it.

SECTION ONE: Rate the importance of each of the following factors according to: (A) the role it played in your selection of your program of study (column A), and (B) what you think should be the most helpful factors to aid in minority recruiting to your program of study (column B). Use a scale of 1 to 5 to the right of each statement, where 1=no importance, 5=greatest importance. Please circle one number in each of the two columns.

	<small>COLUMN A</small> <small>Influence each</small> <small>had on you</small>	<small>COLUMN B</small> <small>What you think</small> <small>it should be</small>
(1) MINORITY INSTRUCTORS OR WORKERS WHO WERE:	1 2 3 4 5	1 2 3 4 5
(A) Teaching in my current school.....	1 2 3 4 5	1 2 3 4 5
(B) Teaching in my current program.....	1 2 3 4 5	1 2 3 4 5
(C) Working in my current school.....	1 2 3 4 5	1 2 3 4 5
(D) Acting as mentors in my high school.....	1 2 3 4 5	1 2 3 4 5
(E) Acting as mentors in my current school.....	1 2 3 4 5	1 2 3 4 5
(2) SUPPORT SERVICES THAT HELP PROVIDE:		
(A) Grants.....	1 2 3 4 5	1 2 3 4 5
(B) Scholarships.....	1 2 3 4 5	1 2 3 4 5
(C) Employment/workstudy.....	1 2 3 4 5	1 2 3 4 5
(D) Other forms of financial aid.....	1 2 3 4 5	1 2 3 4 5
(E) Tutorial services.....	1 2 3 4 5	1 2 3 4 5
(3) SOCIAL LIFE ON CAMPUS ENCOURAGED BY:		
(A) Minority student organizations in current school.....	1 2 3 4 5	1 2 3 4 5
(B) Minority students in the same program.....	1 2 3 4 5	1 2 3 4 5
(C) Minority students in current school.....	1 2 3 4 5	1 2 3 4 5
(D) Social climate on current school's campus...	1 2 3 4 5	1 2 3 4 5

	COLUMN A influence each had on you	COLUMN B What you think it should be
(4) I CHOSE THIS PROGRAM OF STUDY BECAUSE I WAS:		
(A) Too young for other programs of study.....	1 2 3 4 5	1 2 3 4 5
(B) Too old for other programs of study.....	1 2 3 4 5	1 2 3 4 5
(C) The right age for this program of study....	1 2 3 4 5	1 2 3 4 5
(5) THE PROGRAM COURSES:		
(A) Are what I need.....	1 2 3 4 5	1 2 3 4 5
(B) Are of the right length.....	1 2 3 4 5	1 2 3 4 5
(C) Are very enjoyable.....	1 2 3 4 5	1 2 3 4 5
(D) Have simple requirements to fulfill.....	1 2 3 4 5	1 2 3 4 5
(6) FEARS OF:		
(A) Failing a different course of study.....	1 2 3 4 5	1 2 3 4 5
(B) Becoming a failure in life.....	1 2 3 4 5	1 2 3 4 5
(C) Not being able to get a job.....	1 2 3 4 5	1 2 3 4 5
(7) COUNSELING SERVICES RECEIVED FROM:		
(A) Current school's recruiters.....	1 2 3 4 5	1 2 3 4 5
(B) High school level.....	1 2 3 4 5	1 2 3 4 5
(C) Current school.....	1 2 3 4 5	1 2 3 4 5
(8) EXTRA-CURRICULAR ACTIVITIES SUCH AS:		
(A) Sports in the current school.....	1 2 3 4 5	1 2 3 4 5
(B) Clubs in the current school.....	1 2 3 4 5	1 2 3 4 5
(C) Music in the current school.....	1 2 3 4 5	1 2 3 4 5
(D) Dramatics in the current school.....	1 2 3 4 5	1 2 3 4 5
(E) Other activities in the current school (PLEASE SPECIFY AND RATE)	_____ 1 2 3 4 5	1 2 3 4 5
(9) CURRENT SCHOOL BEING:		
(A) Close to home.....	1 2 3 4 5	1 2 3 4 5
(B) Simple to gain admission.....	1 2 3 4 5	1 2 3 4 5
(C) One that has good transportation services...	1 2 3 4 5	1 2 3 4 5

	COLUMN A Influence each had on you	COLUMN B What you think it should be
(10) I WAS ADMITTED TO MY CURRENT PROGRAM BECAUSE:		
(A) Of my high grade point average.....	1 2 3 4 5	1 2 3 4 5
(B) Of my low grade point average.....	1 2 3 4 5	1 2 3 4 5
(C) it required no grade point average.....	1 2 3 4 5	1 2 3 4 5

PLEASE WRITE IN AND RANK ANY OTHER FACTORS WHICH YOU THINK HAVE INFLUENCED YOUR SELECTION OF A PROGRAM OF STUDY THAT ARE NOT INCLUDED ABOVE. USE THE SPACES PROVIDED BELOW.

(11)		
(A) OTHER _____	1 2 3 4 5	1 2 3 4 5
(B) OTHER _____	1 2 3 4 5	1 2 3 4 5
(C) OTHER _____	1 2 3 4 5	1 2 3 4 5
(D) OTHER _____	1 2 3 4 5	1 2 3 4 5
(E) OTHER _____	1 2 3 4 5	1 2 3 4 5
(F) OTHER _____	1 2 3 4 5	1 2 3 4 5

SECTION TWO

PLEASE ANSWER THE FOLLOWING QUESTIONS BY CHECKING THE ONE OPTION THAT BEST APPLIES TO YOU. MAKE YOUR COMMENTS IN THE SPACE PROVIDED.

- (12) From which one of the following sources did you learn the most about your program of study?
(CHECK ONLY ONE).....
- (a) FROM PARENTS..... _____
 - (b) HIGH SCHOOL COUNSELORS.. _____
 - (c) RECRUITERS..... _____
 - (d) FRIENDS..... _____
 - (e) HIGH SCHOOL TEACHERS.... _____
 - (f) NEWSPAPER ADVERTISEMENT. _____
 - (g) RADIO ADVERTISEMENT..... _____
 - (h) TELEVISION ADVERTISEMENT _____
 - (i) POSTERS..... _____
 - (j) TWO-YEAR COLLEGE HANDOUT _____
 - (k) BY VISITING SCHOOL..... _____
 - (l) OTHER (PLEASE SPECIFY).. _____
 - (m) NOT APPLICABLE..... _____

- (13) When did you learn about your program of study?.....(a) BEFORE NINTH GRADE..._____
 (b) IN THE NINTH GRADE..._____
 (c) IN THE TENTH GRADE..._____
 (d) IN THE ELEVENTH GRADE..._____
 (e) IN THE TWELFTH GRADE..._____
 (f) AFTER HIGH SCHOOL...._____
 (g) WHEN I WAS READY TO REGISTER....._____
 (h) I DO NOT KNOW....._____
- (14) Do you like your program of study?.....(a) YES....._____
 (b) NO....._____
 (c) DON'T KNOW_____
- (15) What is your opinion about your program of study?
 (CHECK ONLY ONE).....(a) GOOD PROGRAM; SHOULD BE ENCOURAGED._____
 (b) POOR PROGRAM; SHOULD BE DISCOURAGED_____
 (c) SOMEWHAT GOOD PROGRAM....._____
 (d) I DO NOT KNOW....._____
- (16) What were your most important reasons for selecting this program of study?
 (CHECK THOSE THAT APPLY).(a) SOMEONE MADE THE CHOICE FOR ME....._____
 (b) I LIKED THE PROGRAM....._____
 (c) TO GET A JOB....._____
 (d) THE SHORT LENGTH IT TAKES TO COMPLETE_____
 (e) SCHOOL CLOSE TO HOME....._____
 (f) MY LOW HIGH SCHOOL GPA....._____
 (g) MY HIGH HIGH SCHOOL GPA....._____
 (h) TO TRANSFER TO 4-YEAR COLLEGE....._____
 (i) OTHER (PLEASE SPECIFY)_____
- (17) I am.....(a) MALE.._____
 (b) FEMALE_____
- (18) In which age group are you? (a) 18-24.._____
 (b) 25-35.._____
 (c) 36-45.._____
 (d) OVER 45_____
- (19) Do you receive any form of financial aid from your current school?.....YES___; NO___
- (20) Do you have a minority teacher in any of your courses?..YES___; NO___

(21) Do you receive counseling services in your school?.....YES___; NO___

(22) Does your school provide a placement (job) service? YES___; NO___;
DONT KNOW___

(23) Were you contacted and encouraged to attend
this school by recruiters?.....YES___; NO___

(24) How many minority students do you have in your courses? (CHECK ONE)

- (a) 0....._____
- (b) 1-3....._____
- (c) 4-6....._____
- (d) 7-10....._____
- (e) MORE THAN 10_____

(25) Which of the following do you have in your school?

- (a) SPORTS....._____
- (b) STUDENT CLUBS_____
- (c) MUSIC....._____
- (d) DRAMATICS...._____
- (e) MINORITY STUDENT ACTIVITIES (SPECIFY)_____

(26) How do you commute to and from school most often? (CHECK ONLY ONE).

- (a) WALK....._____
- (b) BUS....._____
- (c) MY PARENTS' AUTO.._____
- (d) MY OWN AUTO....._____
- (e) RIDE WITH A FRIEND_____
- (f) BIKE....._____
- (g) OTHER (SPECIFY)_____

(27) How far away from school do you live?

- (a) WITHIN TWO MILES._____
- (b) WITHIN FIVE MILES_____
- (c) WITHIN TEN MILES._____
- (d) OVER TEN MILES..._____

(28) I chose this program because it required: (CHECK ONE)

- (a) HIGH GPA (2.5-4.0)....._____
- (b) LOW GPA (LESS THAN 2.5)_____
- (c) NO GPA....._____
- (d) NONE OF THE ABOVE....._____

(29) To which ethnic group do you belong?

- (a) BLACK....._____
- (b) HISPANIC....._____
- (c) MEXICAN-AMERICAN....._____
- (d) INDIAN (NATIVE AMERICAN)_____
- (e) PUERTO RICAN_____
- (f) ASIAN....._____
- (g) SPANISH....._____
- (h) OTHER (SPECIFY)_____

2. Survey Instrument for Minority High School Seniors

HIGH SCHOOL SENIORS
FACTORS INFLUENCING MINORITIES IN SELECTING TECHNICAL EDUCATION PROGRAMS

DIRECTIONS: You have been selected to participate in a survey to help determine the most influential factors for developing effective recruiting strategies for post-secondary vocational-technical education minority students. Please take a few minutes to answer the following questions. There are two categories of questions in this questionnaire. Each section has specific instructions on how to answer the questions under it. Please write down any item which you think is not listed in this questionnaire in the space provided for your comments. When you have answered all the questions, fold your questionnaire and place it in the enclosed envelope and return it.

SECTION ONE: Rate the importance of each of the following factors according to what you think should be the most helpful factors to aid in recruiting minority high school seniors into post-secondary vocational-technical education programs, using a scale of 1 to 5 to the right of each statement, where 1= no importance, 5= greatest importance. Circle only one number for each item.

- (1) MINORITY INSTRUCTORS OR WORKERS WHO: 1
2
3
4
5
- (A) Teach in vocational-technical education schools.....1 2 3 4 5
- (B) Teach in vocational-technical education programs.....1 2 3 4 5
- (C) Work in vocational-technical education schools.....1 2 3 4 5
- (D) Act as mentors in vocational-technical education programs.1 2 3 4 5
- (E) Act as mentors in vocational-technical education schools..1 2 3 4 5
- (2) SUPPORT SERVICES THAT WILL HELP PROVIDE:
- (A) Grants in vocational-technical education schools.....1 2 3 4 5
- (B) Scholarships in vocational-technical education schools....1 2 3 4 5
- (C) Employment/workstudy in vocational-technical schools.....1 2 3 4 5
- (D) Other forms of financial aid in the programs.....1 2 3 4 5
- (E) Tutorial services in the programs.....1 2 3 4 5
- (3) SOCIAL LIFE ON VOCATIONAL-TECHNICAL SCHOOL ENCOURAGED BY:
- (A) Minority student organizations.....1 2 3 4 5
- (B) Minority students in the same courses.....1 2 3 4 5
- (C) Minority students in vocational-technical schools.....1 2 3 4 5
- (D) Ideal social climate on vocational-technical school campus1 2 3 4 5

- (4) ENCOURAGING MINORITIES WHO ARE:
- (A) Younger to enroll in vocational-technical education.....1 2 3 4 5
- (B) Older to enroll in vocational-technical education.....1 2 3 4 5
- (C) The right age to enroll in vocational-technical education..1 2 3 4 5
- (5) VOCATIONAL-TECHNICAL EDUCATION PROGRAM COURSES THAT:
- (A) Offer what minorities need.....1 2 3 4 5
- (B) Are short in length.....1 2 3 4 5
- (C) Minorities will enjoy.....1 2 3 4 5
- (D) Have requirements which are not too hard to fulfill.....1 2 3 4 5
- (6) REMOVING ALL FEARS OF:
- (A) Failing other courses of study.....1 2 3 4 5
- (B) Becoming a failure in life.....1 2 3 4 5
- (C) Not being able to get a good job.....1 2 3 4 5
- (7) HAVING COUNSELING SERVICES THAT INVOLVE:
- (A) Recruiters from vocational-technical school.....1 2 3 4 5
- (B) High school counselors.....1 2 3 4 5
- (C) Vocational-technical education counselors.....1 2 3 4 5
- (8) HAVING EXTRA-CURRICULAR ACTIVITIES SUCH AS:
- (A) Sports in vocational-technical education schools.....1 2 3 4 5
- (B) Clubs in vocational-technical education schools.....1 2 3 4 5
- (C) Music in the vocational-technical school.....1 2 3 4 5
- (D) Dramatics in the vocational-technical school.....1 2 3 4 5
- (E) Other social activities in vocational-technical schools
(PLEASE SPECIFY AND RATE)
- _____ 1 2 3 4 5
- (9) HAVING EASY ACCESS TO VOCATIONAL-TECHNICAL SCHOOL BY:
- (A) Locating school close to home.....1 2 3 4 5
- (B) Making admission into school easy.....1 2 3 4 5
- (C) Providing good transportation services to and from school.1 2 3 4 5

- (10) VOCATIONAL-TECHNICAL EDUCATION PROGRAMS REQUIRING:
- (A) High grade point average (2.5-4.0)..... 1 2 3 4 5
 - (B) Low grade point average (LESS THAN 2.5).....1 2 3 4 5
 - (C) No grade point average.....1 2 3 4 5

PLEASE WRITE IN AND RANK ANY OTHER FACTORS WHICH YOU THINK WILL INFLUENCE YOUR SELECTION OF A PROGRAM OF STUDY THAT ARE NOT INCLUDED ABOVE. USE THE SPACES PROVIDED BELOW.

- (11)
- (A) OTHER _____ 1 2 3 4 5
 - (B) OTHER _____ 1 2 3 4 5
 - (C) OTHER _____ 1 2 3 4 5
 - (D) OTHER _____ 1 2 3 4 5
 - (E) OTHER _____ 1 2 3 4 5
 - (F) OTHER _____ 1 2 3 4 5

SECTION TWO

PLEASE ANSWER THE FOLLOWING QUESTIONS BY CHECKING THE ONE OPTION THAT BEST APPLIES TO YOU. MAKE YOUR COMMENTS IN THE SPACE PROVIDED.

- (12) From which one of the following sources did you learn the most about vocational-technical education program of study (CHECK ONLY ONE).....
- (a) FROM PARENTS..... _____
 - (b) HIGH SCHOOL COUNSELORS.. _____
 - (c) RECRUITERS..... _____
 - (d) FRIENDS..... _____
 - (e) HIGH SCHOOL TEACHERS.... _____
 - (f) NEWSPAPER ADVERTISEMENT. _____
 - (g) RADIO ADVERTISEMENT..... _____
 - (h) TELEVISION ADVERTISEMENT _____
 - (i) POSTERS..... _____
 - (j) TWO-YEAR COLLEGE HANDOUT _____
 - (k) BY VISITING SCHOOL..... _____
 - (l) OTHER (PLEASE SPECIFY).. _____
 - (m) NOT APPLICABLE..... _____

- (13) Would you consider enrolling in a post-secondary vocational-technical education program of study?.....YES ___; NO ___

(14) What is your plan after high school?

(FILL ONLY ONE BLANK)....(a) ATTEND A TWO-YEAR COLLEGE TO STUDY A VOCATIONAL-TECHNICAL PROGRAM OF STUDY (WRITE PROGRAM NAME) _____

(b) ATTEND A TWO-YEAR COLLEGE TO STUDY SOMETHING ELSE (INDICATE) _____

(c) ATTEND A TWO-YEAR COLLEGE BEFORE GOING TO FOUR-YEAR COLLEGE TO STUDY A VOCATIONAL-TECHNICAL EDUCATION PROGRAM OF STUDY (WRITE COURSE NAME) _____

(d) ATTEND A TWO-YEAR COLLEGE BEFORE GOING TO FOUR-YEAR COLLEGE TO STUDY SOMETHING ELSE (INDICATE) _____

(e) ATTEND A FOUR-YEAR VOCATIONAL-TECHNICAL COLLEGE TO STUDY SOMETHING ELSE (WRITE COURSE NAME) _____

(f) ATTEND A FOUR-YEAR COLLEGE TO STUDY SOMETHING ELSE (INDICATE) _____

(g) WORK FOR A WHILE BEFORE GOING TO A TWO-YEAR COLLEGE TO STUDY A TECHNICAL PROGRAM (WRITE PROGRAM NAME) _____

(h) WORK FOR A WHILE BEFORE GOING TO A TWO-YEAR COLLEGE TO STUDY SOMETHING ELSE (WRITE PROGRAM NAME) _____

(i) WORK FOR A WHILE BEFORE ATTENDING A FOUR-YEAR COLLEGE TO STUDY A VOCATIONAL-TECHNICAL EDUCATION PROGRAM OF STUDY. (WRITE PROGRAM NAME) _____

(j) WORK FOR A WHILE BEFORE GOING TO A FOUR-YEAR COLLEGE TO STUDY SOMETHING ELSE (WRITE PROGRAM NAME) _____

(k) WILL NOT GO TO COLLEGE AT ALL _____

(l) WILL JOIN THE MILITARY _____

(m) DO NOT KNOW WHAT I WILL DO _____

(n) OTHER (PLEASE WRITE) _____

- (15) When did you learn about vocational-technical education program of study? (CHECK ONLY ONE).
- (a) BEFORE NINTH GRADE _____ (d) IN THE ELEVENTH GRADE _____
 (b) IN THE NINTH GRADE _____ (e) IN THE TWELFTH GRADE. _____
 (c) IN THE TENTH GRADE _____
- (16) Why do you think you will like vocational-technical education program?
 (CHECK THOSE THAT APPLY)
- (a) PROGRAM IS SHORT..... _____ (e) SCHOOL IS CLOSE TO HOME. _____
 (b) I JUST LIKE THE PROGRAM _____ (f) FRIENDS LIKE THE PROGRAM _____
 (c) TO GET A JOB..... _____ (g) REQUIREMENTS ARE EASY... _____
 (d) REQUIREMENTS ARE EASY.. _____ (h) OTHER (SPECIFY) _____
- (17) Why do you think you will not like vocational-technical education program?
 (CHECK THOSE THAT APPLY)...
- (a) I JUST DON'T LIKE THE PROGRAM _____
 (b) IT IS TOO HARD TO STUDY..... _____
 (c) IT IS A DEMEANING PROGRAM.... _____
 (d) OTHER (SPECIFY) _____
- (18) In your opinion, what would you say about vocational-technical education program?(CHECK ONLY ONE)..
- (a) GOOD PROGRAM; SHOULD BE ENCOURAGED. _____
 (b) POOR PROGRAM; SHOULD BE DISCOURAGED _____
 (c) SOMEWHAT GOOD PROGRAM..... _____
 (d) SOMEWHAT POOR PROGRAM..... _____
 (e) I DO NOT KNOW _____
- (19) What would be your most important reasons for selecting the program?
 (CHECK THOSE THAT APPLY)
- (a) SOMEONE MADE THE CHOICE FOR ME _____ (f) JUST TO GET A JOB... _____
 (b) I JUST LIKE THE PROGRAM..... _____ (g) SCHOOL CLOSE TO HOME _____
 (c) THE SHORT TIME TO COMPLETE IT. _____ (h) LOW HIGH SCHOOL GPA. _____
 (d) TO TRANSFER TO 4-YEAR COLLEGE. _____ (i) HIGH HIGH SCHOOL GPA _____
 (e) OTHER (PLEASE SPECIFY) _____
- (20) I am.....
- (a) MALE.. _____
 (b) FEMALE _____
- (21) To which ethnic group do you belong?
- (a) BLACK..... _____ (e) PUERTO RICAN _____
 (b) HISPANIC..... _____ (f) ASIAN..... _____
 (c) MEXICAN-AMERICAN..... _____ (g) SPANISH..... _____
 (d) INDIAN (NATIVE AMERICAN) _____ (h) OTHER (SPECIFY) _____

Appendix F:

Jury Members Who Validated the Survey Instruments

1. Copies of Memoranda to Members of the Jury
2. Names and Titles of the Jury Members Who
Validated the Survey Instruments

1. Copies of Memoranda to Members of the Jury

MEMORANDUM

TO: Jury Members for Doctoral Research

Dr. Charles L. Means
Dr. Gil Hewett
Mr. Sammie Dell
Mr. Gerald Fain
Mrs. Doris Mauer

FROM: Samuel Obi, DIT Candidate

DATE: October 11, 1988

SUBJECT: REQUEST FOR A REVIEW OF FIRST DRAFTS OF SURVEY INSTRUMENTS

I would like to say thanks for your sacrificial consent to serve as a member of the jury for the purpose of validating my survey instruments. As I indicated during our conversation, I have been working on the instruments and the first drafts are now ready for your critique and suggestions.

I have enclosed a copy of my research proposal and the first drafts of the questionnaires, one for the post-secondary school students and one for high school seniors. Reading the proposal first might give you a better insight about my research. Moreover, page two of this memo contains the directions for interpreting the items on the instruments. Please feel free to look at the instruments and make your suggestions. Your comments will be very useful in restructuring the instruments. If possible, I would like to have feedback in about a week's time.

I really appreciate your time and effort in helping me develop these instruments. Many thanks for all this sacrifice. I look forward to successfully completing this study with your help.

C: Dr. E. A. Dennis, Advisor

MEMORANDUM

TO: Jury Members for Doctoral Research

Dr. Charles L. Means
Dr. Gil Hewett
Mr. Sammie Dell
Mr. Gerald Fain
Mrs. Doris Mauer

FROM: Samuel Obi, DIT Candidate

DATE: November 30, 1988

SUBJECT: APPRECIATION FOR REVIEWING SURVEY INSTRUMENTS

This is to say thanks for the time and effort you willingly devoted to help review and validate my survey instruments. Your comments and suggestions have been of considerable help in revising the instruments.

The pilot survey is in progress now, and the actual survey will commence in January of 1989. The entire study is scheduled to be finished in May or July of the same year, and a copy of the finished document will be kept at the University of Northern Iowa's library.

I really appreciate your time and effort in helping me develop these instruments. Many thanks for all this sacrifice. May God bless you all.

C: Dr. E. A. Dennis, Advisor

**2. Names and Titles of the Jury Members Who
Validated the Survey Instruments**

<u>Name of Jury Member</u>	<u>Title of Jury Member</u>
Dr. Charles L. Means	Assistant Vice President for Educational Opportunity Programs and Special Services, University of Northern Iowa, Cedar Falls, Iowa.
Dr. Gilbert E. Hewett	Consultant for Testing, Waterloo Public School System, Waterloo, Iowa.
Mr. Sammie L. Dell	Minority Student Director, Hawkeye Institute of Technology, Waterloo, Iowa.
Mrs. Doris M. Mauer	Affirmative Action Compliance Officer, Cedar Falls, Iowa.
Mr. Gerald U. Fain	Director of Transition and Special Programs, Waterloo Public School System, Waterloo, Iowa.

Appendix G:

Letters of Transmittal for the Pilot Survey

1. Copy of Letters to administrators Asking for
Permission to Conduct Pilot Survey
2. Letters from Administrators Granting Permission
3. Copy of Letters to Administrators Asking for
Schedules to Conduct Pilot Survey
4. Letters from Administrators Providing Schedules

1. Copy of Letter to Administrator Asking for
Permission to Conduct Pilot Survey

Sept. 9, 1988

Dr. Adelbert Purga, President
Eastern Iowa Community College
306 West River Drive
Davenport, Iowa 52801-1221

Dear Dr. Purga,

As a doctoral graduate student at the University of Northern Iowa, I am currently preparing to conduct a survey research that involves minority students in selected community institutions in the state of Iowa. The study is being designed to help ascertain pertinent factors that influence minority students in their enrollment into vocational-technical education programs.

Your school has been selected for a pilot test of the proposed survey and may be administered sometime this fall. I am seeking permission from your office to conduct this survey. Could you inform me in writing what steps to take in order to be permitted to do such a study in your school.

Your cooperation is very much needed in this and I can assure you that it will be highly appreciated. Many thanks for this favor and more as we work together in this.

Sincerely Yours

Samuel Obi
DIT Graduate Student
Phone (319) 277-5168.

Dr. Ervin A. Dennis, Advisor.

2. Letters from Administrators Granting Permission

EASTERN IOWA COMMUNITY COLLEGE DISTRICT

 **CLINTON COMMUNITY COLLEGE**

1000 Lincoln Boulevard • Clinton, Iowa 52732 • (319) 242-6841

Adelbert J. Purga, Ph.D.
President

September 19, 1988

Mr. Samuel Obi
DIT Graduate Student
University of Northern Iowa
Department of Industrial Technology
Cedar Falls, IA 50614

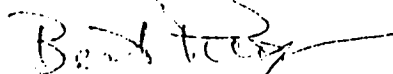
Dear Mr. Obi:

I received your letter requesting my permission to conduct a survey of minority students at Clinton Community College regarding their enrollment into vocational-technical education programs.

I am pleased to offer you the support of this institution. Please send all materials for this survey to my office at the following address:

Dr. Adelbert Purga, President
Clinton Community College
1000 Lincoln Boulevard
Clinton, IA 52732

Sincerely,



Adelbert J. Purga, Ph.D.
President

AJP/acs

Cedar Falls Community Schools

1002 West First Street
Cedar Falls, Iowa 50613-2214 • 319-277-8800



A Tradition of Excellence

ADMINISTRATION

James L. Robinson Ph.D., *Superintendent*
John R. Baker, *Elementary Education*
Clair E. Brooks Ph.D., *Personnel*
Richard Nystuen, *Pupil Services*
Fred Wessendorf, *Business Affairs*
Floyd G. Winter, *Secondary Education*

August 30, 1988

Mr. Samuel Obi
Department of Industrial Technology
University of Northern Iowa
Cedar Falls, IA 50614

Dear Mr. Obi:

This letter is written as a follow-up to our recent telephone conversation. You requested permission to administer a survey to students at Cedar Falls High School. I would like to peruse the survey before sending it to the appropriate personnel at Cedar Falls High School.

Please feel free to contact me at your convenience regarding this matter.

Sincerely,

Floyd G. Winter
Director of Secondary Education

FGW:bh

3. Copy of Letters to Administrators Asking for
Schedules to Conduct Pilot Survey

COPY OF LETTERS TO ADMINISTRATORS ASKING FOR SCHEDULES TO
CONDUCT PILOT SURVEY

October 27, 1988

(Name of Administrator)
(Institution)
(Address)
(City/State/Zip)

Dear (Administrator)

I want to express my thanks for your recent letter in which you granted me permission to do a survey research with minority students who are currently enrolled in vocational-technical education programs in your school. I appreciate your cooperation and willingness to participate in this study.

As I informed you in the first letter, your school has been selected for the pilot test of the proposed survey, and it will be administered this fall. The survey instrument is now ready and I have enclosed one copy for your review.

Could you arrange a day between now and December, 1988, so I can visit your school and administer the proposed survey? It should take the students a maximum of 30 minutes to complete the questionnaire. The names of the students are not needed. All I need is for your office to inform all the minority students who are enrolled in all the vocational-technical education programs about the impending survey (see examples of such programs enclosed). Have them meet at a common location and let me know (a) how many there are (b) the time of the survey (c) date, and (d) the location you have chosen for the exercise.

Your cooperation is very much appreciated in this. Many thanks for this favor and more as we work together in this. I will very much appreciate your soonest feedback.

Sincerely Yours

Samuel Obi, Candidate, for the
Doctor of Industrial Technology Degree
University of Northern Iowa
Home Phone (319) 277-5168.

Dr. Ervin A. Dennis, Advisor.

Appendix H:

Additional Factors Provided by Minority Students

1. Additional Factors and Scores Provided by Minority Students

During the Pilot Test of the Instruments

2. Additional Factors and Scores Provided by Minority Students

During the Main Survey Administration

**1. Additional Factors and Scores Provided by Minority Students
During the Pilot Test of the Instruments**

Table H-1

Additional Factors and Associated Mean Ratings Provided by Minority
Students During the Pilot Survey Administration*

Factor	Frequency	Mean Scores	
		Actual Influence	Students' Opinions
POSTSECONDARY STUDENTS			
Good Self Image	1	5.0	5.0
Like Travel	1	5.0	5.0
Like New Experiences	1	5.0	5.0
Like People	1	5.0	5.0
Better Paying Job**	1	5.0	5.0
High Self Esteem	1	5.0	5.0
MINORITY HIGH SCHOOL SENIORS			
Demand**	1		5.0
Length of Schooling**	1		4.0
GPA**	1		3.0
Group Pressure Classes	1		5.0
Location of School/Type of City	1		5.0
Areas of Study**	1		5.0

(Table H-1 Continued)

Climate	1	3.0
Philosophy on Life	1	5.0
Size	1	3.0
Cost of Training	2	4.0
Want to be a Real Person	1	5.0
To Get a Job**	2	5.0
To Know Mentoring**	1	4.0
Parent's Help**	1	5.0
Have a Good Life	1	5.0

Notes. * Some students provided more than one factor.

** Indicates factor already used in the survey instruments.

**2. Additional Factors and Scores Provided by Minority Students
During the Main Survey Administration**

Table H-2

Additional Factors and Associated Mean Ratings Provided by Minority
Students During the Main Survey Administration*

Factor	Frequency	Mean Scores	
		Actual Influence	Students' Opinions
POSTSECONDARY STUDENTS			
Something different	1	2.0	5.0
Black History	1	1.0	5.0
Higher Pay	1	5.0	4.0
Minority Student Council**	1	5.0	5.0
Local Economy	1	4.0	5.0
Job Placement**	1	3.0	5.0
Minority Affairs Advisor	1	5.0	5.0
Interaction Programs	1	5.0	5.0
More Poetry	1	5.0	5.0
Employers	1	-	-
Culture Club**	1	-	-
Former Students**	1	-	-
Unique Course of Study**	1	4.0	4.0
Dislocated Workers' Meetings	1	5.0	5.0

(Table H-2 Continued)

Recreation	1	2.0	3.0
To Obtain a Degree	1	5.0	5.0
Wrestling**	1	3.0	3.0
Community Work	1	4.0	4.0
Cost of Attendance	1	4.0	3.0
Reputation of School	1	4.0	4.0
Level of Expert Teachers	1	4.0	4.0
Self Interest in Programs	3	4.7	5.0
Job Market/Opportunities**	6	4.0	4.8

 MINORITY HIGH SCHOOL SENIORS

Encouragement to Higher Ed.	1		5.0
Visitation Opportunities**	1		4.0
Eligibility for Sports**	1		5.0
Publications	1		3.0
Minority Radio Station	1		5.0
Rate of Graduation	4		4.8
Dancing**	5		3.7

Notes. * Some students provided more than one factor.

** Indicates factor already used in the survey instrument.

Appendix I:

Letters Requesting Permission to Conduct the Main Survey

1. Copy of Letters to Administrators asking for
Permission to Conduct Survey
2. Letters from Administrators Granting Permission
to Conduct Survey

1

1. Copy of Letters to Administrators asking for
Permission to Conduct Survey

REPRESENTATIVE ADMINISTRATORS TO WHOM LETTERS WERE ADDRESSED

Dr. Robert H. Kiser, President/Superintendent
Student Affairs
Western Iowa Tech Community College
4647 Stone Avenue, P. O. Box 265
Sioux City, Iowa 51102

Dr. Jerry Moskus
Executive Vice President, Educational Services
Des Moines Area Community College
2006 Ankeny Boulevard
Ankeny, Iowa 50021

Dr. John White, Dean
Student Affairs
Kirkwood Community College
6301 Kirkwood Boulevard SW
Cedar Rapids, Iowa 52406

Dr. Lenny Stone, President
Scott Community College
Belmont Road
Bettendorf, IA 52722

Dr. Vic. McEvoy, President
Muscatine Community College
152 Colorado Street
Muscatine, Iowa 52761

Dr. Gordon F. Fleckenstein, Vice President
Student Services/Institutional Services
Hawkeye Institute of Technology
Box 8015
Waterloo, Iowa 50704

Dr. Melvin Schroeder
Iowa Central Community College
330 Avenue M
Fort Dodge, Iowa 50501

Dr. Diane M. Gibson, Associate Superintendent
Division of Curriculum and Instruction
Waterloo Community Schools
Administrative Building
1516 Washington Street
Waterloo, IA 50702

LETTER TO ADMINISTRATORS ASKING FOR PERMISSION TO CONDUCT SURVEY

September 9, 1988

(Name of Administrator)
(Institution)
(Address)
(City/State/Zip)

Dear (Administrator)

As a doctoral graduate student at the University of Northern Iowa, I am currently preparing to conduct a survey research that involves minority students in selected community institutions in the state of Iowa. The study is being designed to help ascertain pertinent factors that influence minority students in their enrollment into vocational-technical education programs.

Your school is one of the seven area institutions selected for this study. I am seeking permission from your office to conduct this survey. Could you inform me in writing what steps to take in order to be permitted to do such a study in your school.

Your cooperation is very much needed in this and I can assure your that it will be highly appreciated. Many thanks for this favor and more as we work together in this.

Sincerely Yours

Samuel Obi, Candidate for the
Doctor of Industrial Technology
Degree, University of Northern Iowa
Home Phone: (319) 277-5168.

Dr. Ervin A. Dennis, Advisor.

**2. Letters from Administrators Granting Permission
to Conduct Survey**



4647 Stone Avenue — P.O. Box 265 -- Sioux City, Iowa 51102 telephone (712) 276-0380

September 13, 1988

Dr. Irvin A. Dennis and Mr. Samuel Obi
Department of Industrial Technology
University of Northern Iowa
Cedar Falls, IA 50614

Gentlemen:

Your letter did not indicate what was involved in your projected survey--if you are going to send letters to certain minority students, or if you are going to want to interview them on campus. There are many possibilities; however, I would like to know more details so that I can determine the amount of Western Iowa Tech Community College staff time that might be involved in this study.

Sincerely,

A handwritten signature in cursive script that reads "Robert H. Kiser".

Robert H. Kiser
President/Superintendent

D/18252



ANKENY CAMPUS
2006 S. Ankeny Blvd.
Ankeny, Iowa 50021
(515) 964-6200

BOONE CAMPUS
1125 Hancock Drive
Boone, Iowa 50036
(515) 432-7203

CARROLL CAMPUS
906 N. Grant Road
Carroll, Iowa 51401
(712) 792-1755

URBAN CAMPUS
1100 7th Street
Des Moines, Iowa 50314
(515) 244-4226

September 29, 1988

Samuel Obi
219 "F" St.
Cedar Falls, Iowa 50613

Dear Sir:

Dr. Jerry Moskus, Executive Vice President,
Educational Services, Des Moines Area Community
College, gave me your letter to answer.

Yes, we are willing to participate in
your survey research.

You may contact me directly to make
further arrangements.

Sincerely,

N. Carolyn Waddell
Dean of Student
and Educational
Development

NCW:mjf

**Kirkwood
Community College**

6301 Kirkwood Blvd. S.W.
P.O. Box 2068
Cedar Rapids, Iowa 52406
319/398-5411

September 14, 1988

Samuel Obi
% Dr. Ervin A. Dennis
Industrial Technology Center
University of Northern Iowa
Cedar Falls, Iowa 50614

Dear Samuel:

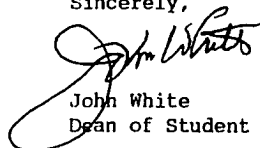
In response to your letter of September 9, 1988, I would like to help you with your research project. However, I would have some problems to solve to get the job done.

1. Identification of minority students. I am not sure which category of minority students you intend to survey. Our reports, taken from an optional answer question on our admissions form shows very small numbers. The largest category is "Black, non-hispanic", with 89 students, 46 of whom enrolled in vocational technical education. The report only counts the number of minority students, not their identity. It will require special computer programming to learn the identity of these minority students. This could take considerable time.
2. Contact with students: If the minority students could be identified, I would not release their names to anyone without their written permission to do so. This means they would all have to be contacted concerning your research request and return to me their written consent to participate in the survey.

In view of the small numbers to choose from and my uncertainty as to when I could identify who the minority individuals are, you may consider it impractical to do research here. However, if you want me to pursue this matter further, I would like to see your survey instrument and your decision as to what categories of minority students you wish to survey.

I will await your reply.

Sincerely,



John White
Dean of Student Affairs

JW/mlf



CLINTON COMMUNITY COLLEGE
SCOTT COMMUNITY COLLEGE
MUSCATINE COMMUNITY COLLEGE



EASTERN IOWA COMMUNITY COLLEGE DISTRICT

DISTRICT OFFICE OF ACADEMIC AFFAIRS AND PLANNING

Scott Community College • 500 Belmont Road • Bettendorf, Iowa 52722-5649 • (319) 359-7531

January 17, 1989

Samuel Obi
Department of Industrial Technology
University of Northern Iowa
Cedar Falls, IA 50614

Dear Mr. Obi:

Lenny Stone, President of Scott Community College, has forwarded your request for assistance in your minority student research project to me. We will be happy to provide any information you need, but we need some additional information from you regarding your project.

In order for us to know whether any additional steps will be required for you to proceed, we need to know more about the nature of your research. It would be helpful for me to understand the nature of your request if you would send me a summary of your research proposal.

I am specifically interested in knowing whether you will need summary data only or if you need information on individual students. If you will be requesting summary data only, I can provide that without any additional formalities. If you are interested in individual student data, we will need to provide additional safeguards to protect the privacy of the students.

We are pleased to have the opportunity to assist in your research, which will increase our understanding of community college students. Please direct your answers to our questions and your specific request for information to me. If you wish to discuss the project by phone, you may reach me at (319) 359-7531, ext. 263.

Yours very truly,

Dana Rosenberg Coker, Ph.D.
Institutional Research Specialist



**IOWA CENTRAL
COMMUNITY
COLLEGE**

**EAGLE GROVE
CENTER**
316 N.W. Third St.
Eagle Grove, Iowa 50533
(515) 448-4723

**FORT DODGE
CENTER**
330 Avenue "M"
Fort Dodge, Iowa 50501
(515) 576-7201

**WEBSTER CITY
CENTER**
1725 Beach Street
Webster City, Iowa 50595
(515) 832-1632

**STORM LAKE
CENTER**
916 North Russell Street
Storm Lake, Iowa 50588
(712) 732-2991



October 27, 1988

Mr. Samuel Obi
University of Northern Iowa
Department of Industrial Technology
Industrial Technology Center
Cedar Falls, IA 50614

Dear Mr. Obi:

Iowa Central Community College would be pleased to participate in your survey research. The person to contact at Iowa Central for the specific information you need is:

Mr. James F. McNeal
Assistant Superintendent
Administrative Services
Iowa Central Community College
330 Avenue M
Fort Dodge, IA 50501
515-576-7201

Best wishes to you with your doctoral program!

Cordially,

Melvin R. Schroeder
Director, Instructional Services

MRS/sjp

"Equal Educational and Employment Opportunities"

WATERLOO COMMUNITY SCHOOLS

Administration Building · 1516 Washington Street · Waterloo, Iowa 50702

DIVISION OF CURRICULUM AND INSTRUCTION

Telephone (319) 233-5281

September 1, 1988

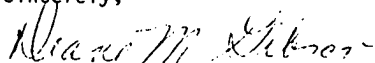
Mr. Samuel Obi
Department of Industry and Technology
University of Northern Iowa
Cedar Falls, Iowa 50614

Dear Mr. Obi:

Your request to conduct research in the Waterloo School District has been brought to my attention. Enclosed please find a research request form to be completed by you and returned to my office. After this information has been forwarded to me, your request will be reviewed by the appropriate staff members and the decision of "approval" or "denial" will be communicated to you. This form must be accompanied by the instrument you will use when conducting the research. This must also be approved.

Thank you for your cooperation.

Sincerely,



Diane M. Gibson, Ed. D. Associate Superintendent
Division of Curriculum and Instruction

DMG/geb

Appendix J:

Letters of Transmittal During Administration of the Main Survey

1. Copy of Letters to Administrators of Selected Institutions
Asking for Schedules for Survey Administration
2. Letters from Administrators of Selected Institutions
Providing Schedules for Survey Administration

**1. Copy of Letters to Administrators of Selected Institutions
Asking for Schedules for Survey Administration**

REPRESENTATIVE ADMINISTRATORS TO WHOM LETTERS WERE ADDRESSED

Dr. Robert H. Kiser, President/Superintendent
Western Iowa Tech Community College
4647 Stone Avenue, P. O. Box 265
Sioux City, Iowa 51102

N. Carolyn Waddell
Dean of Students and Educational Development
Des Moines Area Community College
2006 Ankeny Boulevard
Ankeny, Iowa 50021

Dr. John White, Dean
Student Affairs
Kirkwood Community College
6301 Kirkwood Boulevard SW
Cedar Rapids, Iowa 52406

Dr. Lois S. Weihe, Dean of Student Development
Scott Community College
Belmont Road
Bettendorf, IA 52722

Jean Goodnow, Dean of Student Development
Muscatine Community College
152 Colorado Street
Muscatine, Iowa 52761

Mr. Sammie L. Dell
Student Activities/Minority Student Affairs Director
Hawkeye Institute of Technology
Box 8015
Waterloo, Iowa 50704

Mr. James F. McNeal, Assistant Superintendent
Administrative Services
Iowa Central Community College
330 Avenue M
Fort Dodge, Iowa 50501

Dr. Diane M. Gibson, Associate Superintendent
Division of Curriculum and Instruction
Waterloo Community Schools
Administrative Building
1516 Washington Street
Waterloo, IA 50702

COPY OF LETTERS TO THE ADMINISTRATORS OF SELECTED INSTITUTIONS
ASKING FOR SCHEDULE TO CONDUCT SURVEY

November 17, 1988

(Name of Administrator)
(Institution)
(Address)
(City/State/Zip)

Dear (Administrator)

I want to express my thanks for granting me permission to do a survey research with minority students who are currently enrolled in vocational-technical education programs in your school. I appreciate your cooperation and willingness to participate in this study.

As I informed you in the first letter, your school is one seven selected for the proposed survey, and it will be administered in (month) of 1989. The survey instrument is now ready and I have enclosed one copy for your review.

Could you arrange a day in week xxxxx or xxxxx of (month), 1989 so I can visit your school and administer the proposed survey? It should take the students a maximum of 30 minutes to complete the questionnaire. The names of the students are not needed. All I need is for your office to inform all the minority students who are enrolled in all the vocational-technical education programs about the impending survey (see examples of such programs enclosed). Have them meet at a common location and let me know (a) how many there are (b) the time of the survey (c) date, and (d) the location you have chosen for the exercise.

Your cooperation is very much appreciated in this. Many thanks for this favor and more as we work together in this. I look forward to hearing from you.

Sincerely Yours

Samuel C. Obi, Candidate for the
Doctor of Industrial Technology
Degree, University of Northern Iowa
Home Phone (319) 277-5168.

Dr. Ervin A. Dennis, Advisor.

**2. Letters from the Administrators of Selected Institutions
Providing Schedules for Survey Administration**



4647 Stone Avenue — P.O. Box 265 — Sioux City, Iowa 51102 telephone (712) 274-6400

November 29, 1988

Samuel C. Obi
Industrial Technology Center
University of Northern Iowa
Cedar Falls, IA 50614

Dear Mr. Obi:

The administration has determined that February 2, 1989 will be the best date for you to administer your questionnaire to our vocational-technical minority students. We do not expect to be able to release all students at the same time so it will be necessary for you to be here between the hours of 7:30 and 3:00. The students will need to make arrangements with their instructors as to which 30-minute period would be best for them to participate in your project.

When we have received confirmation from you of the date and time, we will schedule a room for you and try to provide you with an estimate of the number of students who may participate.

Sincerely,

A handwritten signature in cursive script that reads "Gratia Gilbert".

Gratia Gilbert
Vice President for Student Affairs

c/t



4647 Stone Avenue — P.O. Box 265 — Sioux City, Iowa 51102 telephone (712) 274-6400

December 20, 1988

Samuel C. Obi
Industrial Technology Center
University of Northern Iowa
Cedar Falls, IA 50614

Dear Mr. Obi:

We have reserved Classroom 134 in the Student Center for you on February 2, 1989, from 7:30 a.m. to 3 p.m. As I indicated in my letter of November 29, students will make arrangements with their instructors as to which 30-minute period will be best for them to participate in your project.

We have approximately 71 minority students currently enrolled in our vocational-technical programs.

Since participation will be voluntary, it is difficult to determine how many will appear, but we will encourage them as much as possible.

The Student Center is the first building on the right as you come on the Western Iowa Tech Community College campus. It is labeled Building B. Please come first to the Student Affairs Office in the Student Center and ask for me. I look forward to meeting you on February 2.

Sincerely,

A handwritten signature in cursive script that reads "Gratia Gilbert".

Gratia Gilbert
Vice President for Student Affairs

d/t

**Kirkwood
Community College**

6301 Kirkwood Blvd. S.W.
P.O. Box 2068
Cedar Rapids, Iowa 52406
319/398-5411

December 5, 1988

Samuel C. Obi
* Dr. Ervin A. Dennis
Industrial Technology Center
University of Northern Iowa
Cedar Falls, IA 50614

Dear Samuel:

Thanks for the copy of your survey instrument. I have identified currently enrolled minority students in our Career Education Division. I have also sent a letter to each of them asking them whether or not they would be willing to complete your survey. After they respond to the letter, I will then know how many may possibly show up to complete the survey.

It will probably be after the Christmas holidays before I have a more definite idea as to when the survey could be completed. I will get in touch with you during the week of January 2, 1989 to let you know the status of the project.

Sincerely,



John White

JW/tc



**Kirkwood
Community College**

6301 Kirkwood Blvd. S.W.
P.O. Box 2068
Cedar Rapids, Iowa 52406
319/398-5411

January 4, 1989

Samuel C. Obi
% Dr. Ervin A. Dennis
Industrial Technology Center
University of Northern Iowa
Cedar Falls, IA 50614

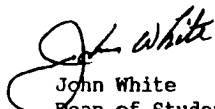
Dear Samuel:

It has been one month since I sent a letter to the 46 minority students enrolled in vocational-technical programs at Kirkwood. To date, only four students have responded and have agreed to complete your questionnaire.

I have checked the schedules of these students and it appears that they would not have any classes scheduled after 1:00 PM during the Spring semester. I would be willing to invite them to come in on any day you may choose to administer your questionnaire. Of course, I would not guarantee that they would show up!

Please advise me as to what you would like to do at this point. Feel free to call me at 319-398-5555.

Sincerely,


John White
Dean of Student Affairs

JW/mlf



EASTERN IOWA COMMUNITY COLLEGE DISTRICT

 **SCOTT COMMUNITY COLLEGE**

500 Belmont Road • Bettendorf, Iowa 52722-5640 • (319) 359-7531

February 1, 1989

Samuel C. Obi, Candidate for the
Doctor of Industrial Technology Degree
University of Northern Iowa
Industrial Technology Center
Cedar Falls, IA 50614

Dear Mr. Obi:

As we discussed, our records indicate that we have approximately 40-45 minority students enrolled in our technical programs. I will contact these students and ask them to respond to your survey on February 15, 1989 at 11:30 a.m. or 12:45 p.m. We have reserved room 140 in our main building for this purpose.

Please plan to come to my office at 11:00 a.m. and I will show you around the college prior to meeting the students. I look forward to meeting you.

Sincerely,



Lois S. Welke, Ph.D.
Dean of Student Development

Appendix K:

Follow-Up Letter to Absent Minority High School Seniors

COPY OF FOLLOW-UP LETTERS TO ABSENT MINORITY HIGH SCHOOL SENIORS

March 3, 1989

(Name of Student)
(Address)
(City/State/Zip)

Dear [Student's name],

I am a doctoral candidate at the University of Northern Iowa, Cedar Falls. Presently, I am doing a research which focuses on how to get more minority students into some programs of study in post-secondary institutions in the state of Iowa. This study will benefit minorities a lot, and I need your help to complete my study.

In January 1989 I visited your school in Waterloo (West High) and administered a questionnaire survey to minority seniors. I did not get all the students because of absences on that day. Your assistant principal, Mr. Austin, helped provide me with your name and address so I could send the instrument to you to fill. Please take ten or fifteen minutes to complete the enclosed questionnaire and mail it back to me in the self-addressed, stamped envelope that I have enclosed. Read the instructions on the instrument before filling it out. If you have any question please give me a telephone call immediately.

Many thanks for your time and effort in completing the instrument for me. I wish you the best in your academic pursuit.

Sincerely Yours

Samuel C. Obi
Candidate for
Doctor of Industrial Technology Degree
Department of Industrial Technology
University of Northern Iowa
Cedar Falls, Iowa 50614
Home Phone (319) 277-5168.

Appendix L:

Table L-1

Table L-1

Comparison of Mean Scores of College-Bound, Vocational-Technical-Bound, and Non-College/Non-Technical-Bound Minority Seniors on the Influence of Factors on Their Enrollment in Vocational-Technical Education Programs of Study

Factor	Mean Scores			
	Vo-Tech	Coll-	Non-Coll	<u>H</u> Value
	Bound <u>n1=17</u>	Bound <u>n2=38</u>	Non-Tech <u>n3=27</u>	
MINORITY INSTRUCTORS OR WORKERS WHO:	3.7	3.6	3.4	(0.90)
(A) Teach in vocational-technical education schools	4.1	3.6	3.2	(5.09)
(B) Teach in vocational-technical education programs	3.8	3.6	3.3	(1.12)
(C) Work in vocational-technical education school	3.5	3.4	3.6	(0.27)
(D) Act as mentors in vocational-technical education programs	3.6	3.7	3.6	(0.49)
(E) Act as mentors in vocational-technical education schools	3.5	3.7	3.4	(0.97)
SUPPORT SERVICES THAT WILL HELP PROVIDE:	4.3	4.5	4.0	(7.27)
(A) Grants in vocational-technical education schools	4.1	4.7	4.2	(7.68)

(Table L-1 Continued)

(B) Scholarships in vocational-technical education schools	4.6	4.6	4.4	(0.81)
(C) Employment/workstudy in vocational-technical schools	4.3	4.3	4.1	(0.94)
(D) Other forms of financial aid in the programs	4.3	4.5	4.0	(3.99)
(E) Tutorial services in the programs	4.0	4.4	3.5	(9.03)
<hr/>				
SOCIAL LIFE ON VOCATIONAL-TECHNICAL SCHOOL ENCOURAGED BY:	4.0	3.9	3.5	(3.66)
(A) Minority student organizations	4.1	4.1	3.5	(4.10)
(B) Minority students in the same courses	3.8	3.9	3.4	(3.08)
(C) Minority students in vocational-technical school	3.8	3.8	3.4	(1.38)
(D) Ideal social climate on Vocational-technical education school campus	4.1	3.7	3.5	(2.43)
<hr/>				
ENCOURAGING MINORITIES WHO ARE:	3.8	3.8	3.4	(1.76)
(A) Younger to enroll in vocational-technical education	4.0	3.8	3.3	(3.24)
(B) Older to enroll in vocational-technical education	3.5	3.7	3.4	(1.16)
(C) The right age to enroll in vocational-technical education	3.8	3.9	3.5	(1.87)
<hr/>				
VOCATIONAL-TECHNICAL EDUCATION PROGRAMS COURSES THAT:	3.9	3.5	3.8	(6.16)
(A) Offer what minorities need	4.6	4.5	4.2	(2.60)
(B) Are short in length	2.6	2.4	3.1	(6.86)
(C) Minorities will enjoy	4.5	3.9	4.2	(4.45)

(Table L-1 Continued)

(D) Have requirements which are not too hard to fulfill	3.8	3.0	3.8	(7.92)
REMOVING ALL FEARS OF:	4.4	4.4	4.0	(1.46)
(A) Failing other courses of study	4.4	4.1	4.0	(1.49)
(B) Becoming a failure in life	4.2	4.6	4.0	(2.70)
(C) Not being able to get a good job	4.5	4.5	4.0	(1.76)
HAVING COUNSELING SERVICES THAT INVOLVE:	3.9	3.9	3.6	(1.66)
(A) Recruiters from vocational-technical school	3.6	3.8	3.6	(0.90)
(B) High school counselors	3.9	3.8	3.4	(2.76)
(C) Vocational-technical education counselors	4.1	4.0	3.8	(0.99)
HAVING EXTRA-CURRICULAR ACTIVITIES SUCH AS:	3.7	3.5	3.5	(0.84)
(A) Sports in vocational-technical education schools	3.8	3.6	4.0	(1.53)
(B) Clubs in vocational-technical education schools	4.0	3.7	3.4	(3.24)
(C) Music in the vocational-technical schools	3.5	3.3	3.8	(1.88)
(D) Dramatics in the vocational-technical schools	3.5	3.5	2.9	(3.61)
HAVING EASY ACCESS TO VOCATIONAL-TECHNICAL SCHOOL BY:	4.1	3.8	3.9	(1.53)
(A) Locating school close to home	4.1	3.4	3.5	(5.02)
(B) Making admission into school easy	4.1	3.7	3.9	(0.72)
(C) Providing good transportation services to and from school	4.1	4.2	4.2	(0.59)

(Table L-1 Continued)

VOCATIONAL-TECHNICAL EDUCATION PROGRAM REQUIRING:	3.2	2.9	3.0	(2.13)
(A) High grade point average	3.6	3.6	3.6	(0.14)
(B) Low grade point average	3.3	2.7	2.8	(2.22)
(C) No grade point average	2.7	2.3	2.5	(0.69)

Appendix M:

Letters of Appreciation to the Cooperating Administrators

ADMINISTRATORS RECEIVING LETTERS OF APPRECIATION

Dr. Robert H. Kiser, President/Superintendent
Western Iowa Tech Community College
4647 Stone Avenue, P. O. Box 265
Sioux City, Iowa 51102

N. Carolyn Waddell
Dean of Students and Educational Development
Des Moines Area Community College
2006 Ankeny Boulevard
Ankeny, Iowa 50021

Dr. John White, Dean
Student Affairs
Kirkwood Community College
6301 Kirkwood Boulevard SW
Cedar Rapids, Iowa 52406

Dr. Lois S. Weihe, Dean of Student Development
Scott Community College
Belmont Road
Bettendorf, IA 52722

Jean Goodnow, Dean of Student Development
Muscatine Community College
152 Colorado Street
Muscatine, Iowa 52761

Dr. Adelbert Purga, President
Eastern Iowa Community College
306 West River Drive
Davenport, Iowa 52801-1221

Mr. Sammie Dell
Student Activities/Minority Student Affairs Director
Hawkeye Institute of Technology
Box 8015
Waterloo, Iowa 50704

Mr. James F. McNeal, Assistant Superintendent
Administrative Services
Iowa Central Community College
330 Avenue M
Fort Dodge, Iowa 50501

Mr. G. Floyd Winter, Director of Secondary Education
Cedar Falls Community Schools
1002 West First Street
Cedar Falls 50613-2214.

Dr. Diane M. Gibson, Associate Superintendent
Division of Curriculum and Instruction
Waterloo Community Schools
Administrative Building
1516 Washington Street
Waterloo, IA 50702

LETTER OF APPRECIATION TO COOPERATING ADMINISTRATORS

July 25, 1989

(Name of Administrator)
(Institution)
(Address)
(City/State/Zip)

Dear (Administrator)

I want to express my thanks and appreciation for the cooperation provided by the personnel of your school during my survey administration. The officials and students of your school gave me the much needed cooperation which helped to make the exercise a success.

The data have been analyzed and the findings reported. Enclosed are copies of the chapters on data presentation, data analyses, the results, conclusions, and recommendations from the study. It is hoped that your personnel will find the results very useful in their efforts to recruit more minority students into vocational-technical education programs of study.

Your cooperation and willingness to participate in the study have made this study the success that it was. It is my wish for your school to receive more minority students in addition to the ones you already have in the vocational-technical education programs. Once again, thank you very much for allowing me to conduct this study at your institution.

Sincerely Yours

Samuel C. Obi, Candidate for the
Doctor of Industrial Technology Degree
University of Northern Iowa
Cedar Falls, Iowa 50614.
Home Phone (319) 277-5168.

Dr. Ervin A. Dennis, Advisor.

VITA

NAME SAMUEL CHUKWUEMEKA OBI

PERSONAL 35 years old; Excellent health; 5'10"; 185lbs;
Married; Three-year old daughter and one-year old son.

OBJECTIVES To teach in a college/university, or department, of industrial technology in the area of manufacturing. To train students on the practical and theoretical aspects of modern manufacturing processes and machine-tools employed in factories, foundries and laboratories as contained in the field of industrial technology. To participate in faculty research with the aim of contributing significantly to the profession. To counsel students, and consult with area industries in possible aspects for the purpose of improving manufacturing systems and processes.

EDUCATION Doctor of Industrial Technology Degree (1989)
University of Northern Iowa, Cedar Falls, Iowa.
(Planned Aug. 1989).

Major: Manufacturing Technology (Computer-Aided Manufacturing/Robotics; Computer-Aided Design; Improving Manufacturing Systems; Computer Applications in Industrial Technology; Future Developments in Industrial Technology; Historical Developments in Industrial Technology; Technology, Ethics, and the Technologist; Industrial Internships; Statistics etc.).

Minor: Educational Administration/Teaching (Teaching in College, Educational administration, Student Personnel Programs in Higher Education, Current Issues in Higher Education, Trade and Technical Course Construction, Student Teaching Internship, Seminars etc.).

Master of Technology (1985) Southeastern Oklahoma State University, Durant, Oklahoma.

Major: Manufacturing Technology (Production Systems Design, Production Systems Control, Human Factors in Engineering Design, Statistical Analysis, Tool and Die Making, Practicum, etc.).

Minor: Industrial Management (Financial Management, Labor Economics, Theory of Communications, Production Control, and Computer Programming for Management).

Bachelor of Science (1984) Southeastern Oklahoma State University, Durant, Oklahoma.

Major: Metals Technology.

Minor: Power Technology.

Representative industrial courses include Machine-Tools, Material Testing and Metallurgy, Problems in Metals, Arc/Gas Welding, Numerical Control Programming, Modern Manufacturing Processes, Machine Shop Practices, Mass Production, Advanced Machine Processes, Automotive Machining, Drafting Courses, Electronics Courses, General Metals, and Hydraulics.

Associate of Technology (1981) Oklahoma State University's School of Technical Training, Okmulgee, Oklahoma.

Major: Automotive Technology.

Representative industrial courses include Basic Automechanics, Brakes & Front Ends, Engine Tune-Up, Transmissions & Differentials, Auto Air Conditioning, Auto Electrical Systems, General Repair, and Fuel Injection Systems.

General Certificate of Education (1976) Okongwu Memorial Secondary School, Nnewi, Nigeria.

WORK HISTORY Clerk; Nigeria Railway Corporation (1978).

Systems (machines) maintenance man, cook, and personnel trainer; Furr's Cafeterias Incorporated; (1983-1986).

Mathematics Tutor; University of Northern Iowa, (1986-1987).

Intern; Manufacturing Engineering Department, Viking Pump-IDEX, Inc., (Aug. 1987--Dec. 87).

Intern; Department of Manufacturing and Engineering Technology, Hawkeye Institute of Technology, Waterloo, Iowa (Nov. 1987--May 1988).

Graduate Research Assistant; Department of Industrial Technology, University of Northern Iowa, Cedar Falls, Iowa (1987--1989).

PUBLICATIONS

Communication at Viking-IDEX Inc.: Implications for industry (1988)*.

Some ethical roles of the technologist as an educator/trainer. The Journal of Industrial Technology (1989, Summer).

Applying moral theories (book review). The Journal of Industrial Technology (1989, Spring).

Time and Motion study of a pump assembling process at Viking Pump-IDEX Inc. workplace (1988)*.

Factors influencing minority enrollment in postsecondary vocational-technical education programs in the state of Iowa (Doctoral dissertation, University of Northern Iowa, Cedar Falls, Iowa, 1989).

* Indicates article used within the organization for personnel improvement program.

INTERESTS

Active in helping students; reading; research; and sports.

PROFESSIONAL
AND CIVIC
ACTIVITIES

Member of (1) National Association of Industrial Technology.
(2) International Technology Education Association.
(3) Council on Technology Teacher Education.
(4) Epsilon Pi Tau.
(5) Society of Manufacturing Engineers.
(6) Glad Tidings Assembly of God Church, Cedar Falls, Iowa.

Leader of (1) African Christian Student Fellowship, Durant, Oklahoma Chapter (1982-85).
(2) Resident Hall students, Okongwu Memorial Secondary School, Nnewi, Nigeria (1975-76).