THE EFFECTS ON SHORT-TERM RETENTION AND COLLEGE MAJOR SELECTION RESULTING FROM SYSTEMATIC CAREER PLANNING OF ENTERING COLLEGE FRESHMEN

by

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DEDICATION

This manuscript is dedicated to the researcher's children, , for their encouragement and support.

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Chapter 1

INTRODUCTION

Retention of students is one of the greatest concerns that colleges and universities face today. Research indicates that during the 1980s, more than fifteen million individuals will enter nearly three thousand colleges and universities; however, five or six million of these students will not be expected to earn degrees (Cope, 1980). Of equal concern to the colleges and universities is the increasing number of students entering college without having decided upon an adequate college major/career choice. The number of noncommitted majors on college campuses across the nation is estimated at 22% to 50% of the total enrollment (Astin, 1977). However, these estimates may be somewhat misleading since they tend to represent only those students who openly admit to being undecided. The actual number may be much higher. It has been noted that many of these students need special assistance and encouragement in order to keep them enrolled in institutions of higher education (Smith, 1985).

Many educators and sociologists have expressed concerns and attempted to identify some factors to explain why some students withdraw from school and why others remain. According to Parker, W. M., Schuble, P. G., and Altmaier, E. M. (1979), four factors negatively affect the retention of college students in general: "isolation (loneliness, depression, alienation), academic boredom (too much overlap with high school work, uninspired teaching), dissonance (incompatibility with environment,

curriculum, and people on campus), and irrelevancy (the unanswered question of 'why are we here')" (p. 21). Parker et al. (1979) also noted that effects of these factors are doubled for minority students.

Smith (1985) observed that low academic achievement was one reason why students leave college before graduation. It was noted, on the other hand, that academic success had contributed to reduced attrition (Cope, 1978; Foote, 1980).

Smith (1985) also pointed to the fact that many colleges and universities provide remedial services for students through learning centers, peer tutorial programs, computerized-assisted instruction and other sources. These activities have proven to be successful in assisting students to improve academically. Yet, many minority students do not take advantage of special services provided to assist them in making appropriate adjustment to college life and in improving academically. They have not participated in remedial programs mainly because of the negative labels and/or stigmas associated with some programs. Additionally, Proctor & Sampson (1984) indicated that many minority students live off-campus, and are gainfully employed in order to assist in the support of home and school activities. Therefore, their time frame and time restrictions do not permit them to take full advantage of the many self-help programs which are geared to reduce attrition.

Students also need involvement in activities which address the affective domain of learning as well as the cognitive domain to further curtail the problem of retention. Turner (1980) and Tracey and Sedlacek

(1982) noted that self-concept is very important, and that it is important for students to believe in themselves. Moreover, they argue that students should: (1) have a clear understanding of the relationship between what they are doing in college and their life goals and aspirations; (2) know the system and utilize the services provided by the system; and (3) recognize that the college experience is taxing and challenging and demands self-discipline and direction.

Given the aforementioned information, it appears that educators at the university level will need to identify and isolate factors having the greatest influence on minority student retention in the 1980s in order to devise strategies to reduce this phenomenon. Turner (1980) indicated that recruitment, student orientation, admissions and transfer criteria, financial aid, relevant curriculum, faculty and staff, student performance and institutional commitments will have the greatest impact on the retention rates of minorities. Walters (1981) indicated that self-esteem and personal adjustment are also major factors.

Norfolk State University (NSU), like other colleges and universities across the country, is faced with the task of providing more innovative activities which will assist minority students in adjusting to university life and in utilizing their skills and talents. It is anticipated that achieving these goals would result in a reduction in student attrition. Smith, L. N., Lippitt, R., Noel, L. and Sprandel, D. (1981) noted improved career counseling as one of the most successful and frequently reported change indicators in the area of personal development and planning on college campuses. Examples of

career assistance programs recommended included the following:

" 1. A freshmen workshop on career planning, study skills, leadership, and assertiveness.

2. Summer workshop on college and career planning.

3. Development of a 'Career Pathfinder Guide' to assist students in career planning.

4. A noncredit 14-hour course on 'Where Do I Go From Here With My Life?"(p. 90).

These examples of assistance programs can be used to enhance the retention of students, guide them to graduation, and facilitate their admission to graduate and/or advanced degree programs. Academic advisement and career planning have been recommended, adopted, and utilized as two key activities at NSU as a means to reduce attrition.

Purpose of the Study

The purpose of this study was to investigate the impact of a Systematic Career Planning Program on short-term retention and college major selection of entering college freshmen.

Statement of the Problem

The problem in this study was to investigate the question: Are short-term retention and college major selection, on the part of entering college freshmen, influenced by systematic career planning?

Null Hypotheses

The hypotheses that this study was designed to address are stated as follows in the null:

1. There will be no significant difference ($p \leq .05$) in the proportion of short-term retention in college of freshmen in the experimental, control, and comparison groups. The experimental and control groups consisted of "undecided students," with the experimental group receiving the treatment. The comparison group consisted of "decided students" who did not receive the treatment.
2. There will be no significant difference ($p \leq .05$) in the number of participants who select a college major among the experimental, control, and comparison groups.

Sub-hypotheses (Null)

The following sub-hypotheses were tested in this study:

1. There will be no significant difference ($p \leq .05$) in short-term retention of the experimental group participants based upon their gender.
2. There will be no significant relationship ($p \leq .05$) between short-term retention in college and age of the participants.
3. There will be no significant difference ($p \leq .05$) in the proportion of experimental group participants who select a college major based upon their gender.

4. There will be no significant relationship ($p \leq .05$) between the rate of selection of college majors and age of participants.

Significance of Study

Norfolk State University is the largest predominantly Black state-supported university in Virginia and has a total enrollment of approximately 7,100 students. Data compiled at NSU show that these students are from 49 states, and 24 foreign countries. Black minorities represent 90 percent of this population. As an urban university located in the inner city of one of Hampton Roads leading cities, NSU serves a student population characterized by a vast heterogeneity in terms of academic, social and philosophical backgrounds. Smith (1986) noted that students within this population group appear to have low self-esteem and lack long range goals and objectives. Of this same group, the majority enter the University without the benefits of systematic educational and career guidance from the home and the secondary schools. He further noted that others are persons who enter the University after long delay periods between high school and university enrollment. Typically, these students are first generation college entrants from low-income families and are significantly unprepared for effective college performance. Approximately 60 percent of these students live off campus, and 65 to 70 percent work to assist in the support of their homes and school activities. The need to work limits students' time to take advantage of many services that are geared to reduce attrition.

Smith (1986) also stated that in addition to having the burden of working, these students do not declare majors and usually pursue courses in the general studies curriculum which may or may not be related to a major that is eventually selected. This process may lengthen the number of years spent in college, add to the cost of their education, and encourage burn-out which may lead to eventual dropout.

As a result of the factors discussed above, NSU is also faced with the problem of retention and has a number of students who are unwilling or unprepared to make a ccareer decision and/or select a college major. Basic enrollment data supplied by the Counseling and Career Development Area at NSU indicated that 15% of the University enrollment during the 1984-85 academic year was listed in the unclassified category. Norfolk State University's counseling staff also reported that about 18% of the 970 college-bound students who accepted invitations to visit the campus during the fall of the same year gave an "undecided" response or "no" answer when asked to select an academic area of interest. When reviewing 353 change of major forms, NSU counselors found that more than one half of the applicants (56%) had not completed their first year in college. These factors, in tandem with the change of job demands and career opportunities, have generated a need for the University to intensify its efforts in the areas of career planning and general retention techniques.

Norfolk State University is an "open admission" institution that believes "all people, regardless of socio-economic status, race, sex, age, handicapping conditions or national origin, are entitled to profit from

educational opportunities and advantages to their optimum capacity" (NSU Catalog, p. 11). In keeping with the mission of the University, the researcher designed and conducted a systematic career planning program in an effort to minimize career indecisiveness and to improve short-term retention of a select group of entering freshmen at NSU. In the conduct of the study, the researcher shared information that has been used in developing career planning programs on a larger scale.

Limitations of the Study

This study was limited to the following:

1. It was confined to an urban, predominantly Black university.
2. The sample consisted of 111 randomly selected entering college freshmen.
3. The findings and conclusions generated in this study are only generalizable to student in a similar college setting.

Definition of Terms

For purposes of this study, the following definitions apply:

1. Academic advising - Crockett (1978) defines academic advising as a complex activity designed to help students accomplish maximum educational benefits. This is done by:
   (A) Helping students to clarify their values and goals and to understand themselves better.
   (B) Helping students understand the nature and purpose of higher education.

(C) Providing accurate information about educational options, requirements, policies, and procedures.

(D) Helping students plan educational programs consistent with their interest and abilities.

(E) Assisting students in a continual monitoring and evaluation of their educational progress.

(F) Integrating the many resources of the institution to meet students' special educational needs and aspirations.

2. Career Decision - choosing a college major and selecting elective courses (Gardner and Jewler, 1985). In this study, career decision is synonymous to choosing a college major.

3. Career Planning - a process that stresses the importance of making educational and career decisions based on one's abilities, interests, and values. It includes three major planning activities: self-assessment, career exploration, and job placement (Powell, 1981).

4. College Major - the areas of study in which one specializes and earns a college degree.

5. Comparison Group - randomly selected entering freshmen (37) who had chosen a college major and did not participate in the Systematic Career Planning Program.

6. Control Group - randomly selected entering freshmen (37) who had not chosen a college major and did not participate in the Systematic Career Planning Program.

7. Decided Student - entering freshman who had declared a college major.

8. Entering College Freshman - student who is enrolling in college for the first time.

9. Self-concept - the way one thinks and feels about himself/herself in the following areas: (a) as a person in general; (b) thinking abilities; (c) physical appearance; (d) social relationships; (e) school and studying (Lee and Pulvino, 1981).

10. Experimental Group - randomly selected entering freshmen (37) who had not chosen a college major and participated in the Systematic Career Planning Program.

11. Short-term Retention - refers to continuous enrollment through a semester and registration for the following semester.

12. Systematic Career Planning Program - a pilot career counseling program designed for entering freshmen who had not declared a college major. The program was designed to assist students in developing a better understanding about themselves, the world of work, and the decision-making process in order to select a college major.

13. The Major-Minor-Finder - an instrument designed to take the student through a decision-making process: self-assessment of career and school interests, matching of majors with those interests, exploration of career information concerning majors, and, in the final analysis, selection of a major that best suits individual needs (Cutler, Ferry, Kauk and Robinett, 1983).

14. The College Major Handbook - a book designed to be used in conjunction with The Major-Minor-Finder - a self assessment instrument that matches college majors with students' needs. It provides essential career information about representative college majors, such as: (a) what you study in each major; (b) courses usually required; (c) desired aptitudes and interests; (d) occupational outlook; (e) related career fields; and sources of additional information (Cutler, Ferry, Kauk and Robinett, 1983).
15. Undecided student - entering freshman who had not declared a college major.

Organization of the Study

Chapter I is an introduction to the study. It includes a statement of the problem, significance of the study, null hypotheses, sub-hypotheses (null), definition of terms, limitations of the study, and organization of the study.

Chapter II is a review of related research studies and selected literature on career planning and retention.

Chapter III presents the research methods used to conduct this inquiry. It also contains a description of the methodology utilized in selecting the sample, and collecting and analyzing the data.

Chapter IV presents the findings of the investigation and a discussion of the null hypotheses and sub-hypotheses (null).

Chapter V provides a summary of the study with conclusions, discussion/implications, and recommendations for further research.

Chapter 2

REVIEW OF RELATED LITERATURE

Career planning and retention are current issues in higher education. The mere identification of one's career may imply the need for institutions of higher education to assess trends relating to career planning and college major selection by students. Coupled with this national concern of educators, politicians, and citizens at-large is the matter of student attrition-retention - a dual complex of accountability. Therefore, to develop an understanding of the relationship between academic major declaration and retention, a review of the literature was conducted.

This chapter is divided into the following sections: Enrollment Trends in Postsecondary Education, Factors Influencing Retention, The Undecided Student and Retention, and Systematic Career Planning/College Major Selection.

Enrollment Trends in Postsecondary Education

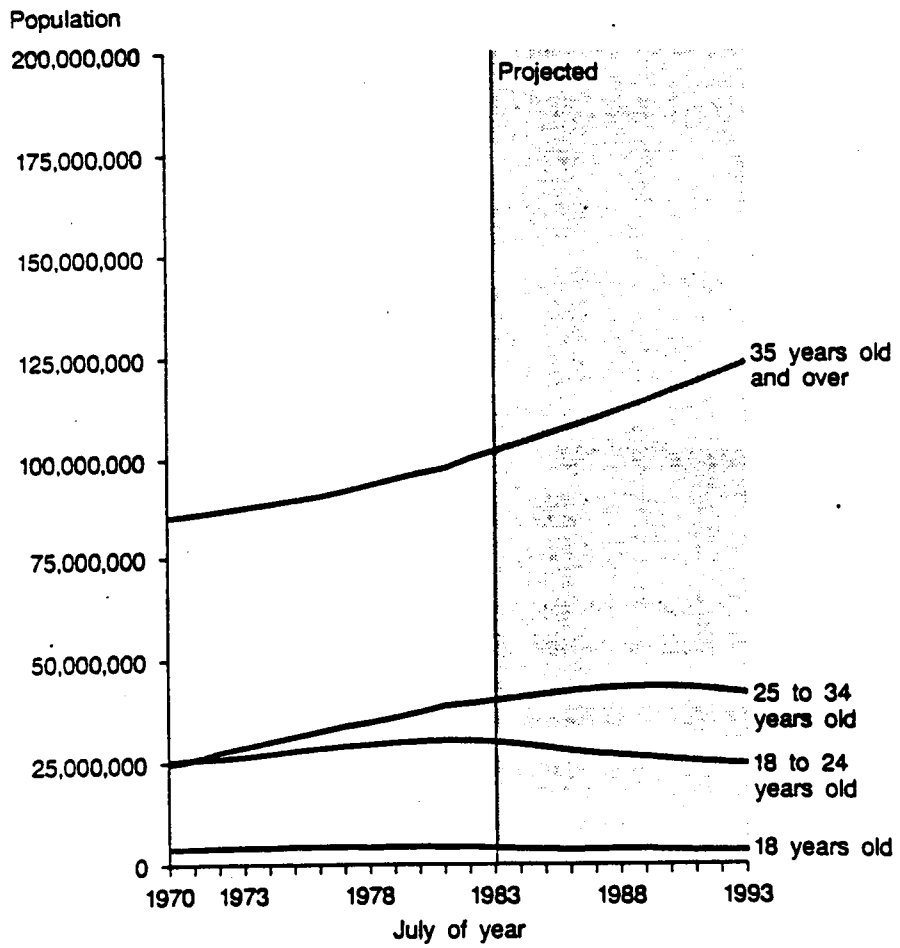
The enrollment level at an institution is based, in part, upon the triad of recruitment, admission, and retention. "Maintaining enrollment is rapidly becoming the second most important function of postsecondary educational institutions - second only to teaching itself" (Hillery, 1978, p. 13).

During the mid-1960s and the mid-1970s, there was a rapid growth in the enrollment in institutions of traditional college-age students. This increase was partially due to a larger number of minority students enrolling

at predominantly white institutions of higher education as a result of the 1954 Brown v. Topeka Board of Education Supreme Court decision to desegregate public institutions of learning (Richmond, 1979). Other historical events that had an impact on increased college enrollment of Blacks and other minorities included: (a) the Civil Rights Movement, (b) the Equality of Education (EOE) Report, (c) the 1965 Higher Education Act, and (d) the 1973 Adams Decision (Thomas, 1981). An outgrowth of these activities was the development of many federally funded programs which provided avenues for minorities to enroll in institutions of higher learning. Some of these programs included: (a) Institutional Aid Program; (b) Special Programs-Upward Bound, Talent Search, and Educational Opportunity Centers and (c) Student Financial Aid (Astin, 1975). However, provisions for students to enroll in colleges are not sufficient; interventions that will enable students to succeed in colleges are also necessary.

After 1975, there was a gradual decrease in college enrollment. The 1980 through 1990 predicted decline of student enrollment in institutions of higher education warranted much discussion from analysts, educators, and the general public. A statistical report compiled by the American College Testing Program in 1985 illustrated the following: (a) national population trends, by age groups (see Figure 1); (b) past and projected enrollment patterns in higher education by sex and age group (see Figure 2); (c) enrollment trends in institutions of higher education by institutional characteristics (see Figure 3); and (d) full time equivalent (FTE) enrollment trends in institutions of higher education by institutional characteristics (see Figure 4).

National Population Trends, by Age Group



The age composition of the national population has shifted since the 1970's. While the population in the younger adult groups is expected to decline in the 1980's and into the 1990's, the older age groups are projected to increase significantly.

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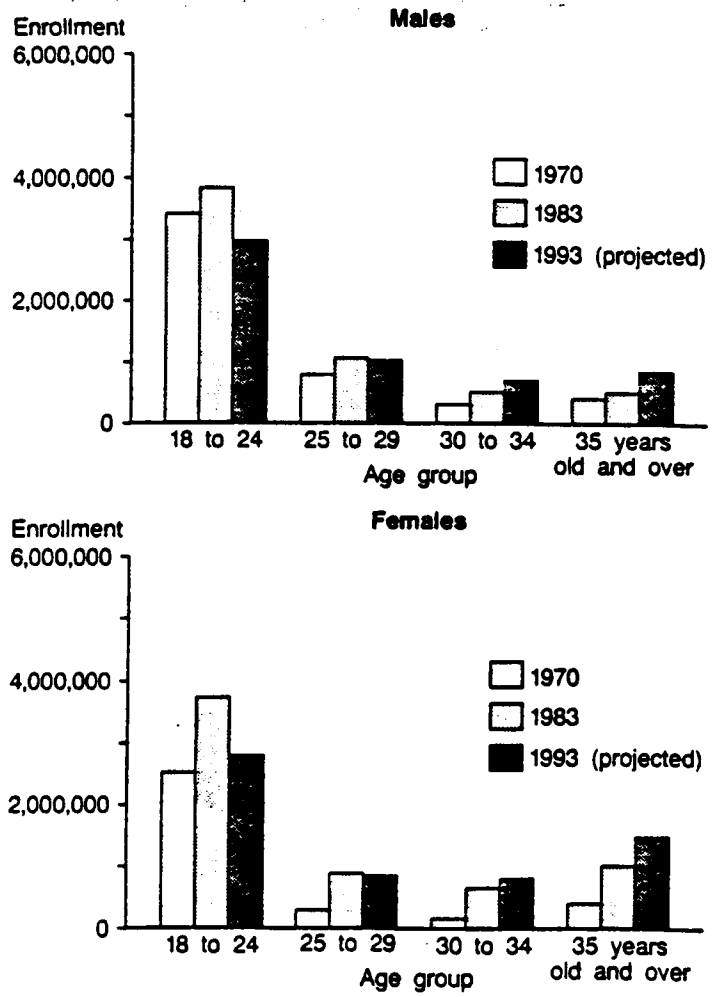
Figure 1

Source: The American College Testing Program

Past and Projected Enrollment Patterns in Higher Education, by Sex and Age Group



The number of 18- to 24-year-olds enrolled in college is projected to decline throughout the rest of the 1980's and into the 1990's, while the number of students 25 years old and over is expected to continue rising.

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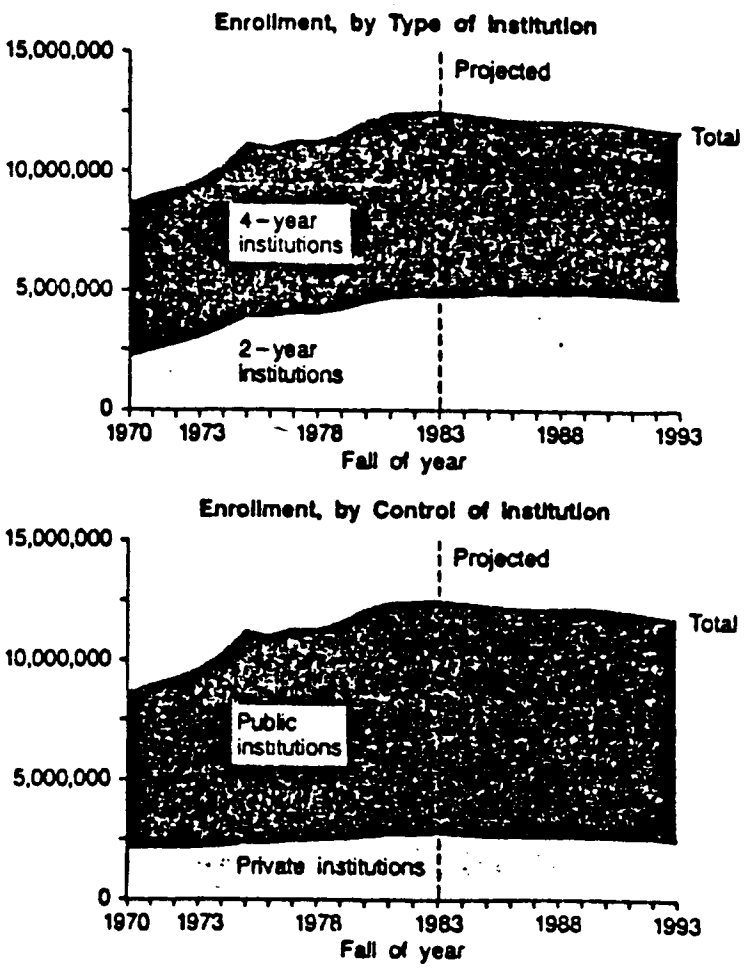
Figure 2

Source: The American College Testing Program

Enrollment Trends in Institutions of Higher Education, by Institutional Characteristics



Enrollment in 4-year institutions is projected to decrease significantly during the 1980's and into the 1990's, while enrollment in 2-year institutions is projected to decline slightly in the early 1990's. Enrollments in both public and private institutions are expected to fall over the next decade.

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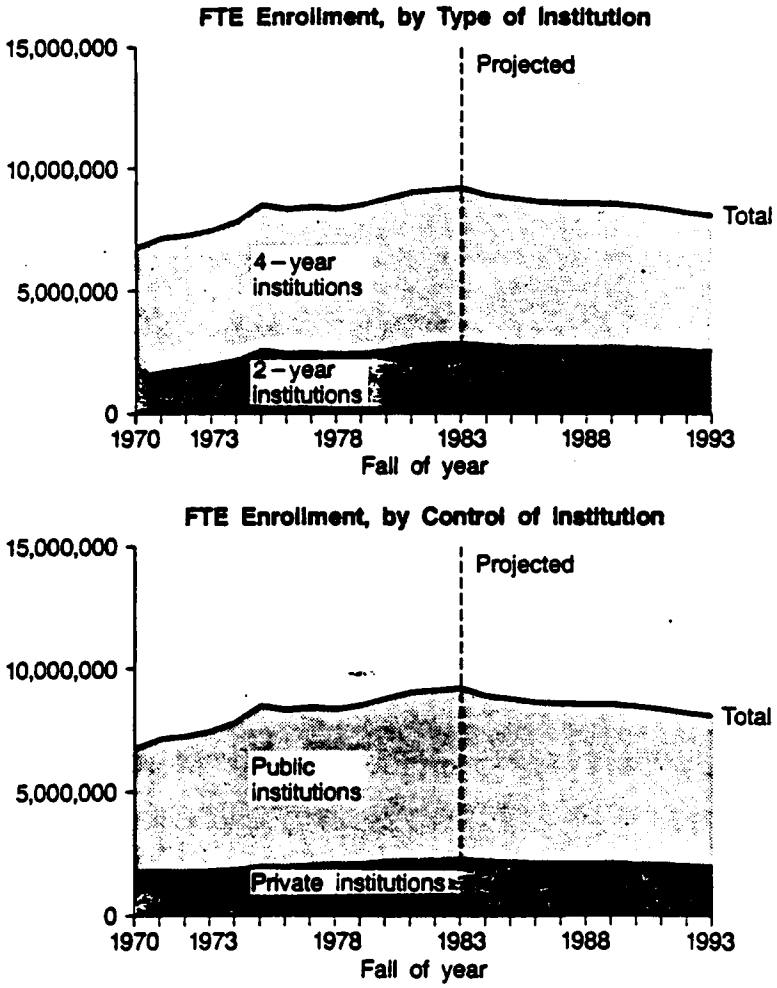
Figure 3

Source: The American College Testing Program

Full-Time-Equivalent (FTE) Enrollment Trends in Institutions of Higher Education, by Institutional Characteristics



When converted to full-time-equivalence, enrollments in both 4-year and 2-year institutions are expected to decline throughout the rest of the 1980's and into the 1990's. These declines should be felt in both public and private institutions.

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Figure 4

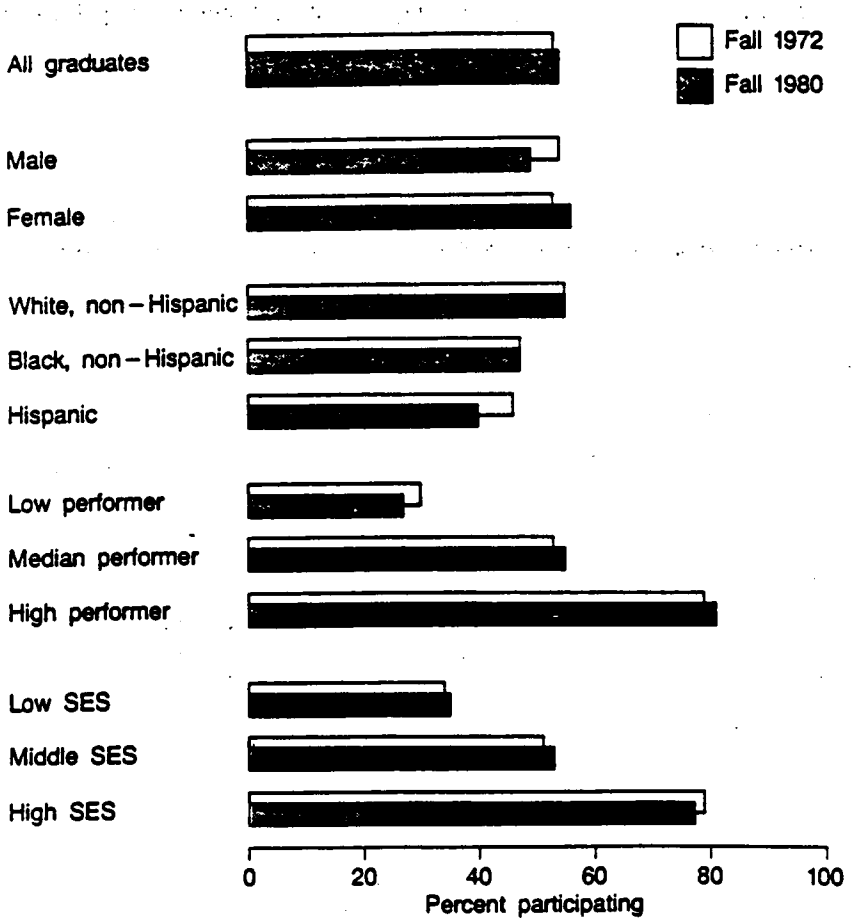
Source: The American College Testing Program

Although the number of eighteen year olds enrolling in college dropped nearly 14% during the period 1979-1984, total enrollment in higher education grew from 11.6 million to almost 12.5 million students during this same period (O'Keefe, 1985). This population, unlike those in the 1960s, consisted of more women, part-time students, and older students, with the majority being women enrollees who did not have an opportunity to attend college at the traditional college age. It is projected that this trend will continue throughout the remainder of the 1980s, and into the 1990s (see Figure 5). Many of these students are seeking vertical mobility but are undecided about college majors. O'Keefe (1985) contended that increased enrollment of non-traditional students is not a cause for celebration because older students are more likely to enroll part-time, and it takes more than one older student to compensate for the loss of a single traditional age student who would normally enroll full time (see Figures 6 and 7).

Although the total enrollment in colleges and universities remained relatively stable, notable shifts occurred in several areas. Some of these included: (a) shifts in graduate school enrollment; (b) increases in unclassified students; (c) shifts in fields of study; (d) decline in minority enrollment; (3) growth of the proprietory sector; (f) decreasing ability of students to work their way through college; and (g) shifts of student aid from grants to loans (Frances, 1985; Beale and Noel, 1980).

With these population projections and institutional shifts, Smith (1985) contends that retention becomes a major thrust for institutions of higher education. The charge is not only to get students on campus, but to keep them on campus once you get them there.

Postsecondary Education Participation of High School Graduates Immediately Following Graduation



While postsecondary enrollment rates of recent high school graduates remained stable overall between fall 1972 and fall 1980, rates dropped slightly among males and Hispanics and rose among females.

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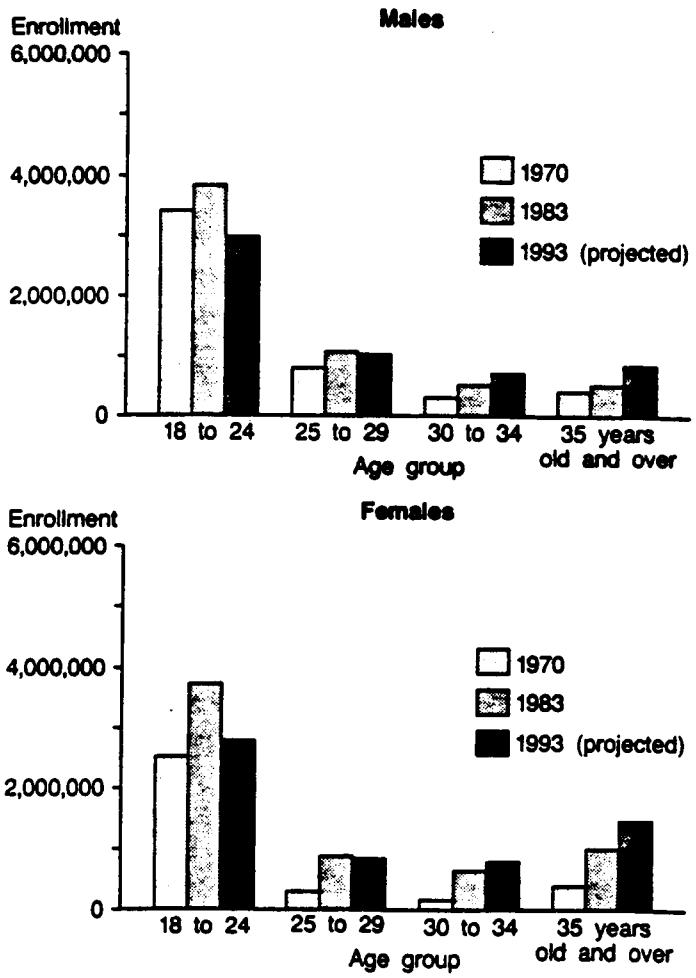
Figure 5

Source: The American College Testing Program

Past and Projected Enrollment Patterns in Higher Education, by Sex and Age Group



The number of 18- to 24-year-olds enrolled in college is projected to decline throughout the rest of the 1980's and into the 1990's, while the number of students 25 years old and over is expected to continue rising.

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Figure 6

Source: The American College Testing Program

Changes in Enrollments in Higher Education by Age Group
1979-1983 (Percentages)

Age Groups (year-olds)	1979 to 1980	1980 to 1981	1981 to 1982	1982 to 1983	1979 to 1983
18-19	+ 3.1	+ 3.8	− 3.8	+ 0.4	+ 3.4
20-21	+ 3.0	+ 5.0	+ 5.7	− 7.2	+ 6.0
22-24	+ 4.2	+ 6.2	+ 3.7	− 0.9	+13.8
25-29	− 2.3	+ 4.6	+ 8.3	+ 3.3	+14.4
30-34	+ 6.6	+14.0	− 6.8	+ 3.4	+17.2
35+	−13.9	+15.4	− 0.3	+ 7.6	+ 6.6

Figure 7

Source: U. S. Bureau of the Census

Factors Influencing Retention

Studies about college attrition-retention of students are of importance at this time because of projected declining enrollment. However, research indicates that most colleges know very little about why their students leave school (Cope and Hannah, 1975). Cope (1978) also stated that "the characteristics of students most clearly related to retention have to do with their families, themselves, their educational experiences prior to entering college, and their attainment expectations. He noted that "one of the best predictors of retention is the family's socio-economic status, which in turn is related to city dwelling and to parents' level of education, wealth, and expectations for their children's education." He cited "the entering student's own ability as measured by standard scholastic aptitude tests as a better measure. However, "the student's high school or other previous grade-point average was indicated as the firmest measure of probable retention." He also noted that "sex appears to be related to retention, with early research reporting more males than females persisting to graduation." (p. 4).

Cope (1978) also noted that while students do not finish at the institution where they first enrolled, this does not necessarily imply that these students are dropouts from higher education. "Many students simply terminate their enrollment when they have fulfilled their objectives" (p. 3). In a study by Lenning, Beale and Sauer (1980), four student types were identified:

> "the persister who continues enrollment without interruption; the stop-out, who leaves the institution for a period of time and then returns for additional study; the attainer, who drops out prior to graduation, but after attaining a particular goal; and the drop-out, who leaves the institution and does not return for additional study at any time" (p. 3).

Despite information generated from several studies relative to retention, very few solutions have been identified. Research does indicate that improved retention is possible, and special programs can be formulated to respond to needs of various campuses (Astin, 1975; Beale and Noel, 1980; Browne, 1975; Cope and Hannah, 1975; Smith, 1985; and Turner, 1978).

Many retention problems begin at the recruitment stage. Students need to develop a better understanding of themselves and their college choices. This understanding will minimize mismatches and increase retention. Beale and Noel (1978) stated that "the degree of fit may determine the likelihood of students staying or leaving" (p. 5). Smith (1986) cited admission, recruitment, instruction, and academic advisement as four elements which might promote retention in the 1980s.

The American College Testing National Center for the Advancement of Educational Practices organized and presented a conference on "Successful Student Transition — A Total Approach From Initial Contact Through the Freshman Year" on March 12-13, 1986, in Denver, Colorado. During this conference, at which the researcher was present, Dr. Rowray, Executive Director of the American College Testing National Center, stressed the importance of a successful student's transition from high school to college. He noted that the type of transition that a student experiences has a great influence on whether or not the student remains in college.

Today, much emphasis is placed on the retention of minority students in colleges and universities. An effective program to facilitate minority student retention needs to include activities centered around study skills and

self-concept development (Parker et al., 1979; and Tracey and Sedlacek, 1982). Providing minority faculty and staff to serve as role models is another important factor in retaining minority students (Turner, 1980). Other factors include a supportive institutional atmosphere, and financial aid (Turner, 1980). Research also indicates that those entering freshmen who have declared a college major are more likely to remain in college than those who have not (Jones, 1983; Foote, 1980; and Thompson, 1967); and more women would remain than men (Foote, 1980).

Recent literature on student retention proposes the following for those institutions that wish to improve retention: (a) organization for retention; (b) study and analysis; (c) implementation of intervention programs; and (d) research and documentation (Beale and Noel, 1980). If institutions are really concerned about providing equal opportunities for college success, they need to develop orientation programs with career planning emphasis to enable students to make career decisions commensurate with their level of career maturity. Wright (1984) pointed out that "access without orientation is wrose than no access at all, because it will further alienate and frustrate already oppressed young adults" (p. 64).

The Undecided Student and Retention

Students' non-commitment to a college major has been a concern of researchers for more than fifty (50) years (Gordon, 1981). Studies reveal that colleges and universities throughout the nation are confronted with an increasing number of students who are unwilling or unprepared to select a

college major. Baird (1969), for example, conducted a study of almost 60,000 college-bound students who took the American College Testing Program battery of tests. His findings revealed that about 22% of these students were undecided about a career. Korn (1968) found that 16% of the men and 32% of the women at Stanford University listed "undecided" as a major or no response to a question about their future career. Crites' (1965) study revealed that 30% of the students in their late high school and early college years had not made a vocational choice, and therefore were unable to select the appropriate educational curriculum. Florida State University indicated that approximately 20% of their entering freshmen and community college transfer students were undecided about a college major and potential career choice.

The Director of Counseling and Career Development at NSU found that nearly 15% of NSU's enrollment during 1984 was listed in the undecided major category. Nearly 18% of the 970 college-bound students interested in attending the High School Seniors' Day activities at NSU during that same year indicated "undecided" or no answer at all to an item dealing with an academic area of interest. Titley and Titley (1980) stated that about three out of four college freshmen express some form of uncertainty or undecidedness about choice of a college major. This observation of uncertainty or undecidedness has been substantiated in Foote's (1980) and Lancaster's (1985) studies. These studies revealed that over three fourths of all college students change their academic majors at least once during their college attendance.

Pressure is put on students to select a college major/career even before they enter college. Teachers, counselors, family members, and college admissions officers are the key perpetrators of the pressure. Some admissions offices send out forms on which the offerings at that particular institution are listed, and applicants are requested to indicate their area of interest. This alone implies that one should have made a decision about a college major/career choice prior to entering college. In other instances, students are permitted to check a space labeled "Undecided" or "General Studies". Lancaster (1985) noted that those persons who fall in this category are usually considered to lack a sense of direction and are more likely to be failures in college.

As expressed earlier, most freshmen do not know what major to pursue when they enter college. Twenty-two percent of all students change majors while in college, and many, more than once (Lancaster, 1985).

Both decided and undecided students have been assessed in many ways with several variables (Baird, 1969; Foote, 1980; Gordon, 1981; Hecklinger 1972; Holland and Holland, 1977; Lancaster, 1985; Rye, 1972; and Titley and Titley, 1980). Few differences have been found between the two groups. These students usually differ in their sense of identity and career maturity.

Administrators, counselors, and academic advisors have been misled by assuming that indecisiveness, on the part of the students, is due to anxiety and tension rather than to other negative personal and situational factors. Holland and Holland (1976) contend that undecided students should be treated as if they have no special negative characteristics. Gordon (1981)

also noted that, "Rather than viewing uncommitted students as having personality or ability differences, we may acknowledge them as expressing different levels in the developmental process (p. 438). Super (1957) stressed the developmental aspects of career planning by postulating stages such as fantasy, tentative, realistic, exploration, and establishment that students are expected to encounter in the career planning process.

Systematic Career Planning/College Major Selection

Selecting a college major is one of the first decisions students have to make when they enter college. This act poses a problem for many students who know little or nothing about the decision-making process itself.

Gordon (1984) described Janis and Mann's decision-making model for making educational plans and choices. It consisted of five stages:

1. Appraising the Challenge. The student will not acknowledge a decision situation exists until challenged by some disturbing information or event that forces him or her to change course; for example, the institution may force a major choice after so many credit hours, or parental pressures may become too strong to ignore. At this point, the search for alternatives proceeds.

2. Surveying alternatives. The student now seeks information and advice in an effort to find some viable alternative majors, courses, or curricula. Some of these opinions may come from prior ideas, or new ones may be generated from the advisor's suggestions.

3. Weighing alternatives. Now each alternative that has been identified is evaluated. The pros and cons of each choice are studied. When one alternative has too many negative consequences, it is eliminated. Finally, just one alternative is left.

4. Deliberating about a commitment. After a decision has been made, a full commitment to accept it may be delayed until reactions of others to the decision and other consequences are considered.

5. Adhering despite negative feedback. If most feedback is positive and the choice seems to be the best one, action to implement it is taken. If too much negative feedback is encountered, the decision may be viewed as not right, and the process may start all over again with the student returning to the first stage (p. 125).

Tiedman and O'Hara (1963) described decision-making as a process that becomes more differentiated and detailed as one matures. Their process consists of three stages: planning, crystalizing, and choosing.

Harren (1979) formulated a decision-making model based on Tiedman and O'Hara's process. The stages and processes described in this model are:

"1. Awareness: appraisal of self-in-situation.

2. Planning: exploration-crystallization.

3. Commitment: integration with self concept system; bolstering; action planning.

4. Implementation: success and satisfaction outcomes; conformity-autonomy-interdependence" (p. 121).

Research indicates that many entering college freshmen are in the awareness stage (Gordon, 1984). They are faced with a new environment and have little knowledge about their plight. Many feel that they must declare a major upon entering college, a practice at some institutions. However, if students select a major haphazardly, they are more likely to change majors more so than those students who have followed the systematic career planning path.

Today, with the high cost of education and the competitive job market, it is imperative that entering college students exercise care in making their educational/career plans. Sound and systematic career planning should begin during the freshman year.

Jones (1983) cited career exploration as the first step in career planning. This involves identifying one's interest and aptitude, learning about the job market nationally and locally, and making a decision about a career/college major.

To integrate advising and career planning, Habley (1984) recommends the advising process/intervention model which provides a systematic pattern for structuring a counselor/counselee or an advisor/advisee relationship. Eleven tasks in the career and life planning process presented in this model are as follows:

"Task 1: Become aware of individual values, abilities and interests.

Task 2: Clarify life goals based on self-awareness.

Task 3: Explore relationship between life and career goals.

Task 4: Explore the world of work.

Task 5: Clarify career goals.

Task 6: Explore educational combinations leading to life and career goals.

Task 7: Select the educational combination.

Task 8: Explore elective courses.

Task 9: Sequence and select courses.

Task 10: Schedule courses.

Task 11: Evaluate experiences for confirmation or redirection" (p. 156).

Selecting a college major is an individual activity. There are no set rules that one must follow because individuals differ in their stages of development. However, one needs to adhere to some systematic plan if realistic and satisfying educational/career goals are to be accomplished. The state of the economy with the declining lifespan of many occupations demands a specific career planning posture.

Summary

The number of undecided students at the college and university level is growing. Students need to make a decision about a career and the type of training required for their field of endeavor. It is true that individuals differ in interests, skills, abilities and ambitions as well as in their stages of career development. However, at some point a decision must be made. The task of the counselors and teachers is to provide the structure and support needed to challenge these students into the next level of career maturity. An environment where students may learn to examine their strengths, set goals, design plans of action, and evaluate their progress continually is imperative to improve retention of entering college freshmen.

Based on the review of the literature, it does not appear that pursuit of the project for study, "The Effects on Short-Term Retention and College Major Selection Resulting From Systematic Career Planning of Entering

College Freshmen," replicates nor eliminates the need for such research. The preceding literature review has been predicated upon a broad spectrum with the majority race representation. Dealing with first generation Black college students who have deficits in achievement test scores and coming from low socio-economic families, it is to be anticipated that the attrition rate of these Black students will be high. Consequently, supportive activities are crucial to their progress.

Chapter 3

RESEARCH METHODOLOGY

This chapter includes a detailed description of the methodology and procedures utilized in the study. For clarity of presentation, this chapter is divided into four sections. Section I describes the population and sampling procedures. Section II explains the instrumentation of the study. Section III describes the process used to collect the data, and Section IV describes the statistical techniques employed to analyze the data.

This study employed a preset significance level of .05 or less for rejection or acceptance of the null hypotheses presented below.

Null Hypotheses

1. There will be no significant difference ($p \leq .05$) in the proportion of short-term retention in college of freshmen in the experimental, control, and comparison groups. The experimental and control groups consisted of "undecided students," with the experimental group receiving the treatment. The comparison group consisted of "decided students" who did not receive the treatment.
2. There will be no significant difference ($p \leq .05$) in the number of participants who select a college major among the experimental, control, and comparison groups.

Sub-Hypotheses (Null)

1. There will be no significant difference ($p \leq .05$) in short-term retention of the experimental group participants based upon their gender.
2. There will be no significant relationship ($p \leq .05$) between short-term retention in college and age of the participants.
3. There will be no significant difference ($p \leq .05$) in the proportion of experimental group participants who select a college major based upon their gender.
4. There will be no significant relationship ($p \leq .05$) between the rate of selection of college majors and age of the participants.

Population and Sampling Procedures

The population of this study was comprised of entering freshman students who participated in NSU Freshman Orientation classes. Three groups (experimental, control, and comparison) were identified, with 37 subjects in each group. The experimental and control groups consisted of "undecided students", with the experimental group receiving the treatment. The comparison group consisted of "decided students" who did not receive the treatment (see Figure 8).

These groups were identified through a random selection process. This process entailed the following steps:

1. An alphabetized listing of entering freshmen was secured from the Admissions Office at NSU.

2. This list of students was divided into two groups (undecided and decided) with the use of College Major Codes at NSU.

3. The undecided group was further divided into two groups (experimental and control) by using a random selection process. The process incorporated the selection of every other student. This approach has been endorsed by Isaac, S. and Michael, W. B. (1978) as a typical method for selecting subjects on a random basis.

4. The comparison group was comprised of subjects from the decided group using the same process but selecting every thirty-fourth student.

A sample of 111 randomly selected students was used in the study.

Instrumentation

The Systematic Career Planning Program, developed and conducted by the researcher, served as the treatment variable in this study (see Appendices F and G). It was designed to enable "undecided students" to go through a systematic process of self-assessment, career exploration, and career decision-making. The idea about this program was presented to the Vice President of Academic Affairs at NSU, and it was endorsed by him and other administrators (see Appendices A and B). The Director of the Counseling and Career Development Area at NSU and members of his staff assisted in the identification of content materials for the study. Preparation of the materials and determination of strategies for implementation of the program were the responsibilities of the researcher.

Experimental Design of the Sample

	TREATMENT	NO TREATMENT
EXPERIMENTAL GROUP (Undecided Students)	37	
CONTROL GROUP (Undecided Students)		37
COMPARISON GROUP (Decided Students)		37

Figure 8

Three instruments were used in the study, "Who Am I?" and "What Are Your Occupational Values?" developed by Lee and Pulvino (1981), and The Major-Minor-Finder designed by Cutler, Ferry, Kauk, and Robinett (1983). Although no statistical data relative to the validity and reliability of the interest inventories, "Who Am I?" and "What Are Your Occupational Values?", were available, they were used to help students improve their self-awareness as it pertained to making important choices relative to their life styles and careers. Moreover, they were used primarily for counseling purposes.

The Major-Minor-Finder was employed to assist students in career decision-making. This tool, according to Cutler, Ferry, Kauk, and Robinett (1983), was designed to assist students in the self-assessment of career and school interests, matching of majors with designated interests, exploration of career information relative to majors, and, in the final analysis, selection of a college major that best suits individual needs (see Appendix J).

The instrument contains 99 majors. Based on Cutler, Ferry, Kauk and Robinett (1983), the criteria used to select these majors include:

"1. All majors used in the National Merit Program.

2. All possible general and specific majors which are advised as background for specific job titles in the Occupational Outlook Handbook.

3. Most majors found in The College Entrance View Deck (Chronicle Publications) and Peterson's Annual Guide to Undergraduate Study.

4. All majors associated with the career choices listed in the CEEB testing program.

5. Those majors that produce a sufficient diversity and a reasonable number of choices among the major fields of study: applied

science, business, creative arts, life science, humanities, physical science and social science" (pp. 7-8).

This instrument was field tested with randomly selected college-bound students as well as with students who had made plans for college. The combined test population consisted of 1000 females and males, 16 to 18 years old, from both suburban and urban areas. Fifteen percent of the population consisted of minorities. "In a test-retest of The Major-Minor-Finder given in a two-week time duration, there was 92% correlation of nine preferred college majors with N = 120" (Cutler et al, 1983, p. 5). The researcher had used this instrument with "undecided majors" and with those students who were not sure about their majors as part of her regular counseling functions prior to the conduct of this study. Listed below are some comments made by students regarding the instrument:

1. "I am no longer depressed."
2. "It confirmed my thinking."
3. "I enjoyed it because it was easy to read."
4. "It read my mind."
5. "I now know what I want to major in."
6. "It was great."
7. "I feel that The Major-Minor-Finder was useful to my narrowing down the career field I wanted to enter. It was very precise, very easy to understand."

Experimental group participants attended five group career counseling sessions, one hour each in length, and three individual career counseling

sessions. The length of individual conferences varied according to students' needs.

Group Session I. During group session one, participants and researcher became acquainted. An overview of the program was presented and each participant completed a personal data form (see Appendix H) and two self-assessment inventories, "Who am I"? and "What Are Your Occupational Values?" (Lee and Pulvino, 1981). Participants discussed the results of their self-assessment during their first individual conference.

Group Session II. Session two was characterized by a general discussion of the participants' results on the self-assessment tools, "Who Am I?" and "What Are Your Occupational Values?". The Major-Minor-Finder was also administered.

Group Session III. A general interpretation of The Major-Minor-Finder results was discussed in session three. Participants also visited the NSU Counseling Center Library and the Student Development Center during this session. They were encouraged to use the NSU Library, as well as other public and private libraries in their thorough and systematic study of careers. After this session, participants attended their second individual conference to discuss their results on The Major-Minor-Finder as well as other matters related to career decision-making.

Group Session IV. Career related materials were disseminated and reviewed during session four (see Appendix F). Participants visited academic advisors and interviewed representative(s) in their field(s) of interest during the interim period of time between sessions four and five.

They used a specific guide when they approached the academic advisors (see Appendix K). As a homework assignment, participants wrote paragraphs relative to their future plans for attending NSU and indicated if the courses in which they were enrolled were related to their career goals (see Appendix L).

Between session four and session five, participants had individual conferences with the researcher. During these conferences, an evaluation of the participant's progress in his or her career/college major search was determined (see Appendix M).

Group Session V. Experimental group participants submitted paragraphs relative to their future plans for attending NSU and information regarding the relationship between courses in which they were enrolled and their chosen major to the researcher. The career counselor at NSU collected paragraphs from participants of the control and comparison groups and submitted them to the researcher.

Also during this session, participants made decisions regarding their college major selection. Those participants who were ready to select a college major completed a "Petition to Change Major Form" and presented it to the researcher (see Appendix N). Those who were ambivalent about declaring a major were advised to continue their career exploration with the assistance of the researcher. Robert Hoppock (1976) noted five reasons why one should study occupations carefully before making a choice:

"1. The choice of an occupation may determine whether one will be employed or not.

2. The choice of an occupation may determine success or failure.
3. The choice of an occupation may determine whether one will enjoy or dislike his work.
4. The choice of an occupation influences every other aspect of life.
5. Occupational choices determine how a democratic society will use its manpower" (p. 2).

Participants were reminded that choosing a career is one of the most important decisions they would make, and the process involves developing an understanding of themselves, learning about several career/academic areas, predicting outcomes of their actions, and choosing feasible alternatives.

Data Collection

A letter of invitation was given to selective participants in their freshman orientation classes. Experimental subjects acknowledged their willingnesss to participate in the Systematic Career Planning Program by signing the letter of invitation and submitting it to the researcher during the first group session (see Appendix E). Paragraphs, written by students relative to their intention to return to NSU for the spring semester and the relationship between their chosen courses and career goals, were collected by the career counselor and the researcher.

Data relative to the two dependent variables, short-term retention and the selection of a college major, were secured from the Registrar. Short-term retention was determined by ascertaining whether students returned for the spring semester. Selection of a college major was determined by

reviewing the participants' print-outs for the spring semester. Data relative to participants' gender, age, and geographical location were also secured from the Registrar (see Appendix D).

Data Analysis

The null hypotheses and sub-hypotheses (null) were included earlier in this chapter and are repeated here for the reader's convenience:

Null Hypotheses

1. There will be no significant difference ($p \leq .05$) in the proportion of short-term retention in college of freshmen in the experimental, control and comparison groups. The experimental group consisted of students who had not chosen a major and received the treatment. The control group consisted of students who had not chosen a major but did not receive the treatment, and the comparison group consisted of students who had chosen a major and did not receive the treatment.
2. There will be no significant difference ($p \leq .05$) in the number of participants who select a college major among the experimental, control, and comparison groups.

Sub-hypotheses (Null)

1. There will be no significant difference ($p \leq .05$) in short-term retention of the experimental group participants based upon their gender.

2. There will be no significant relationship ($p \leq .05$) between short-term retention in college and age of the participants.
3. There will be no significant difference ($p \leq .05$) in the proportion of experimental group participants who select a college major based upon gender.
4. There will be no significant relationship ($p \leq .05$) between the rate of selection of college majors and age of the participants.

Hypothesis 1 was tested using a Chi Square statistics and crosstabulation. Hypothesis 2 was tested using the Chi Square statistics to test for differences in choice of majors. Sub-hypotheses 1 and 3 were tested using Chi Square statistics and crosstabs for interpretation. Sub-hypotheses 2 and 4 were tested using multiple regression.

Chapter 4

FINDINGS OF THE INVESTIGATION

As previously stated, the purpose of this study was to determine the impact of a systematic career planning program on college major selection and short-term retention of entering college freshmen. To be more specific, the study purports to investigate the question: Are short-term retention and college major selection, on the part of entering college freshmen, influenced by systematic career planning?

This chapter presents demographic characteristics of the sample and an analysis of the data collected relative to the hypotheses and sub-hypotheses presented. The statistics used to address rejection or acceptance of the null hypotheses presented are Chi Square and crosstabulation for interpretation. The alpha level used for determination of statistical significance and rejection of the null hypotheses was ($p \leq .05$). In addition, multiple regression was employed to present the findings of this study.

Null Hypotheses

1. There will be no significant difference ($p \leq .05$) in the proportion of short-term retention in college of freshmen in the experimental, control, and comparison groups. The experimental and control groups consisted of "undecided students," with the experimental group receiving the treatment. The comparison group consisted of "decided students" who did not receive the treatment.

2. There will be no significant difference ($p \leq .05$) in the number of participants who select a college major among the experimental, control, and comparison groups.

Sub-Hypotheses (Null)

1. There will be no significant difference ($p \leq .05$) in short-term retention of the experimental group participants based upon their gender.

2. There will be no significant relationship ($p \leq .05$) between short-term retention in college and age of the participants.

3. There will be no significant difference ($p \leq .05$) in the proportion of experimental group participants who select a college major based upon their gender.

4. There will be no significant relationship ($p \leq .05$) between the rate of selection of college majors and age of the participants.

Demographic Characteristics of the Participants

Participants in the study were randomly selected entering freshmen at Norfolk State University. All subjects were of the same race - 52 Black males and 59 Black females. Three groups (experimental, control, and comparison) were compared. There were 37 subjects in each group, with only the experimental group participants receiving the treatment. There were 13 males and 24 females in the experimental group, 27 males and 10 females in the control group, and 12 males and 25 females in the comparison group (see Table 1).

Table 1

Gender of Participants

Group		Male	Female
Experimental	Frequency	13	24
	Percentage	35.1%	64.9%
Control	Frequency	27	10
	Percentage	73.0%	27%
Comparison	Frequency	12	25
	Percentage	32.4%	67.6%
Total	Frequency	52	59
	Percentage	46.8%	53.2%

Ages of the sample members ranged from 17 through 40. The age range for the experimental group members was 18 - 40 years of age; the control group's age range was 17 - 31 years of age; and the comparison group's ages ranged from 17 - 24. As Table 2 illustrates, a Chi Square of 27.52 with 20 degrees of freedom at a .12 level of significance was determined; therefore, there was not a significant difference ($p \leq .05$) in the ages of participants among the three groups.

Sample participants came from 14 different states. Seventy-two percent of the total sample were residents of Virginia, with 62.2 percent in the experimental group, and 70.3 percent in the control group, and 83.8 percent in the comparison group (see Table 3).

Analysis of Data

The following null hypotheses were tested in this study:

Hypothesis 1. Of the total sample, 94.6 percent of the experimental group participants, 64.9 percent of the control group participants, and 89.2 percent of the comparison group participants returned to Norfolk State University during the spring semester.

With the retention rate of three groups where there was a Chi Square of 13.08 with 2 degrees of freedom, a level of significance at .00 was observed. Therefore, null hypothesis 1, which states there will be no significant difference ($p \leq .05$) in the proportion of short-term retention in college of freshmen in the experimental, control, and comparison groups, was rejected (see Table 4).

Table 2

Age of Participants

Group		Age										
		17	18	19	20	21	22	23	24	25	31	40
Experimental	Frequency	0	14	13	6	1	1	1	0	0	0	1
	Percentage	0.0%	37.8%	35.1%	16.2%	2.7%	2.7%	2.7%	0.0%	0.0%	0.0%	2.7%
Control	Frequency	1	13	14	5	0	0	0	2	1	1	0
	Percentage	2.7%	35.1%	37.8%	13.5%	0.0%	0.0%	0.0%	5.4%	2.7%	2.7%	0.0%
Comparison	Frequency	1	25	8	0	0	0	2	1	0	0	0
	Percentage	2.7%	67.6%	21.6%	0.0%	0.0%	0.0%	5.4%	2.7%	0.0%	0.0%	0.0%
Total	Frequency	2	52	35	11	1	1	3	3	1	1	1
	Percentage	1.8%	46.8%	31.5%	9.9%	.9%	.9%	2.7%	2.7%	.9%	.9%	.9%

Chi Square	D. F.	Significance
27.52	20	.12

Table 3

Geographical Data of Sample
(Experimental, Control, and Comparison Groups)

Group		VA	KY	MD	NY	OH	NJ	PA	DC	MA	ME	WV	CT	NC	AL
Experimental	Frequency	23	1	3	3	1	4	1	1	0	0	0	0	0	0
	Percentage	62.2%	2.7%	8.1%	8.1%	2.7%	10.8%	2.7%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Control	Frequency	26	0	2	0	0	2	2	1	1	1	1	1	0	0
	Percentage	70.3%	0.0%	5.4%	0.0%	0.0%	5.4%	5.4%	2.7%	2.7%	2.7%	2.7%	2.7%	0.0%	0.0%
Comparison	Frequency	31	0	0	3	0	0	0	0	0	0	0	1	1	1
	Percentage	83.3%	0.0%	0.0%	8.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	2.7%	2.7%

Chi Square	D. F.	Significance
29.02	26	.31

Table 4

Chi Square and Level of Significance of Short-Term Retention Among the Experimental, Control, and Comparison Groups

Group		Returned	Did Not Return
Experimental	Frequency	35	2
	Percentage	94.6%	5.4%
Control	Frequency	24	13
	Percentage	64.9%	35.1%
Comparison	Frequency	33	4
	Percentage	89.2%	10.8%

Chi Square	D. F.	Significance
13.08	2	.00

Hypothesis 2. In Table 5 where the number of students who selected an academic major is depicted, a Chi Square of 45.04 with 2 degrees of freedom at a .00 level of significance was generated. Therefore, hypothesis two, there will be no significant difference ($p \leq .05$) in the number of students who select an academic major among the experimental, control, and comparison groups, was rejected. Sixty-two and two tenths percents (62.2%) of the experimental group participants selected college majors, and twenty-four and three tenths percent (24.3%) of the control group participants selected college majors.

Sub-hypothesis 1. In analyzing the retention rate between males and females of the experimental group, as illustrated in Table 6, a Chi Square of .09 with 1 degree of freedom, at a significance level of .76 was observed. Therefore, sub-hypothesis one, there will no significant difference ($p \leq .05$) in short-term retention of the experimental group participants based upon their gender, was not rejected. Thirty-five participants from the experimental group returned for the spring semester. Thirteen males returned, which reflected a 100 percent retention rate, and twenty-two females returned, which represented 91.7 percent retention rate.

Sub-hypothesis 2. The correlation coefficient between the age of the respondents in the experimental group and their short-term retention was computed to be .0751 (see Table 7). Furthermore, bivariate regression analysis was conducted to predict the short-term retention based upon age of the experimental group. Table 8 shows selected statistics for the bivariate regression analysis computed. The Multiple R indicates that a

Table 5

Chi Square and Level of Significance Regarding the Number of Students Who Selected a College Major Among the Experimental, Control, and Comparison Groups

Group		Selected A Major	Did Not Select A Major
Experimental	Frequency	23	14
	Percentage	62.2%	37.8%
Control	Frequency	9	28
	Percentage	24.3%	75.7%
Comparison	Frequency	37	0
	Percentage	100.0%	0.0%

Chi Square	D. F.	Significance
45.04	2	.00

Table 6

Chi Square and Significance Level of the Short-Term Retention Rate Between Males and Females of the Experimental Group Participants

Sex		Returned Spring Semester	Did Not Return Spring Semester
Male	Frequency	13	0
	Percentage	100.0%	0.0%
Female	Frequency	22	2
	Percentage	91.7%	8.3%
Total	Frequency	35	2
	Percentage	94.6%	5.4%

Chi-Square	D.F.	Significance
.09	1	.76

Table 7

Correlation Between Short-Term Retention of
Experimental Group Participants Based Upon Age

		Age										
		17	18	19	20	21	22	23	24	25	31	40
Returned	Frequency		14	12	5	1		1				1
	Percentage		40.0%	34.3%	14.3%	2.9%		2.9%				2.9%
Did Not Return	Frequency		0	1	1	0		0				0
	Percentage		0.0%	50.0%	50.0%	0.0%		0.0%				0.0%

Correlation Coefficient = .0751

relationship exists between the age of the students and their short-term retention while R Square indicates that less than one percent of the variation in short-term retention is explained by the linear regression for the age variable. To obtain a prediction of the student's short-term retention (Y') for the experimental group for any given age level (X), the A and B constants in the linear prediction equation

$$Y' = A + BX$$

would be

$$Y' = 1.06183 + (-3.9660E.04)X.$$

Table 9 shows the regression line computed for the experimental group.

Sub-hypothesis 3. As shown in Table 10 where the males and females of the experimental group were compared in the selection of a college major, 84.6 percent of the males and 50 percent of the females had selected a college major. A Chi Square of 2.95 with 1 degree of freedom at a significant level of .09 was computed. Therefore, sub-hypothesis three, which states there will be no significant difference ($p \leq .05$) in the proportion of experimental group participants who select a college major based upon their gender, was not rejected.

Sub-hypotheses 4. The correlation coefficient between the age of the respondents in the experimental group and their selection of a college major was computed to be .1513 (see Table 11). In addition, bivariate regression analysis was conducted to predict the selection of a college major based upon the age of the experimental group. Table 12 shows selected statistics

Table 8

Selected Statistics for Bivariate Regression Generated for Age and Short-Term Retention of the Experimental Group

Multiple R	0.00630
R Square	0.00004
Standard Error	0.23249

Analysis of Variance

Source	df	Sum of Squares	Mean Square
Regression	1	.00008	.00008
Residual	35	1.89182	.05405
F = .00139		Significance of F = .9705	

Variable	B	Standard Error of B	BETA
Age (B)	-3.96690E-04	.01065	-6.298E-03
Constant A	1.06183	.21208	

Table 9

Linear Regression Line Computed Between Age and Short-Term Retention for the Experimental Group

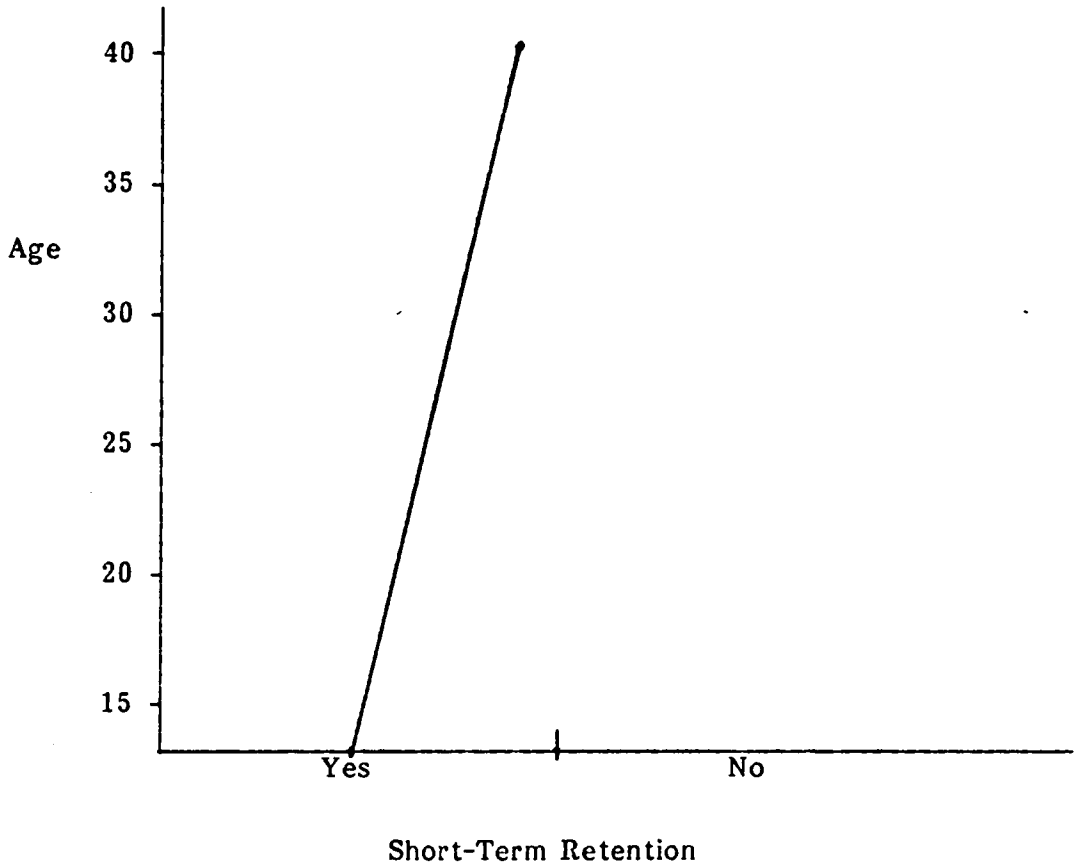


Table 10

Chi Square and Level of Significance Regarding
The Number of Experimental Group Participants
Who Selected College Majors Based Upon Gender

Sex		Selected Major	Did Not Select Major
Male	Frequency	11	2
	Percentage	84.6%	15.4%
Female	Frequency	12	12
	Percentage	50%	50%
Total	Frequency	23	14
	Percentage	62.2%	37.8%

Chi-Square	D.F.	Significance
2.95	1	.09

Table 11

Correlation Between the Number of Experimental Group Participants Who Selected College Majors Based Upon Age

		Age										
		17	18	19	20	21	22	23	24	25	31	40
Selected Major	Frequency	0	9	11	1	1	0					
	Percentage	0.0%	39.1%	47.8%	4.3%	4.3%	0.0%					
Did Not Select	Frequency	0	5	2	5	0	1					
	Percentage	0.0%	35.7%	14.3%	35.7%	0.0%	7.1%					

Correlation Coefficient = .1513

Table 12

Selected Statistics for Bivariate Regression Generated for Age and Selection of a College Major of the Experimental Group

Multiple R	.24332
R Square	.05920
Standard Error	.48366

Analysis of Variance

Source	df	Sum of Square	Mean Square
Regression	1	.51524	.51524
Residual	35	8.18746	.23393

F = 2.20255 Significance of F = .1467

Variable	B	Standard Error of B	BETA
Age	.03287	.02215	.24332
Constant A	.73433	.44119	

for the bivariate regression analysis computed. The Multiple R indicates that a relationship exists between the age of the students and their selection of a college major; while R Square indicates that less than one percent of the variation in selection of a major is explained by linear regression for the age variable. To obtain a prediction of their selection of a major (Y') for the experimental group for any given age level (X), the A and B constants in the linear prediction equation

$$Y' = A + BX$$

would be

$$Y' = .73433 + 0.03287\ (X).$$

Table 13 illustrates the regression line computed for the experimental group.

Tables 14 and 15 show that there was not a significant difference ($p \leq .05$) in the number of students who selected a college major in this group.

As shown in Table 16, the major selected on The Major-Minor-Finder by the experimental group participants totaled 23 different academic fields of study. Of these, the most often selected were Corrective Therapy/P.E., Accounting, and Sociology. A Chi Square of 111.00 with 46 degrees of freedom at a .00 significance level was computed. Therefore, a significant difference in their selection of a college major existed.

Table 17 shows that the experimental group participants selected 16 different minors on The Major-Minor-Finder. A Chi Square of 111.00 with 32 degrees of freedom at a .00 level of significance was found. Therefore, there was a significant difference ($p \leq .05$) in their selection of a minor.

Table 13

Linear Regression Line Computed Between Age and Selected Major for the Experimental Group

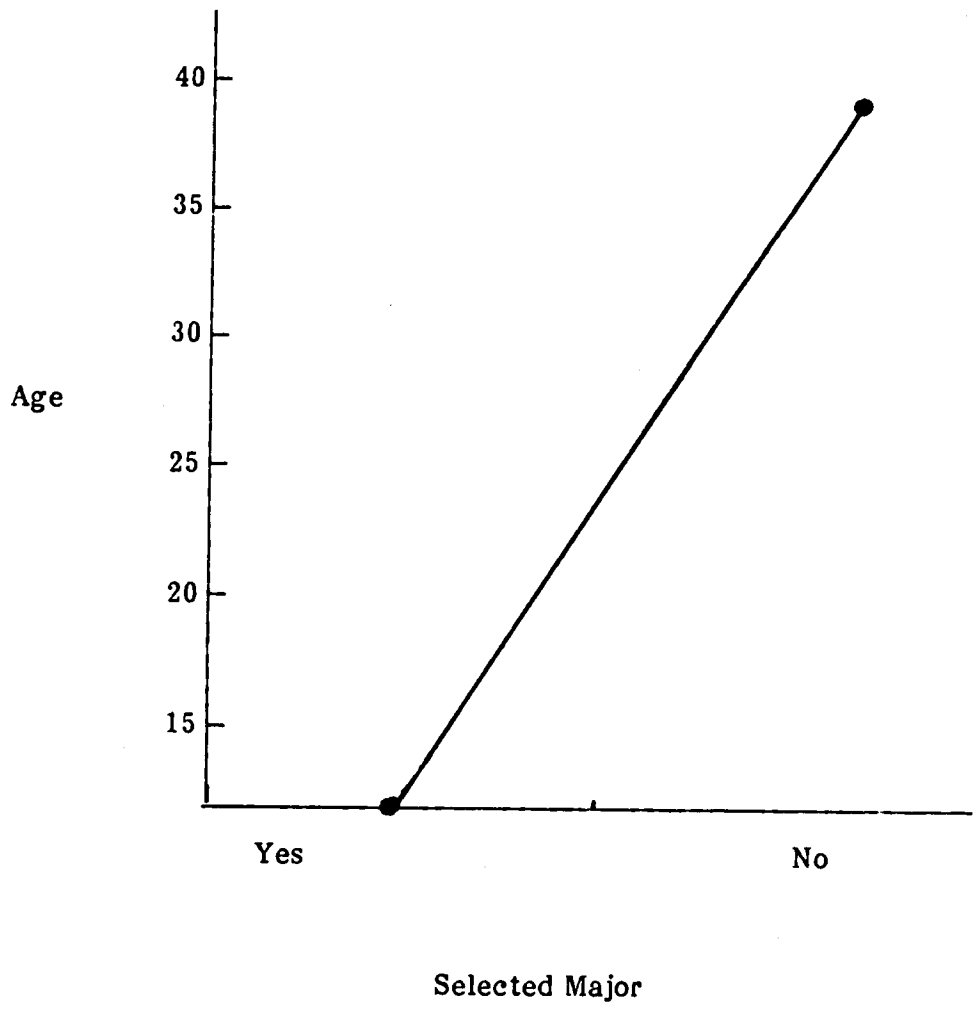


Table 14

Chi Square and Level of Significance Regarding the Number of Female Experimental Group Participants Who Selected College Majors and Those Who Did Not Select College Majors Based Upon Age

		Female										
		Age										
		17	18	19	20	21	22	23	24	25	31	40
Selected Major	Frequency		6	6	0							0
	Percentage		50.0%	50.0%	0.0%							0.0%
Did Not Select Major	Frequency		5	2	4							1
	Percentage		41.7%	16.7%	33.3%							8.3%

Chi Square	D. F.	Significance
7.09	3	.07

Table 15

Chi Square and Level of Significance Regarding the Number of Male Experimental Group Participants Who Selected College Majors and Those Who Did Not Select College Majors Based Upon Age

		Male										
		Age										
		17	18	19	20	21	22	23	24	25	31	40
Selected Major	Frequency		3	5	1	1	0	1				
	Percentage		27.3%	45.5%	9.1%	9.1%	0.0%	9.1%				
Did Not Select Major	Frequency		0	0	1	0	1	0				
	Percentage		0.0%	0.0%	50.0%	0.0%	50.0%	0.0%				

Chi Square	D. F.	Significance
9.16	5	.10

Table 16

Chi Square and Level of Significance Regarding the Different Types of Majors Selected on The Major-Minor Finder By Experimental Group Participants

Major Code	Major		Experimental Group
0005	Corrective Therapy/PE	Frequency	3
		Percentage	8.1%
0401	Biology	Frequency	1
		Percentage	2.7%
0500	General Business	Frequency	5
		Percentage	13.5%
0501	General Business	Frequency	1
		Percentage	2.7%
0502	Accounting	Frequency	3
		Percentage	8.1%
0514	Office Administration	Frequency	1
		Percentage	2.7%
0601	Mass Communication	Frequency	2
		Percentage	5.4%
0602	Journalism	Frequency	2
		Percentage	5.4%
0701	Computer Science	Frequency	1
		Percentage	2.7%
0835	Physical Education	Frequency	1
		Percentage	2.7%
0838	Business Education	Frequency	1
		Percentage	2.7%

Table 16

Chi Square and Level of Significance Regarding the Different Types of Majors Selected on The Major-Minor Finder By Experimental Group Participants

Major Code	Major		Experimental Group
0991	Electronic Technology	Frequency	2
		Percentage	5.4%
1001	Fine Arts	Frequency	1
		Percentage	2.7%
1009	Graphic Design	Frequency	1
		Percentage	2.7%
1202	Health Services Management	Frequency	1
		Percentage	2.7%
1203	Nursing/BS	Frequency	1
		Percentage	2.7%
1215	Medical Records Administration	Frequency	1
		Percentage	2.7%
1306	Food Science and Nutrition	Frequency	1
		Percentage	2.7%
1398	Consumer Services	Frequency	2
		Percentage	5.4%
2104	Social Work/BSW	Frequency	1
		Percentage	2.7%
2207	Political Science	Frequency	1
		Percentage	2.7%
2208	Sociology	Frequency	3
		Percentage	8.1%

Table 16

Chi Square and Level of Significance Regarding the Different Types of Majors Selected on The Major-Minor Finder By Experimental Group Participants

Major Code	Major		Experimental Group
5499	Clothing Technology	Frequency	1
		Percentage	2.7%

Chi-Square	D. F.	Significance
111.00	46	.00

Table 17

Chi-Square and Level of Significance Regarding the Different Types of Minors Selected on The Major-Minor-Finder By Experimental Group Participants

Minor Code	Minor		Experimental Group
0005	Corrective Therapy/PE	Frequency	1
		Percentage	2.7%
0401	Biology	Frequency	2
		Percentage	5.4%
0500	General Business	Frequency	3
		Percentage	8.1%
0501	General Business	Frequency	9
		Percentage	24.3%
0502	Accounting	Frequency	3
		Percentage	8.1%
0601	Mass Communication	Frequency	2
		Percentage	5.4%
0602	Journalism	Frequency	2
		Percentage	5.4%
0823	Early Childhood Education	Frequency	2
		Percentage	5.4%
0909	Electronics Engineering	Frequency	2
		Percentage	5.4%
1001	Fine Arts	Frequency	1
		Percentage	2.7%
1301	Home Economics	Frequency	3
		Percentage	8.1%

Table 17

Chi-Square and Level of Significance Regarding the Different Types of Minors Selected on The Major-Minor-Finder By Experimental Group Participants

Minor Code	Minor		Experimental Group
1501	English	Frequency	3
		Percentage	8.1%
1905	Chemistry	Frequency	1
		Percentage	2.7%
2205	History	Frequency	1
		Percentage	2.7%
2207	Political Science	Frequency	1
		Percentage	2.7%
2208	Sociology	Frequency	1
		Percentage	2.7%

Chi-Square	D.F.	Significance
111.00	32	.00

Table 18 presents the Chi Square and level of significance regarding experimental, control, and comparison groups participants' intentions to return to NSU the spring semester, based upon their major. A Chi Square of 13.0 with 2 degrees of freedom at a .00 level of significance was computed. Therefore, there was a significant difference ($p \leq .05$) in participants' intentions to return to NSU the spring semester among the three groups.

In further analysis, which determined majors selected by the students, it was observed that a Chi Square of 121.23 with 68 degrees of freedom and a significant level of .00 was computed. Therefore, a significant difference ($p \leq .05$) also existed among the experimental, control, and comparison groups regarding the types of majors selected (see Table 19).

Thirteen subjects from the experimental group and 28 subjects from the control group remained in the area of general studies. Ten subjects in the comparison group selected Pre-Business Administration and Pre-Office Administration - five in each area. Three subjects in the experimental group selected sociology, and three subjects in the control group selected Electronic Technology. This data represented the academic areas with the largest number of selectees within the experimental, control, and comparison groups.

Table 18

Chi-Square and Level of Significance Regarding Experimental, Control, and Comparison Groups Participants' Intentions to Return to NSU the Spring Semester

Group		Intend To Return	Do Not Intend To Return
Experimental	Frequency	34	2
	Percentage	94.6%	5.4%
Control	Frequency	24	13
	Percentage	64.9%	35.1%
Comparison	Frequency	33	4
	Percentage	89.2%	10.8%
Total	Frequency	92	19
	Percentage	82.9%	17.1%

Chi-Square	D.F.	Significance
13.08	2	.00

Table 19

Majors Selected by Study Participants

Major Code	Major		Groups Experimental	Control	Comparison
401	Biology	Frequency	2	0	1
		Percentage	5.4%	0.0%	2.7%
501	General Business	Frequency	0	0	1
		Percentage	0.0%	0.0%	2.7%
601	Mass Communication	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
602	Journalism	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
701	Computer Science	Frequency	1	0	1
		Percentage	2.7%	0.0%	2.7%
810	Mental Retardation	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
823	Early Childhood Education	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
835	Physical Education	Frequency	1	0	2
		Percentage	2.7%	0.0%	5.4%
839	Industrial Education	Frequency	0	1	0
		Percentage	0.0%	2.7%	0.0%
890	Home Economics Education	Frequency	0	0	1
		Percentage	0.0%	0.0%	2.7%
991	Electronic Technology	Frequency	2	3	1
		Percentage	5.4%	8.1%	2.7%

Table 19

Majors Selected by Study Participants

Major Code	Major		Groups Experimental	Control	Comparison
1009	Graphic Design	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
1099	Music Media	Frequency	0	0	1
		Percentage	0.0%	0.0%	2.7%
1202	Health Services Management	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
1215	Medical Records Administration	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
1223	Medical Technology	Frequency	0	0	1
		Percentage	0.0%	0.0%	2.7%
1398	Consumer Services	Frequency	2	0	1
		Percentage	5.4%	0.0%	2.7%
1701	Mathematics	Frequency	0	0	1
		Percentage	0.0%	0.0%	2.7%
2104	Social Work/ BSW	Frequency	1	1	1
		Percentage	2.7%	2.7%	2.7%
2204	Economics	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
2207	Political Science	Frequency	0	0	3
		Percentage	0.0%	0.0%	8.1%
2208	Sociology	Frequency	3	1	0
		Percentage	8.1%	2.7%	0.0%

Table 19

Majors Selected by Study Participants

Major Code	Major		Groups Experimental	Control	Comparison
5005	Secretarial Science	Frequency	0	0	1
		Percentage	0.0%	0.0%	2.7%
5204	Architectural Drafting	Frequency	0	0	2
		Percentage	0.0%	0.0%	5.4%
5310	Industrial Electronics Technology	Frequency	0	1	1
		Percentage	0.0%	2.7%	2.7%
5499	Clothing Technology	Frequency	1	1	0
		Percentage	2.7%	2.7%	0.0%
9972	Pre-Accounting	Frequency	0	0	3
		Percentage	0.0%	0.0%	8.1%
9973	Pre-Management Computer Information Systems	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
9974	Pre-Management	Frequency	1	0	0
		Percentage	2.7%	0.0%	0.0%
9976	Pre-Finance	Frequency	0	0	1
		Percentage	0.0%	0.0%	2.7%
9977	Pre-Marketing	Frequency	0	0	4
		Percentage	0.0%	0.0%	10.8%
9978	Pre-Business Education	Frequency	0	0	5
		Percentage	0.0%	0.0%	13.5%

Table 19

Majors Selected by Study Participants

Major Code	Major		Groups Experimental	Control	Comparison
9979	Pre-Office Administration	Frequency	1	0	5
		Percentage	2.7%	0.0%	13.5%
9988	Non-Matriculated Undergraduate	Frequency	0	1	0
		Percentage	0.0%	2.7%	0.0%
9998	General Studies Undeclared	Frequency	13	28	0
		Percentage	35.1%	75.7%	0.0%

Chi Square	D. F.	Significance
121.23	68	.00

Chapter 5

SUMMARY, CONCLUSIONS, DISCUSSION/IMPLICATIONS, AND RECOMMENDATIONS

The final chapter contains a brief summary of the study which includes the findings, conclusions based upon the findings, discussion/implications, and recommendations.

Summary

This study was designed to investigate the impact of a Systematic Career Planning Program on short-term retention and the academic major selection rate of entering college freshmen. The sample consisted of 111 randomly selected entering freshmen at Norfolk State University. They were selected from the entering freshman population during the fall. From this sample, three groups (experimental, control, and comparison) were identified and compared. Each group consisted of 37 subjects (13 Black males and 24 Black females) from 14 geographical locations, with seventy-two percent of them residing in Virginia.

The experimental and control groups consisted of subjects who had not declared college majors, and the comparison group was comprised of students who had chosen college majors. Only the experimental group participants attended the Systematic Career Planning Program.

The problem in this study was to investigate the question: Are short-term retention and college major selection, on the part of entering freshmen, influenced by systematic career planning? To answer the

research question, an experimental research approach was employed in the conduct of the study. Possible cause and effect relationships were investigated. This investigation of relationships was accomplished by exposing the experimental group participants to a treatment condition, the Systematic Career Planning Program, and comparing results with the control and comparison group participants who did not receive the treatment. Chi Square statistics and crosstabulation were used to analyze the data among the experimental, control, and comparison groups. In addition, multiple regression was employed to present the findings.

The following null hypotheses were tested:

1. There will be no significant difference ($p \leq .05$) in the proportion of short-term retention in college of freshmen in the experimental, control, and comparison groups. The experimental and control groups consisted of "undecided students," with the experimental group receiving the treatment. The comparison group consisted of "decided students" who did not receive the treatment.

2. There will be no significant difference ($p \leq .05$) in the number of participants who select a college major among the experimental, control, and comparison groups.

The following sub-hypotheses (null) were tested:

1. There will be no significant difference ($p \leq .05$) in short-term retention of the experimental group participants based upon their gender.

2. There will be no significant relationship ($p \leq .05$) between short-term retention in college and age of the participants.

3. There will be no significant difference ($p \leq .05$) in the proportion of experimental group participants who select a college major based upon their gender.

4. There will be no significant relationship ($p \leq .05$) between the rate of selection of college majors and age of participants.

It was found that there was a statistically significant difference in short-term retention among the experimental, control, and comparison groups. More experimental group participants remained in college during the spring semester than did those in the control and comparison groups.

There was a statistically significant difference in the number of students who selected a college major between experimental and control groups. More experimental group participants selected college majors than did control group participants.

A statistically significant difference was also found in the types of majors selected among the experimental, control and comparison groups. Experimental and control group members chose majors primarily in the areas of social work and technology when compared with the comparison group who had more diverse selection of college majors. Most of the comparison group enrolled in areas of business.

Findings which were not found to be statistically significant within the .05 level yet provided insight into students' short-term retention and college major selection rate consisted of the following. Students who were 18 to 19 years of age remained in college more so than those who were older, and they had a higher rate of selecting college majors. Also, more males than

females persisted or rather returned the spring semester. In addition, more males than females selected college majors.

Conclusions

Based upon the findings in this study, it can be concluded that the treatment had a positive impact on the experimental group participants and also indicates the positive effects of a systematic career planning program as it relates to students' short-term retention in college. Therefore, the study confirms the opinions of researchers who claim that special programs should be formulated to respond to needs of various campuses (Astin, 1975; Beale and Noel, 1980; Cope and Hannah, 1975; Smith, 1980; and Turner, 1978). It also confirms Hillery's (1980) contention that more effective career planning would have a significant positive impact on student retention.

It can also be concluded that the age and gender of students were related to their short-term retention and college major selection rate. Younger students had a higher retention rate than older students and tended to select majors at a higher rate. This study confirms the findings of Cope (1978) which revealed that more males persisted to graduation than did females, but it contradicts Foote's (1984) study which revealed that more females were committed to college majors than males. Finally, it is concluded from this investigation that students who enter college with undecided majors have a restricted range of college major/career choices.

Discussion/Implications

Making educational decisions, which is often referred to as educational/career planning, is an important phase of a student's life. It includes self-assessment, exploring academic and career choices, integrating academic and career choices, and making decisions for one's future and present needs.

Choosing a college major and deciding on a career are two of the critical decisions college students encounter. Since selecting a major is the first important academic decision the student has to make, students often feel that some choice is better than none. Thus, students make tentative choices prior to entering college. These students also need an opportunity to confirm or deny their original choices. Therefore, it behooves academic advisors, counselors, teachers, and support personnel to realize and accept the challenge of assisting students in this phase of their development. Based upon the findings in this study, it appears that structured assistance has a positive impact on a student's formulation of realistic and satisfying educational/career plans, thereby increasing the retention rate of college students.

Turner (1980) has stated that "higher educational institutions have to be academically and administratively organized to provide academic support functions that accommodate minority students in the 1980s." He further states that "just as important, minority students must somehow be forewarned before they come to the university of what they are going to face from a particular institution academically and socially. A commitment

must go beyond mere admissions. While minority students are enrolled, a lot of programming should be geared toward their personal and cultural enrichment, as well as their academic development" (p. 213).

Consistent with Turner's pronouncements, this study substantiates the need for student adjustment programs in higher education. Findings in this study indicate that just as such programs are viable for predominantly white educational institutions they are also beneficial to predominantly Black institutions of higher education.

National statistics indicate that males are at greatest risk in college retention. Though this study had a small number of males (13) in the sample, findings suggested that involving males in a structured career planning program could result in their continuation toward completion of a college education.

Students involved in this study essentially came from low socio-economic backgrounds and were first generation college students. These factors suggest that these students have limitations in meeting the demands of a college education and in being aware of different college majors, the requirements of these majors and the career paths of various majors. Consequently, these deficiencies or limitations suggest a need for structured programs early in the college experience which would address the deficiencies or limitations previously noted, and provide the students with some concept of their potential for successfully pursuing and completing a specific major.

Based on log entries in the counseling sessions with students, the following can be discerned from their subjective statements. Students expressed their pleasure at having opportunities to systematically meet with the researcher and members of the University's Counseling Center. Students also noted that they enjoyed the personal attention and advisement that the project provided. These factors suggest the need for attention from a knowledgeable and empathic adult.

Recommendations

The following recommendations are submitted as a result of the findings in this study.

1. Since the findings in this study reaffirmed previous research which indicates that career planning programs, when systematically organized and implemented, can have a positive impact on student retention and college major selection, it is recommended that similar career intervention programs be conducted on a larger scale for "undecided" entering college freshmen.

2. Due to the positive effect of the Systematic Career Planning Program on entering freshmen in regards to college major selection, it is recommended that similar programs be conducted for all "undecided" and "indecisive" students (Indecisive refers to students who are uncertain about their majors).

3. In the review of the literature, it was discovered that there are many "decided" students who need the same extensive academic advising and

counseling provided the "undecided" students (Gordon, 1981); therefore, it is recommended that a similar career planning program be conducted for all entering college freshmen so that realistic and satisfying college major decisions can be made in a less pressured atmosphere.

4. A follow-up study to determine if the persistence of these students is sustained through graduation from college is recommended.

5. A systemic study should be conducted to inquire as to whether the salutary impact of the Systematic Career Planning Program was the result of the administration of the career decision making instrument and other instruments or whether the benefits of the program were the result of the efforts of a trained professional adult, or both.

6. If the attention of a professional counselor is proven to be of value to students in making choices, then more attention needs to be given to developing the counseling skills of faculty and selected staff in institutions of higher education.

BIBLIOGRAPHY

BIBLIOGRAPHY

Astin, A. W. (1975). Preventing students from dropping out. San Francisco: Jossey-Bass.

Baird, L. L. (1969). The undecided student - how different is he? Personnel and Guidance Journal, 47, 429-434.

Beal, P. E. and Noel, L. (1980). What works in student retention. Joint Project Report. Iowa City: American College Testing Program and the National Center for Higher Education Management Systems.

Bennett, M. E. (1963). Guidance and counseling in groups. New York: McGraw-Hill.

Bolles, R. N. (1977). What color is your parachute? Berkley, CA: Ten Speed Press.

Bonar, J. R. & Mahler, L. R. (1976). A center for 'undecided' college students, Personnel and Guidance Journal, 54, 481-548.

Brown, S. G. (1985, September/October). Career planning: A systematized approach for seniors. The Black Collegian, pp. 88-93.

Brubacher, J. S. & Willis, R. (1976). Higher education in transition (3rd ed.). New York: Harper and Row.

Campbell, D. T. & Stanley, J. C. (1963). Experimental quasi-experimental designs for research. Chicago: Rand McNally.

Carter, A. L. (1980). Counseling today for tomorrow. Journal of Non-White Concerns, 8, 186-191.

Chapman, E. N. (1974). College survival. Palo Alto, CA: Science Research Associates.

Cope, R. G. & Hannah, W. (1975). Revolving college doors: The causes and consequences of dropping out, stopping out, or transferring. New York: Wiley and Sons.

Cope, R. G. (1978). Why students stay, why they leave. In L. Noel (ed.), New directions for student services: Reducing the dropout rate (p. 4). San Francisco: Jossey-Bass.

Crites, J. O. (1965). Measurements of vocational maturity in adolescence. 1: Attitude tests of vocational development inventory. Psychological Monographs, 79, 1-36.

Cross, K. P. (1972). New students and new needs in higher education. Berkley: Center for Research and Development in Higher Education, University of California.

Cunningham, W. G. (1982). Systematic planning for educational change. Palo Alto, CA: Mayfield Publishing Company.

Curtis, W. H. (1986). Educational resources management system. Chicago: Rearch Corporation of the Association of School Business Officials.

Cutler, A., Ferry F., Kauk, R., & Robinett, R. (1983). The college major handbook. Meadow Vista, CA: Career Materials.

Davis, R. C. (1984). A comparison of a career course and small group career counseling on the career decidedness and career maturity of college students. (Doctoral Dissertation, Indiana State University). Dissertation Abstracts International, 45.

Figler, H. (1969). The complete job search handbook. New York: Holt, Rinehart and Winston.

Foote, B. (1980). Determined - and undetermined - major students: How different are they? Journal of College Student Personnel, 21, 29-33.

Frances, C. (1985, December). Major trends shaping the outlook for higher education. AAHE Bulletin, 3-7.

Gardner, J. N. & Jewler, A. J. (1984). College is only the beginning. Belmont, CA: Wadsworth.

Gelott, H. B., Varenhorst, B., Carey, R., & Miller, P. M. (1973). Decisions. New York: College Entrance Examination Board.

Goldenthal, A. B. (1967). Your career selection guide. New York: Simon and Schuster.

Gordon, V. N. (1984). Educational planning: Helping students make decisions. In R. B. Winston, T. K. Miller, S. C. Ender and T. C. Grites (Ed.), Developmental academic advising (p. 125). San Francisco: Jossey-Bass.

Gordon, V. N. (1981). The undecided student: A developmental perspective. The Personnel and Guidance Journal, 59, 433-439.

Habley, W. R. (1984). Integrating academic advising and career planning. In R. B. Winston, T. K. Miller, S. C. Ender, and T. C. Grites (Ed.), Developmental academic advising (pp. 147-172). San Francisco: Jossey-Bass.

Harness, C. A. (1976). Career counseling. Springfield, IL: Charles C. Thomas.

Harren, V. A. (1974). A model of career decision making for college students. Journal of Vocational Behavior, 14, 119-133.

Haymon, F. E., Pollard, D. E. & Bobby, A. M. (1979). Re-entering the job market for minority women. Journal of Non-White Concerns, 8, 31-51.

Hecklinger, F. J. (1972). The undecided student - is he less satisfied with college? Journal of College Student Personnel, 13, 247-251.

Henderson, A. D. & Henderson, J. (1974). Higher education in America. San Francisco: Jossey-Bass.

Hillery, M. C. (1978). Maintaining enrollments through career planning. In Noel (Ed.), Reducing the dropout rates: New directions for student services (pp. 13-22). San Francisco: Jossey-Bass.

Holland, J. L. & Holland, J. E. (1977). Vocational indecision: More evidence and speculation. Journal of Counseling Psychology, 24, 404-414.

Hoppock, R. (1957). Occupational information. New York: McGraw-Hill.

Issac, S. & Michael, J. E. (1978). Handbook in research and evaluation. San Diego, CA: Edits Publishers.

Janis, I. L. & Mann, L. (1977). Decision making: A psychological analysis of conflict, choice and commitment. New York: Collier MacMillan.

Johnson, Richard G. (1985). Microcomputer assisted career exploration. The Vocational Guidance Quarterly, 33, 296-304.

Jones, M. C. (1983, September/October). Planning a successful career: Taking it one step at a time. The Black Collegian, 78-83.

Jones, S. M. (1983). The impact of a career planning workshop on freshman student participants on short-term retention, first semester grade point average and questionnaire response. (Doctoral Dissertation, Mississippi State University). Dissertation Abstracts International, 44, 673A-674A.

Kenneke, L. J. (1973). Career development activities. Indiana: Howard W. Sams and Company.

Kesselman, J. R. (1976). Stopping out. New York: M. Evans and Company.

Korn, H. A. (1968). Careers: choice, chance or inertia. In J. Katz (Ed.), No time for youths. San Francisco: Jossey-Bass.

Krukowski, J. (1985). What do students want?, status. Change, 17, 21-28.

Kuhlen, R. G. & Thompson, G. G. (1963). Psychological studies of human development. New York: Appleton-Century-Crofts.

Lancaster, J. L. (1984). About being an undecided major. In J. N. Gardner & A. J. Jewler (Eds.), College is only the beginning (pp. 107-119). Belmont, CA: Wadsworth.

Lee, J. L. & Pulvino, C. J. (1981). Who am I. Self exploration inventories. Minnesota: Educational Media Corporation.

Lenning, O. T., Beal, P. E. & Sauer, K. (1980). Attrition and retention: Evidence for action and research. In P. E. Beal and L. Noel (Eds.), What works in student retention (p. 3). The American College Testing Program and the National Center for Higher Education Management Systems.

Leverett, D.M., Clancy, T. M. & Case, R. (1985). Career opportunity index. Fountain Valley, CA: Career Research Systems.

Lovejoy, C. E. (1978). Lovejoy's career and vocational school guide. New York: Simon and Schuster.

McWhirter, J. J., Nicholas, E. & Banks, N. M. (1984). Career awareness and self-exploration (case) groups: A self-assessment model for career decision making. Personnel and Guidance Journal, 62, 580-582.

Mencke, R. & Hummel, R. L. (1984). Career planning for the 80s. Monterey, CA: Brooks and Cole.

Merluzzi, T. (1974). Black students, the counseling teaching convergence, and the white teacher. Unpublished manuscript, Ohio State University.

Miller, D. L. (1980). The effects of self-esteem and vocational self-exploration activity on career maturity attitudes (Doctoral dissertation, Duke University, 1980). Dissertation Abstracts International, 41, 4982A-4983A.

Noel, L. (1978). New direction for student services: Reducing the dropout rate. San Francisco: Jossey-Bass.

Norback, C. T. (1980). Career encyclopedia. Homework, IL: Dow Jones-Irwin.

Norfolk State University Catalogue (1984-86). Norfolk, VA: Norfolk State University.

Occupational outlook handbook. (1984-85 ed.). Washington, D. C.: U. S. Department of Labor.

O'Keefe, M. (1985). Whatever happened to the crash of '80, '81, '82, '83, '84, '85? Change, 17, 36-41.

Parker, W. M., Schuble, Paul G. & Altmaier, E. M. (1979). Improving self-concept and learning skills of marginal black students: A seminar approach. Journal of Non-White Concerns, 8,21-29.

Pitcher, R. W. (1970). Why college students fail. New York: Funk and Wagnalls.

Poinsett, A. (1982, March). Bright job prospects for 1980s, Ebony, pp. 93-97.

Powell, C. R. (1981). Career planning today. Dubuque, IA: Kendall/Hunt Publishing Company.

Richmond, M. (1979). Strategies for recruiting minority students. College Student Journal, 13, 200-205.

Rolls, G. A. (1981). Creating learning environments for improved student retention. Southern Association of Colleges and Schools.

Roueche, J. E. & Watkins, K. (1982). A commitment to great teaching, Community and Junior College Journal, 53, 22-25.

Russell, A. & Fitzgibbons, P. (1982). Career and conflict: A woman's guide to making life choices. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Rye, J. C. (1970). Some characteristics of selected freshmen identified as certain or uncertain about their choice of academic majors at the time enrolled in Oregon State University fall term. (Doctoral Dissertation, Oregon State University, 1972). Dissertation Abstract International, 3058A.

Salmone, P. R. (1982). Difficult cases in career counseling: II - The indecisive client. The Personnel and Guidance Journal, 60, 496-499.

Sampson, O. & Proctor, R. (1984). Career patterns of social science graduates, 1971-1981. Unpublished Manuscript, Norfolk State University.

Scott, R. R. (1984). Determining the effectiveness of campus services. San Francisco: Jossey-Bass.

Sedlacek, W. & Webster, D. W. (1984). Admission and retention of minority students in large universities. In M. L. Upcraft (Ed.), Orienting students to college (p. 53). San Francisco: Jossey-Bass.

Shertzer, Bruce. (1985). Career planning. Boston: Houghton Mifflin.

Simon, S. B., Howe, L. W. & Kirschenbaus, H. (1972). Values clarification. New York: Hart Publishing Company.

Smaby, M. H. & Tamminen A. W. (1978). Counseling for decisions, The Personnel and Guidance Journal, 57, 106-110.

Smith, L. N., Lippit, R., Noel, L. & Sprandel, D. (1981). Mobilizing the campus for retention: An innovative quality of life model. Iowa City, IA: Braun-Brunfield.

Smith, M. O. (1986). Learning about black student retention from black universities. Unpublished manuscript, Norfolk State University.

Smith, M. O. (1985). Perspective: The impact of external forces on the retention of black students in black colleges and universities. Paper presented at the National Conference on Black Student Retention at Historically Black Colleges and Universities, Lake Buena Vista, FL.

Stephen, I. & Michael, W. B. (1971). Handbook in research and evaluation. San Diego, CA: Edits Publishers.

Super, D. E. (1957). The psychology of careers. New York: Harper and Row.

Thomas, G. (1981). Black students in higher education: Conditions and experiences in the 1970's. Westport, CT: Greenwood Press.

Thompson, O. E. (1967). Impact of commitment upon performance of college students. Personnel and Guidance Journal, 44, 503-506.

Tiedman, D. V. & O'Hara, R. (1963). Development: Choice and adjustment. New York: College Entrance Examination Board.

Titley, R. W. & Titley, B. W. (1980). Initial choice of college major: Are only the "undecided" undecided? Journal of College Student Personnel, 21, 293-298.

Traxler, A. E. and North, R. D. (1966). Techniques of guidance. New York: Harper and Row.

Turner, R. (1980). Factors influencing the retention of minority students in the 1980's: Opinions and impressions. Journal of Non-White Concerns, 8, 204-214.

Tyler, E. (1961). The work of the counselor. New York: Appleton-Century-Crofts.

Upcraft, M. L. (1984). Orienting students to college. San Francisco: Jossey-Bass, Inc.

Walters, L. (1981). Academic advising: An individual on group training program. Iowa City, IA: The American Test Program.

Warga, R. G. (1983). Personal awareness. Boston: Houghton Mifflin.

Warnath, C. F. & Associates (1973). New direction for college counselors. San Francisco: Jossey-Bass.

Winston, R. B., Miller, T. K., Ender, S. C. & Grites, T. J. and Associates. (1984). Developmental academic advising. San Francisco: Jossey-Bass.

Wright, D. J. (1984). Orienting minority students. In M. L. Upcraft (Ed.), Orienting students to college (p. 53-65). San Francisco: Jossey-Bass.

Yates, H. D. (1982). The effects of a formal career laboratory. Program on the career maturity of academically undecided junior college students. (Doctoral Dissertation, University of Alabama). Dissertation Abstract International, 44, 393A.

APPENDICES

APPENDIX A

LETTER OF APPLICATION TO CONDUCT STUDY

Appendix A

Letter of Application To Conduct Study

Dear Dr. Allen:

Currently, I am enrolled in the doctoral program at Virginia Polytechnic Institute and State University. My dissertation plan is to conduct an experimental study to investigate the impact of a Systematic Career Planning Program on short-term retention and college major selection of entering college freshmen. My committee advisor has approved the idea.

I am requesting your permission to use a select group of entering freshmen at Norfolk State University in the conduct of this study. Enclosed are three copies of my proposed research methodology for your review and comments.

It would be appreciated if you would grant me permission to identify a select sample from the entering college freshmen population.

I hope to hear from you soon.

Sincerely,

Dorothy M. Goodson
Professional Counselor, LPC, NCC

DMG/g

Enclosures (3)

APPENDIX B

MEMORANDA OF APPROVAL TO CONDUCT STUDY

NORFOLK STATE UNIVERSITY
2401 Corprew Avenue.
Norfolk, Virginia 23504

Office of Institutional Research
Planning, Management, and Evaluation

M E M O R A N D U M

TO: Dr. Jesse Lewis
Dr. James Satterfield

FROM: _____
Dr. Maxine B. Allen, Director

DATE: September 4, 1985

RE: Approval for study

Please review the enclosed Proposed Research Methodology by Dorothy M. Goodson. If you approve her study, please indicate same by signing below and returning the signed copy to me by September 6.

( ) Approved	( ) Approved	(✓) Approved
( ) Disapprove	( ) Disapproved	( ) Disapproved
_____	_____	_____
Dr. Jesse Lewis	Dr. James Satterfield	Dr. Maxine B. Allen

MBA/ems

Enclosure

NORFOLK STATE UNIVERSITY
2401 Corprew Avenue
Norfolk, Virginia 23504

Office of Institutional Research
Planning, Management, and Evaluation

M E M O R A N D U M

TO: [redacted]
Dr. James Satterfield

FROM: Dr. Maxine B. Allen, Director

DATE: September 4, 1985

RE: Approval for study

Please review the enclosed Proposed Research Methodology by Dorothy M. Goodson. If you approve her study, please indicate same by signing below and returning the signed copy to me by September 6.

(✓) Approved	( ) Approved	( ) Approved
( ) Disapprove	( ) Disapproved	( ) Disapproved
Dr. Jesse Lewis	Dr. James Satterfield	Dr. Maxine B. Allen

MBA/ems

Enclosure

NORFOLK STATE UNIVERSITY
2401 Corprew Avenue
Norfolk, Virginia 23504

Office of Institutional Research
Planning, Management, and Evaluation

M E M O R A N D U M

TO: Dr. Jesse Lewis

FROM: Dr. Maxine B. Allen, Director

DATE: September 4, 1985

RE: Approval for study

Please review the enclosed Proposed Research Methodology by Dorothy M. Goodson. If you approve her study, please indicate same by signing below and returning the signed copy to me by September 6.

( ) Approved	(✓) Approved	( ) Approved
( ) Disapprove	( ) Disapproved	( ) Disapproved
Dr. Jesse Lewis	Dr. James Satterfield	Dr. Maxine B. Allen

MBA/ems

Enclosure

APPENDIX C

LETTER OF REQUEST FOR RELEASE OF EXPERIMENTAL, CONTROL, AND COMPARISON GROUPS PARTICIPANTS' RECORDS

Appendix C

Letter of Request for Release of Experimental, Control, And Comparison Groups Participants' Records

June 27, 1986

Mr. Roscoe Black, Registrar
Norfolk State University
2401 Corprew Avenue
Norfolk, VA 23504

Dear Mr. Black:

I have been granted permission to conduct a study with a randomly selected group of entering freshmen at Norfolk State University. The study requires demographic data about the students, as well as academic information.

It is realized that students' names may appear on some of these documents; however, all information will be kept confidential.

Your assistance will be appreciated.

Sincerely,

Dorothy M. Goodson

DMG/g

APPENDIX D

ACCESS TO RECORDS AGREEMENT

NORFOLK STATE UNIVERSITY
2401 Corprew Avenue
Norfolk, Virginia 23504

Office Of
The Registrar

Access to Records Agreement

I, _____, understand that I am to comply with all the regulations in the Privacy Act and the University Policy regarding the release of students' information to be used for the purpose of research by faculty and/or administrative staff and that I will not release any of the information in a manner which the student involved can be personally identified.

Date July 3, 1986

APPENDIX E

LETTER OF INVITATION AND CONFIRMATION FOR EXPERIMENTAL GROUP PARTICIPANTS

Appendix E

Letter of Invitation and Confirmation For
Experimental Group Participants

October 23, 1985

Dear

You have been randomly selected from the entering freshmen population at Norfolk State University to participate in a Systematic Career Planning Program. This program is designed to assist you in selecting a college major that best suits your needs. Your participation in this program will also provide us with pertinent information necessary to conduct a study relative to college major selection and short-term retention of entering freshmen at Norfolk State University.

All information will be handled in a confidential manner.

Your participation will be appreciated.

Sincerely,

Dorothy M. Goodson
Professional Counselor, LPC, NCC

DMG/g

I will participate. _____

Signature

I will not participate _____

Signature

APPENDIX F

SYSTEMATIC CAREER PLANNING PROGRAM

Appendix F

Systematic Career Planning Program

I. OVERVIEW

A. Introduction of program coordinator and participants

B. Purpose of the program

C. Confirmation of participants' willingness to participate in program

D. Completion of personal data form

E. Completion of "Who Am I"? inventory (Lee and Pulvino, 1981)

F. Completion of "What Are Your Occupational Values?" (Lee and Pulvino, 1981)

II. SELF ASSESSMENT

A. Discuss results of "Who Am I"? and "What Are Your Occupational Values?" inventories (Lee and Pulvino, 1981)

B. Overview of The Major-Minor-Finder

C. Self administering of The Major-Minor-Finder

D. Self scoring of The Major-Minor-Finder

E. Completion of research of The Major-Minor-Finder

III. CAREER EXPLORATION

A. Discuss results of The Major-Minor-Finder

B. Review career related materials

1. The College Major Handbook
2. Occupational Outlook Handbook
3. The Dictionary of Occupational Titles
4. The College Handbook
5. Norfolk State University Catalog

6. College Major - Occupational Index
7. College Majors Careers Kit
8. "Ten Do's and Don'ts in Selecting a Major and Choosing a Career" - Author unknown
9. "Guidelines that Help in Making a Career Choice"
10. "Bright Job Prospects for 1980's" - Poinsett
11. "Good Jobs in 1990" - Occupational Forecasting, Inc.
12. "Counseling Assignment by Schools at Norfolk State University"
13. "Schools and Departments at Norfolk State University"
14. "Undergraduate Programs at Norfolk State University"
15. "Instructions for completing the Change of Major Form"
16. "Petition to Change Major" - Norfolk State University

C. Visit NSU Counseling Center Library and Student Development Center

IV. CAREER AWARENESS

A. Assignment

1. Write a paragraph relative to your future plans for attending NSU and indicate how the courses in which you are enrolled are related to your career goals.
2. Complete "Petition to Change Major" form

B. Field Study

1. Interview with representative(s) in field(s) of interest
2. Conference with academic advisor

V. CAREER DECISION MAKING

A. Submission or non-submission of "Petition to Change Major" form

B. Submission of a paragraph relative to your future plans for attending NSU and the relationship between your studies at NSU and your career goals

C. Evaluation

APPENDIX G

SYSTEMATIC CAREER PLANNING PROGRAM
TIME SCHEDULE

Appendix G

Systematic Career Planning Program Schedule

SESSION ONE Group Activity (1 hr.) Homework (1 hr.)	INTRODUCTION Introduction of Participants and Researcher Overview of Program Complete Personal Data form Complete "Who Am I"? Inventory Complete "What Are Your Occupational Values"? Inventory
SESSION TWO Group Activity (1 hr.) Homework (2 hrs.) Individual Conferences	SELF ASSESSMENT Discuss "Who Am I"? and "What Are Your Occupational Values"? Inventories Overview - The Major-Minor-Finder Administration - The Major-Minor-Finder Self Scoring - The Major-Minor-Finder Research - The Major-Minor-Finder
SESSION THREE Group Activity (1 hr.) Individual Conference	CAREER EXPLORATION Discuss results of The Major-Minor-Finder Distribute and review career materials Visit NSU Counseling Center, Library, and Student Development Center
SESSION FOUR Group Activity (1 hr.) Field Study and Homework (3 Hrs.) Individual Conference	CAREER AWARENESS Interview representative(s) in field(s) of interest Visit academic advisor Construct paragraph Complete Decision-Making Guide for Choosing a Major
SESSION FIVE Group Activity (1 hr.)	CAREER DECISION MAKING Complete "Petition to Change Major" form Submit "Petition to Change Major" form Submit paragraph

APPENDIX H

PERSONAL DATA FORM
FOR EXPERIMENTAL GROUP PARTICIPANTS

Appendix H

Personal Data Form

NAME _____ Soc. Sec. No. _____

Local Address _____
Street

_____
City State Zip Code

Telephone No.: Home _____ Work _____

Sex: Male_____ Female_____ Age:_____

Marital Status: ___Single ___Married ___Divorced ___Separated ___Widow

Classification: ____Fresh. ____Soph. ____Jr. ____Sr.

Major: _____ Semester Hrs._____

Employment: ____Part-time ____Full-time ____None

Financial Aid: ____Yes ____No

Extracurricular Activities:

Club(s) _____

Athletics _____

Organization(s) _____

==========

CONFERENCE RECORD

Date	Comments
_____	_____
	_____
_____	_____
	_____
_____	_____
	_____

APPENDIX I

LETTER OF REQUEST TO REPRODUCE COPIES OF THE MAJOR-MINOR-FINDER AND NOTE OF APPROVAL

148 Settlers Landing Road
Hampton, Virginia 23669

October 25, 1986

CFKR Career Materials
P.O. Box 437
Meadow Vista, Calif. 95722

Dear Sir:

I have used the MAJOR MINOR FINDER as a treatment variable in a research project.

Please give me your permission to reproduce copies of the tool to include in the appendix of my study.

A self-addressed return envelope is enclosed.

Your assistance is appreciated.

Sincerely,

Dorothy M. Goodson
Professional Counselor

Dear Ms. Goodson —

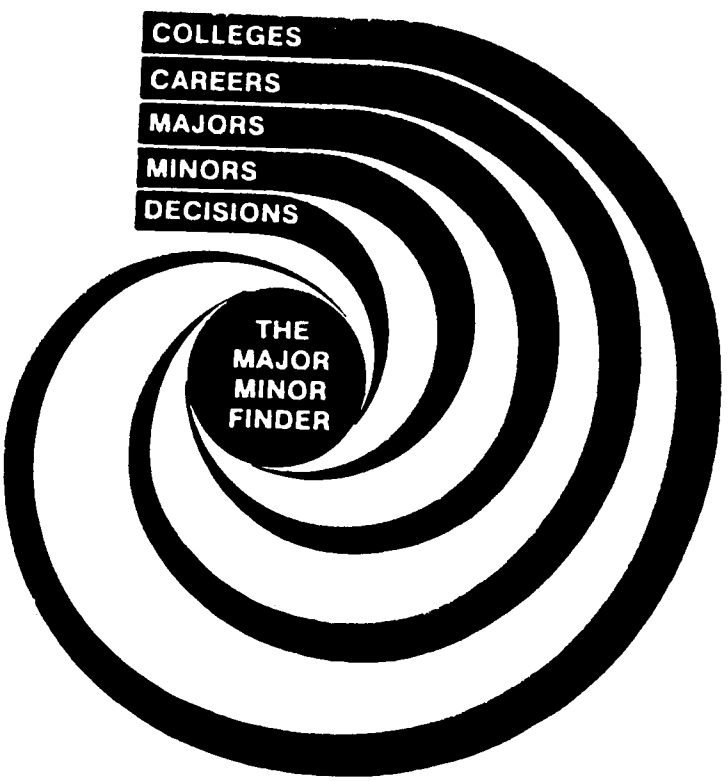
Although our materials are copywritten, we will give you permission to include reproduced copies in your study. We would like to receive a copy of your project when finished. Thank you.

Sincerely,

APPENDIX J

THE MAJOR-MINOR-FINDER

THE MAJOR-MINOR-FINDER



FOREWORD TO THE COLLEGE-BOUND STUDENT

PLEASE READ THIS PAGE CAREFULLY!

What courses do you want to take when you go to college?

What field of work do you want to enter after college?

What are some of your school interests?

How can you match your school interests with a college plan?

The MAJOR-MINOR-FINDER will help you to answer all of these questions. It is designed to acquaint you with the facts and information concerning most of the major fields of study offered in four-year college programs. As you go through the MAJOR-MINOR-FINDER you should keep these important points in mind:

1. *THE MAJOR-MINOR-FINDER IS DESIGNED FOR STUDENTS WHO WISH TO COMPLETE FOUR-YEAR COLLEGE MAJORS.* This can be accomplished by either entering a four-year college or by transferring from an accredited two-year college.

2. *THE MAJOR-MINOR-FINDER IS EXPLORATORY ONLY.* It will help you to explore representative college majors. Before making final decisions, be sure to consider your ability and aptitudes. Be honest and realistic with yourself.

3. *A COLLEGE MAJOR IS DEFINED AS A CONCENTRATED FIELD OF STUDY.* A minor is less concentrated and often related to the major. Major and minor course offerings and requirements vary from college to college. Be sure to refer to COLLEGE CATALOGS for specific information.

GO TO PAGE 2 AND CAREFULLY FOLLOW THE DIRECTIONS .....

DIRECTIONS

The MAJOR-MINOR-FINDER will take you through these three steps:

STEP 1. Put the INSERT FOLDER entitled MAJOR-MINOR-FINDER between pages 8-13 in this booklet so that the boxes at the top of the INSERT FOLDER can be seen above page 3.

STEP 2. Answer each question on pages 3, 5 and 7. Place your answers in the boxes of the INSERT FOLDER.

STEP 3. When finished with the questions, follow the directions on page 8 of this booklet to complete your MAJOR-MINOR SEARCH.

YOU ARE NOW READY TO BEGIN.

GO TO PAGE 3 .....

PLEASE DO NOT MARK IN THIS REUSABLE BOOKLET

WHAT FIELD OF WORK DO YOU WANT TO ENTER AFTER COLLEGE?

Listed below are seven *general fields* of work. A general field of work has related jobs that have common working conditions. Some examples of jobs within each general field are given below. If you are interested in a job that is not listed, just consider to which group it would be related.

IN WHICH OF THE GENERAL FIELDS BELOW DO YOU THINK YOUR ABILITIES AND INTERESTS BEST MATCH? Place the letter of the general field you like best in Box A of the INSERT FOLDER above. If you feel equally strong about two general fields, place both letters in the box.

A **OFFICE, MANAGEMENT, SALES, BUSINESS OCCUPATIONS**
(Accountant, Auditor, Advertising Worker, Bank Officer, Business Administrator, Personnel Worker, Public Relations Worker, Marketing Researcher, Urban Planner, etc., etc.)

B **SCIENTIFIC, AGRICULTURAL, MATHEMATICAL OCCUPATIONS**
(Astronomer, Biologist, Botanist, Chemist, Forester, Geologist, Oceanographer, Physicist, Statistician, Wildlife Specialist, Zoologist, etc., etc.)

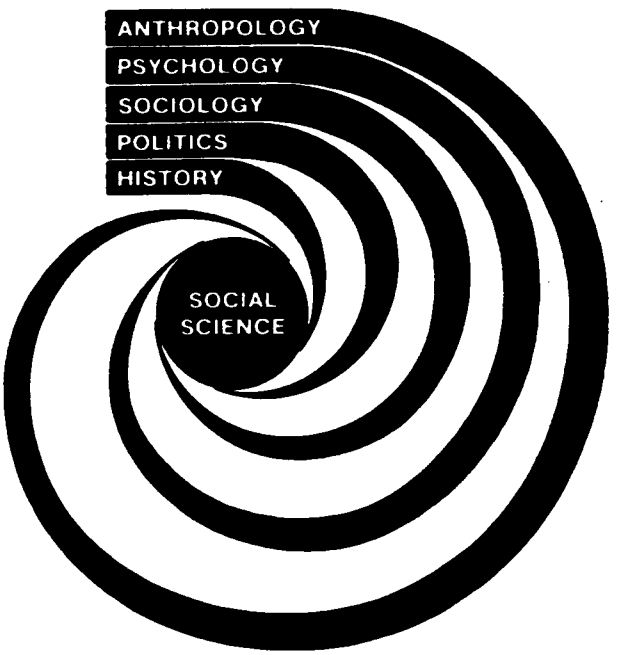
C **ENGINEERING AND APPLIED TECHNICAL OCCUPATIONS**
(Computer Scientist, Drafting Designer, Engineer, Pilot, Surveyor, Systems Analyst, Technician, etc., etc.)

D **MEDICAL SCIENCE, HEALTH OCCUPATIONS**
(Dental Hygienist, Dentist, Dietician, Medical Technologist, Optometrist, Pharmacist, Physician, Nurse, Occupational Therapist, Physical Therapist, Veterinarian, etc., etc.)

E **SOCIAL SERVICE, EDUCATION OCCUPATIONS**
(Counselor, Clergy, Home Economist, Librarian, Probation Officer, Teacher, etc., etc.)

F **SOCIAL SCIENCE, LEGAL OCCUPATIONS**
(Anthropologist, Economist, Geographer, Historian, Lawyer, Political Scientist, Psychologist, Sociologist, etc., etc.)

G **ART, DESIGN, COMMUNICATIONS OCCUPATIONS.**
(Actor/Actress, Author, Architect, Artist, Dancer, Linguist, Musician, Photographer, Professional Athlete, Technical Writer, etc., etc.)


ANTHROPOLOGY
PSYCHOLOGY
SOCIOLOGY
POLITICS
HISTORY
SOCIAL
SCIENCE

WHAT COURSES WOULD YOU MOST WANT TO TAKE IN COLLEGE?

Listed below are seven *general areas* in which you can take college courses. Each area is defined in terms of *what you do* in that area and *what skills are required.*

IN WHICH OF THE GENERAL AREAS BELOW DO YOU THINK YOU ARE THE MOST QUALIFIED AND INTERESTED? Place the letter of that general area in Box B above. If you feel equally strong about two general areas place both letters in the box.

A **PHILOSOPHY-HUMANITIES-LITERATURE**
A broad scope of intellectual inquiry into values, humanistic studies and understandings . . . reading, writing, discussion, and critical thinking are required.

B **BUSINESS-ECONOMICS-MARKETING**
The structure and management of business organizations and economic systems . . . computational skills and an interest in business activities are required.

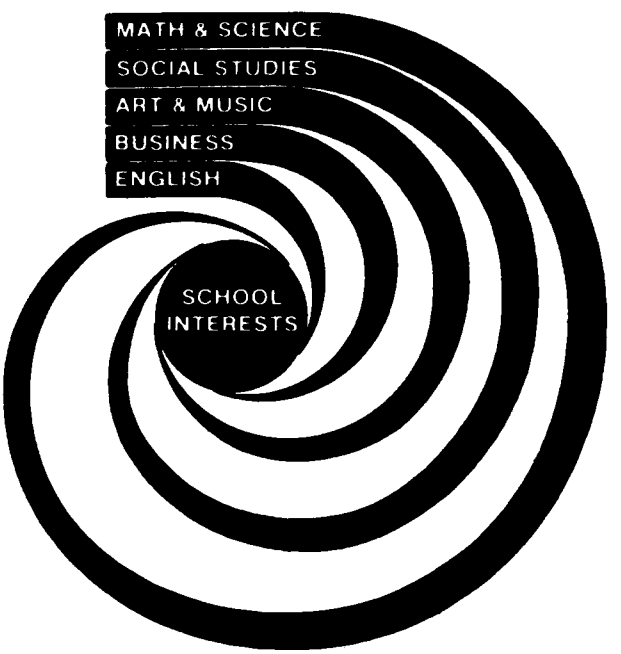
C **SOCIAL SCIENCE**
Scientific studies of the social, historical, and psychological relationships of man . . . considerable reading, critical thinking, and a strong interest in human behavior are required.

D **PHYSICAL SCIENCE**
An investigation into the basic properties and laws of physical matter — as opposed to living matter . . . mathematics skills, a willingness to do precise measurement, scientific thinking, and laboratory work are required.

E **LIFE SCIENCE**
An investigation into the life systems and the environmental support systems of living matter (plants and/or animals) . . . mathematics skills, a willingness to do precise measurement, scientific thinking, and laboratory work are required.

F **APPLIED SCIENCE**
The use of the techniques and knowledge of science to engineer, develop, or design a product or technology useful to man . . . mathematics skills, scientific knowledge, and technical skills are required.

G **CREATIVE ARTS**
The use of special skills in music, art, dance, athletics, and/or drama to enhance the creative and aesthetic quality of life . . . creativity, originality, and special talents are required.


MATH & SCIENCE
SOCIAL STUDIES
ART & MUSIC
BUSINESS
ENGLISH
SCHOOL
INTERESTS

RATE YOUR SCHOOL INTERESTS

Listed below are nine questions that will help you to rate your school interests. Each question must be rated on a scale of one to six — from *very high* to *none*. (See the six ratings below.)

FOR EACH QUESTION BELOW, DECIDE WHICH NUMBER ON THE RATING SCALE *BEST* APPLIES TO YOU and place that number in the appropriate box above.

1. very high 2. high 3. some 4. little 5. very little 6. none

1 How much interest do you have in reading, studying, and analyzing mathematics problems?

2 How much interest do you have in reading, studying, and analyzing science materials?

3 How much interest do you have in reading, studying, and analyzing social studies materials?

4 How much interest do you have in reading, studying, and analyzing business, economics and financial materials?

5 How much interest do you have in reading, studying, and analyzing literature, art, and humanities materials?

6 How much interest do you have in reading, studying, and analyzing environmental and ecological materials?

7 How much interest do you have in studying subjects that would lead you into work in which you would have a *direct* and *responsible* relationship in helping people?

8 How much interest do you have in studying subjects in which you could improve your verbal and/or your writing ability so as to be more persuasive and influential?

9 How much interest do you have in working, in a precise way, with tools, instruments, and/or your hands?

GO TO PAGE 8 AND FOLLOW THE DIRECTIONS TO COMPLETE YOUR MAJOR-MINOR SEARCH . . . . . .

HOW DO YOUR INTERESTS MATCH WITH COLLEGE MAJORS?

On pages 13-16 you will find lists of four-year college majors. To the right of each major are letters and numbers. To find out how many matches you have with each major:

1. Place your INSERT FOLDER under each MAJOR (start with Accounting) and line up your letters and numbers with the letters and numbers of each major.

2. Look from left to right. When a letter or number in one of your boxes is the same as a letter or number directly above, that is a MATCH. Count the number of MATCHES that you have with each MAJOR. (Note: If there are two letters or numbers above, and if you match *either one* count that as a match.)

3. See the last column entitled "MATCHES" on your INSERT FOLDER. Write the number of matches that you have with each major in this column.

4. Continue matching your letters and numbers with all the MAJORS. Count and record the number of matches on the INSERT FOLDER. Transfer your letters and numbers to the boxes on page 10 and 11 of the INSERT FOLDER and continue until finished with all MAJORS.

5. When you are finished, turn to page 12 of the INSERT FOLDER to research the MAJORS that interest you. The information that you find will help you to make some decisions regarding: (a) The field of work that you want to enter; (b) The courses that you want to take in college; (c) The match of your school interests with a college plan.

INSERT FOLDER
MAJOR-MINOR-FINDER

A B 1 2 3 4 5 6 7 8 9

SEE EXPLANATIONS OF COLUMNS AT BOTTOM OF PAGE

COLLEGE MAJORS	A SOME JOBS RELATED TO THE MAJOR	B NUMBER OF WORKERS IN MAJOR	C JOB OUTLOOK	D AVERAGE SALARY	E NUMBER OF COLLEGES OFFERING MAJOR	F SKILLS AND INTERESTS REQUIRED FOR COLLEGE AND JOB SUCCESS	NUMBER OF MATCHES
ACCOUNTING	ACCOUNTANT, Bank Examiner, Auditor, Business Administrator, FBI	980,000	XXX	23,000	XXXX	Math, Computational Skills Precision, Accuracy, Details	
ACTUARIAL SCIENCE	ACTUARY, Statistician Mathematician	9,200	XXX	28,000	X	Math, Computational Skills Details, Problem Solving	
ADVERTISING	ADVERTISING WORKER, Copywriter Marketing Research Worker	185,000	XX	24,000	XXX	Sales, Merchandising Promotion, Creativity, People	
AEROSPACE ENGINEERING	AEROSPACE ENGINEER, Designer, Spacecraft Designer, Pilot	62,000	XXX	27,000	X	Math, Science, Drafting Design, Creativity	
AGRICULTURE (Science)	AGRICULTURAL SCIENTIST, Farmer Soil Conservationist, Govt. Scientist	50,000	XX	23,000	XX	Soils, Crops, Animals Nature, Biology, Math	
AGRICULTURE (Management)	AGRIC. EXTENSION DIRECTOR, Farm/ Ranch Manager, Market Analyst	37,000	XX	22,000	XX	Farming, Ranching, People Sales, Math, Accounting	
AGRICULTURAL ENGINEERING	AGRICULTURAL ENG., Food Process Eng., Ag. Machinery Designer	15,000	XXX	27,700	X	Math, Science, Design Mechanics, Drafting	
AGRONOMY	AGRONOMIST, Geneticist, Soils Scientist, Plant Scientist	6,000	XX	22,000	XX	Soils, Crops, Food Production Biology, Chemistry, Earth Science	
ANIMAL SCIENCE	ANIMAL SCIENTIST, Rancher Veterinarian, Zoologist	Undetermined	XX	24,00	XXX	Animals, Biology, Environment Math, Genetics, Breeding	
ANTHROPOLOGY/ARCHAEOLOGY	ANTHROPOLOGIST, Archaeologist, Curator, Ethnologist	8,000	XX	27,000	XXX	People, Social & Physical Sci., Reading, Research, Writing	
ARCHITECTURE	ARCHITECT, Urban Planner, Designer, Landscape Architect	55,000	X	28,000+	X	Design, Drafting, Math Creativity, Originality, Art	
ART (Fine Arts)	ARTIST, Fine Art Teacher Freelance Artist, Studio Artist	120,000	X	Varies	XXXX	Art, Painting, Creating Color, Design, Originality	
ART (Graphic Arts)	GRAPHIC ARTIST, Layout Artist, Illustrator, Photographer		X	Varies	XXXX	Art, Lettering, Rendering, Printing, Design, Layout, Photography	
ART	ARTIST, Art Appraiser, Art Librarian, Curator, Teacher		X	Varies	XXXX	Art, History, Languages Social Studies, Humanities	
ASTRONOMY	ASTRONOMER, Astrophysicist Mathematician, Physicist	2,000	X	34,000	X	Physics, Math, Statistics Problem Solving, Outer Space	
BACTERIOLOGY	MICROBIOLOGIST, Biologist, Lab Technologist, Virologist	6,000	XX	23,000	XX	Biology, Chemistry, Health Microscopic Work, Lab Work	
BANKING/FINANCE	BANK OFFICER, Trust Officer Insurance Officer, Financier	340,000	XXX	27,000+	XXX	People, Finance, Accounting Managing, Responsibility	
BEHAVIORAL SCIENCES	PSYCHOLOGIST, Sociologist Educator, Therapist	General Major	X	25,000	XXXX	People, Psychology, Social Sci. Research, Writing, Experimenting	
BIOCHEMISTRY	BIOCHEMIST, Chemist, Physiologist Biologist, Medical Researcher	21,000	XX	24,000	XX	Biology, Chemistry, Research Lab Work, Conducting Experiments	
BIOLOGY	BIOLOGIST, Biochemist, Marine Biologist, Food & Drug Inspector	110,000	XX	23,000	XXXX	Biology, Life Sciences Research, Lab Work	
BIOMEDICAL ENGINEERING	BIOMEDIC ENGINEER, Biological Eng. Science Engineer, Human Engineer	4,500	XXX	25,000	XXX	Math, Physics, Chemistry Biology, Health, Design	
BIOPHYSICS	BIOPHYSICIST, Health Physicist, Medical Researcher	6,000	XX	26,000	XX	Biology, Physics, Math Research, Lab Work	
BOTANY	BOTANIST, Horticulturist Agronomist, Biologist	3,200	XX	23,500	XXX	Plants, Environment Biology, Natural History	
BUSINESS ADMINISTRATION	BUSINESS ADMINISTRATOR, Manager Labor-Management-Relations	Undetermined	XXX	Wide Range	XXXX	Business, People, Responsibility Accounting, Organization, Sales	
CERAMIC ENGINEERING	CERAMIC ENGINEER Refractory/Microwave Engineering	14,000	XXX	27,000	XX	Physics, Chemistry, Math Design, Plastics, Ceramics	
CHEMISTRY	CHEMIST, Biochemist, Drug Inspector Food Scientist, Teacher	150,000	XX	26,000	XXXX	Chemistry, Physics, Biology Research, Lab Work, Math	
CHEMICAL ENGINEERING	CHEMICAL ENGINEER, Chemist, Environmental Control Engineer	55,000	XX	28,000	XXX	Chemistry, Physics, Math Mechanics, Design	
CHILD DEVELOPMENT	ELEMENTARY TEACHER, Psychologist Therapist, Social Worker	1,300	XX	General Major	XXXX	Young People, Psychology, Sci. Educ., Growth/Development	
CIVIL ENGINEERING	CIVIL ENGINEER, Structural Engineer Highway Engineer, Hydraulic Eng.	156,000	XXX	28,000	XXX	Math, Physics, Drafting Design, Mechanics, Construction	
CLOTHING/TEXTILES	HOME ECONOMIST, Interior Designer Fashion Designer, Buyer	Undetermined	X	Wide Range	XXX	Color Sense, Art, Design Fashion, Creativity	
COMPUTER SCIENCE	PROGRAMMER, Computer Scientist, Systems Analyst, Computer Engineer	280,000	XXX	23,000	XXX	Math, Logic, Basic Sciences Problem Solving, Details	
CRIMINAL JUSTICE	FBI, Probation Officer, Local Police Officer, Criminologist	8,500	X	30,000	XXX	Justice, People, Investigating Physical Ability, Public Service	
DAIRY SCIENCE	DAIRY SCIENTIST, Dairy Farmer Govt. Inspector, Food Scientist	Undetermined	XX	23,000	X	Animals, Biology, Chemistry Health, Business, Farming	

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D AVERAGE SALARY:
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E # OF COLLEGES OFFERING MAJOR:
XXXX More than 500
XXX 250-480
XX 100-240
X Less than 100
See the College Blue Book

TRANSFER YOUR LETTERS AND NUMBERS AND CONTINUE SEARCH →

A	B	1	2	3	4	5	6	7	8	9

SEE EXPLANATIONS OF COLUMNS AT BOTTOM OF PAGE

COLLEGE MAJORS	A SOME JOBS RELATED TO THE MAJOR	B NUMBER OF WORKERS IN MAJOR	C JOB OUTLOOK	D AVERAGE SALARY	E NUMBER OF COLLEGES OFFERING MAJOR	F SKILLS AND INTERESTS REQUIRED FOR COLLEGE AND JOB SUCCESS	NUMBER OF MATCHES
DESIGN	INTERIOR DESIGNER, Designer Planner, Industrial Designer	80,000	X	Varies	XXX	Math, Drawing, Mechanics Details, Art Skills, Rendering	
DIETETICS	DIETICIAN, Home Economist Nutritionist, Food Scientist	40,000	XXX	20,000	XX	Nutrition, Biology, Chemistry Health, Foods, People	
DRAMA/THEATER ARTS/SPEECH	ACTOR/ACTRESS, Dancer, Announcer, Director, Teacher	Undetermined	X	Varies	XXXX	Performing, Creativity, People, Speech, Music, Dance, Theater	
EARTH SCIENCES/GEOLOGY	GEOLOGIST, Geophysicist Physicist, Oceanographer	46,000	XXX	30,000	XXXX	Physical Sciences, Math Research, Lab Work	
ECOLOGY	ECOLOGIST, Environmental Scientist/Life Scientist	Undetermined	XX	26,000	X	Life/Physical Sciences Math, Environment, Ecology	
ECONOMICS	ECONOMIST, Financial Consultant Teacher, Statistician	135,000	XXX	30,000	XXXX	Math, Statistics, Social Studies Finance, Commerce, Research	
EDUCATION (Elementary)**	KINDERGARTEN/ELEM. TEACHER School Administrator, Counselor	1,300,000	XX	17,000	XXXX	Young Children, Public Service English, Social Studies, Science	
EDUCATION (Secondary)**	SECONDARY TEACHER, Counselor Administrator, Ed. Specialist	1,000,000	X	19,000	XXXX	Teach, Motivate, Influence Subject Specialty, Public Service	
EDUCATION (Special)**	SPECIAL EDUCATION TEACHER Psychologist, School Counselor	Special Study Area	XX	19,000	XXX	Teach Disadvantaged Students Understanding, Patience, Warmth	
ELECTRICAL ENGINEERING	ELECTRICAL ENG., Electronics Eng. Communications Eng., Radio Eng.	310,000	XXX	30,000	XXX	Math, Electronics, Physics Drafting, Design, Construction	
ENGLISH	ENGLISH TEACHER, Literary Writer, Information Specialist, Journalist	180,000	X	19,000	XXXX	English, Writing, Reading Verbal/Communications Skills	
ENGINEERING (Science Tech)	AERO. TECH., Bio Tech, Geo. Tech, Ag. Tech, Heating Tech.	650,000	XXX	18,000	XXXX	Math, Basic Sciences Lab Work, Technical Work	
ENVIRONMENTAL SCIENCE	ENVIRONMENTAL SCIENTIST/Teacher Meteorologist, Oceanographer	Undetermined	XX	26,000	XX	Basic Sciences, Math, Natural Resources, Pollution Control	
FISH/GAME/WILDLIFE	FISH/GAME/WILDLIFE WARDEN, Forester, Range Manager	3,500	X	21,000	X	Conservation, Ecology Life Sciences, Natural Resources	
FOOD SCIENCE	FOOD TECHNOLOGIST, Industrial Engineer, Food Scientist, Govt Insp.	16,000	XX	27,000	X	Biology, Chemistry, Physics Nutrition, Health, Lab Work	
FORESTRY	FORESTER, Forest Scientist, Park Manager, Range Manager	27,000	X	23,000	X	Conservation, Ecology, Outdoors Life Sciences, Trees, Mountains	
GEOGRAPHY	GEOGRAPHER, Cartographer, Demographer, Teacher	11,000	XX	25,000	XXX	Maps, Details, Climate Human/Natural Resources	
HISTORY	HISTORIAN, Teacher, Writer Librarian, Curator, Archivist	24,000	X	26,000	XXXX	Reading, Research, Writing Teaching, Communicating	
HOME ECONOMICS	HOME ECONOMIST, Nutritionist Decorator, Designer, Teacher	Undetermined	X	General Major	XXX	Fabrics, Textiles, Foods, Teaching, People, Family Planning	
HORTICULTURE	HORTICULTURIST, Botanist, Landscape Designer, Florist	Undetermined	XX	23,500	XX	Flowers, Trees, Plants Beautification, Environment	
INDUSTRIAL ARTS	TEACHER, Industrial Designer Drafter, Engineer Technician	Special Study Area	XX	19,000 (Teaching)	XX	Teaching, Hands/Tools Design, Math, Metals, Woods	
INDUSTRIAL ENGINEERING	INDUSTRIAL ENGINEER, Human Eng. Efficiency Eng., Systems, Designer	200,000	XXX	30,000+	XXX	Business, People, Efficiency Math, Sciences, Construction	
INTERNATIONAL RELATIONS	TEACHER/PROFESSOR, Lawyer Political Scientist, Foreign Service	Div. of Pol. Sci.	X	33,000	XXXX	Political Science, Reading Foreign Studies, Teaching	
JOURNALISM	JOURNALIST, Newspaper Reporter, Editor, Technical Writer	47,000	XX	22,000	XXX	English, Writing, People Communicating, Investigating	
LANGUAGES (Modern)	TEACHER/PROFESSOR, Linguist Translator, Interpreter	Special Study Area	X	20,000 (Teaching)	XXXX	Foreign Language Skills Reading, Writing, Recall	
LIBRARY SCIENCE	PUBLIC LIBRARIAN, School Librarian Outreach Librarian, Archivist	145,000 All	X	20,000 Univ.	X	Books, Reading, Organizing Classifying, Helping People	
LITERATURE (Comparative)	TEACHER/PROFESSOR, Writer Clergy, Poet, Playwright	General Major	X	20,000	XXXX	Reading, Writing, English Foreign Language	
MARKETING	MARKETING RESEARCH WORKER Advertising Worker, Sales Worker	100,000	XX	25,000+	X	Business, Sales, Math Economics, Psychology	
MATHEMATICS/STATISTICS	MATHEMATICIAN, Statistician Teacher, Engineer, Scientist	35,000	X	27,000	XXXX	Math, Science, Logic Problem Solving, Details	
MECHANICAL ENGINEERING	MECHANICAL ENGINEER, Power Eng. Jet Propulsion Eng., Auto Eng.	210,000	XXX	30,000	XXX (280)	Math, Physics, Chemistry Drafting, Design, Mechanics	
METALLURGICAL ENGINEERING	METALLURGICAL ENG., Materials Eng. Extractive Eng., Physical Eng.	18,000	XXX	30,000	X (90)	Metals, Mechanics Math, Physics, Chemistry	
METEOROLOGY	METEOROLOGIST, Climatologist Forecaster, Airline Meteorologist	7,500	XX	29,000	X	Physics, Math, Chemistry Earth Sciences, Research	
MICROBIOLOGY	MICROBIOLOGIST, Virologist, Food Technologist, Immunologist, M.D.	13,000	XX	23,800	XX	Biology, Chemistry, Health Microscopic Work, Lab Work	

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XXXX More than 500
XXX 250-499
XX 100-249
X Less than 100
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*Number refers to accredited professional graduate schools.
**Check college catalogues on different ways to satisfy this major. Generally requires additional year(s) of graduate study.

TRANSFER YOUR LETTERS AND NUMBERS AND CONTINUE SEARCH →

A	B	1	2	3	4	5	6	7	8	9

SEE EXPLANATIONS OF COLUMNS AT BOTTOM OF PAGE

COLLEGE MAJORS	A SOME JOBS RELATED TO THE MAJOR	B NUMBER OF WORKERS IN MAJOR	C JOB OUTLOOK	D AVERAGE SALARY	E NUMBER OF COLLEGES OFFERING MAJOR	F SKILLS AND INTERESTS REQUIRED FOR COLLEGE AND JOB SUCCESS	NUMBER OF MATCHES
MINING ENGINEERING	MINING ENGINEER, Geologist Metallurgist, Safety Engineer	7,000	XXX	30,000	X	Mechanics, Design, Math Physics, Chemistry, Metals	
MUSIC	MUSICIAN, Singer, Composer Teacher, Conductor	128,000 Performing	X	Varies	XXXX	Music, Originality, Creativity Special Talents, Performing	
NURSING	NURSE, R.N., Public Health Nurse School Nurse, Medical Assistant	1,150,000	XXX	16,000	XXXX	Nutrition, Math, Helping People Social Studies, Life Sciences	
OCCUPATIONAL THERAPY	OCCUPATIONAL THERAPIST Physical Therapist, Nurse R.N.	15,000	XXX	20,000	X	Helping Handicapped People Life Sciences, Recreation, Health	
OCEANOGRAPHY/MARINE SCI.	OCEANOGRAPHER, Marine Biologist Physicist, Geologist	3,200	XX	28,000	X	Math, Physics, Chemistry Biology, Geology, Research	
PETROLEUM ENGINEERING	PETROLEUM ENGINEER, Geologist Hydraulic Eng., Industrial Eng.	21,000	XXX	35,000+	XX	Mechanics, Math, Physics Chemistry, Geology, Earth Science	
PHARMACY (Pre)**	PHARMACIST, Chemist Pharmacologist, Drug Salesperson	140,000	XX	24,000	X * (73)	Chemistry, Biology, Drugs Medicines, Lab Work, Math	
PHILOSOPHY	PHILOSOPHER, College Professor Clergy, Writer, Lecturer	Undeter- mined	X	Varies	XXXX	Reading, Social Studies, Logic English, Humanities, Sciences	
PHYSICAL EDUCATION	TEACHER, Coach, Recreation Professional Athlete, Trainer	General Major	X	19,000 (Teaching)	XXXX	Athletics, Physical Activity Competition, Nutrition, Health	
PHYSICAL THERAPY**	PHYSICAL THERAPIST, Nurse R.N. Occupational Therapist	31,000	XXX	20,000	X (66)*	People, Health, Anatomy Basic Sciences, Physical Strength	
PHYSICS	PHYSICIST, Nuclear Physicist Mathematician, Geophysicist	42,000	X	30,000	XXXX	Physics, Chemistry, Math Theories, Lab Work, Experiments	
PHYSIOLOGY	PHYSIOLOGY, Biological Scientist Agricultural Scientist, Researcher	12,000	XX	28,000	XXX	Math, Biology, Physics Chemistry, Nutrition, Health	
POLITICAL SCIENCE	POLITICAL SCIENTIST, Teacher Government Worker, Lawyer	15,000	X	29,000	XXXX	Politics, History, Economics Reading, Theories, People	
PREDENTISTRY**	DENTIST, Dental Hygienist Dental Researcher, Professor	127,000	XX	55,000+ Dentist	XX (100)*	Biology, Chemistry, Physics Math, Working with Hands	
PRELAW**	LAWYER, Jurist, Paralegal, Government Worker, Teacher	500,000	XXX	Varies	XX (185)*	People, Social Sciences Reading, Writing, Speaking	
PREMEDICINE**	PHYSICIAN, Psychiatrist Podiatrist, Medical Scientist	380,000	XXX	70,000+	XX (116)*	Biology, Chemistry, Physics Math, Health, People, Medicine	
PREOPTOMETRY**	OPTOMETRIST, Optician Optical Sales Manager	22,000	XX	40,000+	X (12)*	Physics, Math, Health Biology, Business Ability	
PSYCHOLOGY	PSYCHOLOGIST, Counselor, Teacher Personnel Worker	135,000	XX	28,000	XXXX	Social Sciences, People Research, Writing, Experimenting	
RADIO/TV/FILM TECHNOLOGY	RADIO/TV ANNOUNCER/ACTOR Film Actor/Director/Producer	30,000	X	Varies	XX	Performing, Speaking, Directing Photography, Advertising	
RANGE/RESOURCE MANAGEMENT	RANGE MANAGER, Forester Soil Conservationist, Ecologist	3,800	XX	22,000	X	Biology, Zoology Conservation, Environment	
RECREATION	RECREATION WORKER/LEADER Park Management, Coach	15,000	XX	16,000	XX	Motivate People, Health, Leisure Physical Activity, Leadership	
RELIGION, (Theology)	MINISTER, Rabbi, Priest, Religious Teacher, Counselor	152,000	X	Varies	XXXX	Religion, Social Studies, People Leadership, Morality, Teaching	
SOCIAL SCIENCE (General)	SOCIAL SCIENTIST, Intelligence (gov't) Environmental Analyst	General Major	X	Varies	XXXX	Social Studies, People Reading, Writing, Research	
SOCIAL WORK**	SOCIAL WORKER, Probation Worker Psychiatric Social Worker	380,000	XX	18,000 (MSW)	X (86)*	Social Studies, English help Disadvantaged People	
SOCIOLOGY	SOCIOLOGIST, Social Worker Urban Planner, Teacher	20,000	X	28,000 (Ph.D)	XXXX	Social Sciences, English Reading, Writing, Research	
SOIL SCIENCE	SOIL SCIENTIST, Soil Conservationist, Farm Manager	3,800	XX	24,000	XX	Chemistry, Biology, Soils Mapping, Physics, Conservation	
SPEECH PATHOLOGY/AUDIOLOGY**	SPEECH PATHOLOGIST, Audiologist Speech Teacher, Psychologist	34,000	XXX	25,000 (Gov)	XX (229)*	Psychology, Basic Sciences Helping Handicapped People, Tests	
SYSTEMS ANALYSIS	SYSTEMS ANALYST, Programmer Computer Scientist	200,000	XXX	27,000	XXX	Computers, Math Problem Solving, Business	
TECHNOLOGY (Medical)**	MEDICAL TECHNOLOGIST Microbiologist, Bacteriologist	70,000	XXX	18,000	XXXX	Chemistry, Biology, Math Lab Work, Details, Accuracy	
URBAN STUDIES**	URBAN PLANNER, Architect Engineer, City Manager	17,500	XXX	26,000	X (80)*	Architecture, Environment Social Studies, Government	
TRANSPORTATION STUDIES	TRANSPORTATION DIRECTOR Ind. Traffic Manager, Urban Planner	Undeter- mined	XX	30,000	XXX	Math, Physics, Industrial Arts Social Studies, Business	
VETERINARY SCIENCE (Pre)**	VETERINARIAN, Animal Scientist Public Health, Physician	34,000	XXX	50,000	X (21)*	Biology, Chemistry, Physics Math, Animals Ecology	
ZOOLOGY	ZOOLOGIST, Ornithologist Entomologist, Mammalogist	3,500	XX	25,000	XX	Animals, Insects, Birds Biology, Life Sciences	

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MAJOR-MINOR RESEARCH

A. Look at the MAJORS with which you had the highest number of MATCHES. Of these MAJORS, choose nine in which you have an interest. List them below:

_____ _____ _____

_____ _____ _____

_____ _____ _____

B. From this list, select three MAJORS that you feel BEST match your INTERESTS and ABILITIES. Write them in the three boxes below. Use the information in this INSERT FOLDER to list important facts about each MAJOR:

COLLEGE MAJORS	1.	2.	3.
RELATED JOBS			
NUMBER EMPLOYED			
JOB OUTLOOK			
AVERAGE INCOME			
COLLEGES (#) (OFFERING MAJOR)			
INTERESTS, SKILLS REQUIRED			
ADV. DEGREES REC. (YES OR NO)			

C. Consider the information concerning the three MAJORS. Which one BEST matches your interests and abilities? Write that MAJOR below:

FIRST CHOICE MAJOR _____

D. Consider a second choice that would complement (go along with) the **FIRST CHOICE MAJOR.** This might be considered a **MINOR OR DUAL MAJOR.** Write it below:

FIRST CHOICE MINOR _____

E. COLLEGE SEARCH. See your Guidance Counselor, use sources in a Career Center, see COLLEGE CATALOGS, college manuals and other sources to find colleges that offer your **MAJOR.** Make a list of colleges. It can be from five to ten — or more. Compare the colleges in these areas:

- Size (small, medium, large?)
- Location (near home, far away?)
- Cost (tuition, room, board?)
- Entrance Requirements (do you qualify?)
- Social and academic reputation?
- Private or public?
- Accredited? Are credits good?
- Scholarship/work possibilities?

F. Consider the answers to the above items for all the colleges you have listed. Which three colleges BEST satisfy your requirements? List below:

1.	2.	3.

BE SURE TO OBSERVE ALL DEADLINES FOR REQUIRED TESTS AND APPLICATIONS . . . GOOD LUCK!

COLLEGE MAJORS	A	B	1	2	3	4	5	6	7	8	9
Accounting	A	B	1,2	4,5	3,4	1,2	4,5	4,5	2,3	3,4	5,6
Actuarial Science	A,B	B	1,2	2,3	3,4	1,2	5,6	3,4	2,3	1,2	5,6
Advertising	A	B	3,4	3,4	2,3	1,2	3,4	3,4	1,2	1,2	2,3
Aerospace Engineering	B,G	F	1,2	1,2	3,4	2,3	2,3	1,2	3,4	2,3	1,2
Agriculture (Science)	B	E	2,3	1,2	3,4	2,3	4,5	1,2	3,4	2,3	2,3
Agriculture (Management)	A,B	B	2,3	3,4	2,3	1,2	4,5	2,3	1,2	1,2	5,6
Agricultural Engineering	B,C	F	1,2	1,2	3,4	2,3	4,5	1,2	3,4	2,3	2,3
Agronomy	B	D,E	2,3	1,2	4,5	3,4	4,5	1,2	4,5	2,3	3,4
Animal Science	B	E	2,3	1,2	3,4	2,3	4,5	1,2	3,4	2,3	3,4
Anthropology/Archaeology	F	C	3,4	2,3	1,2	4,5	2,3	1,2	1,2	1,2	3,4
Architecture	C,G	F,G	1,2	2,3	2,3	1,2	2,3	1,2	2,3	1,2	1,2
Art (Fine Arts)	G	G	5,6	5,6	3,4	5,6	1,2	3,4	2,3	2,3	1
Art (Graphic Arts)	G	G	5,6	5,6	3,4	5,6	1,2	3,4	2,3	2,3	1
Art	G	G	5,6	5,6	2,3	5,6	1,2	3,4	2,3	2,3	2,3
Astronomy	B	D	1,2	1	4,5	4,5	3,4	1,2	3,4	2,3	1,2
Bacteriology	B,D	E	2,3	1	3,4	4,5	4,5	1,2	3,4	3,4	2,3
Banking/Finance	A	B	1,2	4,5	2,3	1,2	4,5	3,4	1,2	1,2	5,6
Behavorial Sciences	F	C	3,4	1,2	1,2	3,4	2,3	2,3	1,2	1,2	5,6
Biochemistry	B	D,E	1,2	1	4,5	3,4	4,5	1,2	3,4	3,4	2,3
Biology	B	E	2,3	1	3,4	4,5	4,5	1,2	2,3	3,4	2,3
Biomedic Engineering	C	E,F	1,2	1,2	3,4	2,3	4,5	2,3	2,3	2,3	1,2
Biophysics	B	D,E	1,2	1	4,5	3,4	4,5	1,2	3,4	3,4	2,3
Botany	B	E	3,4	1,2	3,4	5,6	3,4	1,2	3,4	2,3	3,4
Business Administration	A	B	2,3	4,5	2,3	1,2	4,5	3,4	1,2	1,2	5,6
Ceramic Engineering	C	F	1,2	1,2	4,5	2,3	2,3	2,3	4,5	2,3	1,2
Chemistry	B	D,E	1,2	1	4,5	3,4	4,5	2,3	3,4	2,3	2,3
Chemical Engineering	C	F	1,2	1,2	4,5	2,3	4,5	2,3	3,4	2,3	2,3
Child Development	E	C	4,5	3,4	1,2	4,5	2,3	3,4	1,2	1,2	5,6
Civil Engineering	C	F	1,2	1,2	3,4	1,2	3,4	1,2	2,3	2,3	1,2
Clothing/Textiles	G	F,G	4,5	3,4	4,5	2,3	2,3	3,4	3,4	3,4	1,2
Computer Science	C	F	1,2	2,3	4,5	2,3	4,5	3,4	3,4	2,3	2,3
Criminal Justice	F	C	5,6	5,6	2,3	4,5	5,6	3,4	1,2	3,4	5,6
Dairy Science	B	E	2,3	1,2	3,4	2,3	5,6	3,4	3,4	3,4	3,4

COLLEGE MAJORS	A	B	1	2	3	4	5	6	7	8	9
Design	C	F	1,2	2,3	5,6	3,4	2,3	4,5	4,5	4,5	1,2
Dietetics	D	E	2,3	1,2	2,3	2,3	4,5	3,4	1,2	2,3	2,3
Drama/Theater Arts/Speech	G	G	5,6	5,6	2,3	5,6	1,2	3,4	1,2	1,2	3,4
Earth Sciences/Geology	B	D	1,2	1,2	4,5	3,4	4,5	1,2	3,4	2,3	3,4
Ecology	B	D,E	2,3	1,2	3,4	3,4	3,4	1,2	2,3	1,2	3,4
Economics	F	B,C	2,3	3,4	1,2	1,2	4,5	3,4	2,3	1,2	5,6
Education (Elementary)	E	A,C	3,4	3,4	1,2	3,4	2,3	3,4	1	1,2	5,6
Education (Secondary)	E	A,C	3,4	3,4	1,2	3,4	2,3	3,4	1	1,2	5,6
Education (Special)	E	A,C	3,4	3,4	1,2	3,4	2,3	3,4	1	1,2	3,4
Electrical Engineering	C	F	1	1,2	3,4	2,3	4,5	2,3	3,4	2,3	2,3
English	E,G	A	5,6	5,6	1,2	5,6	1,2	3,4	2,3	1	5,6
Engineering (Science Tech)	C	F	1,2	1,2	3,4	2,3	3,4	2,3	3,4	3,4	1,2
Environmental Science	B	E	1,2	1,2	2,3	2,3	3,4	1	2,3	2,3	2,3
Fish/Game/Wildlife	B	E	3,4	2,3	3,4	2,3	5,6	1	3,4	3,4	3,4
Food Science	B	E,F	2,3	1,2	3,4	2,3	5,6	3,4	2,3	3,4	2,3
Forestry	B	E	2,3	1,2	3,4	1,2	4,5	1	2,3	2,3	3,4
Geography	F	C	2,3	2,3	1,2	2,3	3,4	1,2	1,2	1,2	2,3
History	F	A,C	5,6	5,6	1,2	2,3	2,3	2,3	1,2	1,2	5,6
Home Economics	E	F	3,4	2,3	2,3	2,3	1,2	2,3	1,2	1,2	2,3
Horticulture	B	E	2,3	2,3	3,4	2,3	2,3	1,2	3,4	3,4	2,3
Industrial Arts	E	F	2,3	2,3	3,4	2,3	3,4	3,4	2,3	2,3	1,2
Industrial Engineering	C	F	1,2	1,2	2,3	1,2	3,4	1,2	1,2	2,3	2,3
International Relations	F	C	5,6	5,6	1,2	1,2	4,5	3,4	1,2	1,2	5,6
Journalism	G	A	5,6	4,5	2,3	3,4	2,3	2,3	1,2	1	5,6
Languages (Modern)	G	A	5,6	5,6	2,3	5,6	2,3	3,4	2,3	1,2	5,6
Library Science	E	A,C	5,6	5,6	2,3	3,4	2,3	3,4	1,2	1,2	5,6
Literature (Comparative)	G	A,G	5,6	5,6	2,3	5,6	1,2	3,4	2,3	1,2	5,6
Marketing	A	B	2,3	4,5	3,4	1,2	3,4	3,4	1,2	1,2	5,6
Mathematics/Statistics	B	F	1	1,2	4,5	2,3	4,5	3,4	3,4	2,3	5,6
Mechanical Engineering	C	F	1,2	1,2	4,5	2,3	3,4	2,3	3,4	2,3	1,2
Metallurgical Engineering	C	F	1,2	1,2	5,6	2,3	4,5	2,3	3,4	2,3	1,2
Meteorology	B	D	1,2	1,2	3,4	3,4	4,5	1,2	3,4	3,4	1,2
Microbiology	B	E	2,3	1	3,4	4,5	4,5	2,3	4,5	3,4	1,2

COLLEGE MAJORS	A	B	1	2	3	4	5	6	7	8	9
Mining Engineering	C	F	1,2	1,2	3,4	1,2	3,4	1,2	3,4	2,3	2,3
Music	G	A,G	5,6	5,6	3,4	4,5	2,3	4,5	2,3	2,3	1,2
Nursing	D	E	2,3	1,2	2,3	4,5	4,5	3,4	1,2	2,3	2,3
Occupational Therapy	D	E	2,3	2,3	1,2	4,5	2,3	3,4	1,2	1,2	1,2
Oceanography/Marine Science	B	D,E	1,2	1	3,4	2,3	4,5	1	3,4	2,3	1,2
Petroleum Engineering	C	F	1,2	1,2	3,4	1,2	4,5	1,2	3,4	2,3	2,3
Pharmacy (Pre)	D	E	2,3	1,2	3,4	2,3	4,5	3,4	2,3	2,3	1,2
Philosophy	E,F	A,C	3,4	2,3	1,2	3,4	1,2	2,3	1,2	1,2	5,6
Physical Education	E,G	G	4,5	2,3	3,4	3,4	5,6	3,4	1,2	2,3	2,3
Physical Therapy	D	E	2,3	2,3	2,3	3,4	3,4	4,5	1,2	2,3	1,2
Physics	B	D	1	1	3,4	3,4	4,5	2,3	3,4	2,3	2,3
Physiology	B,D	E	1,2	1,2	3,4	4,5	4,5	2,3	2,3	2,3	2,3
Political Science	F	A,C	5,6	4,5	1,2	2,3	3,4	2,3	1,2	1,2	5,6
Predentistry	D	E	2,3	1,2	2,3	2,3	3,4	3,4	1,2	2,3	1,2
Prelaw	F	A,C	4,5	3,4	1,2	2,3	3,4	2,3	1,2	1	5,6
Premedicine	D	E	2,3	1,2	2,3	2,3	3,4	2,3	1,2	1,2	2,3
Preoptometry	D	E	2,3	2,3	3,4	2,3	4,5	3,4	1,2	2,3	1,2
Psychology	F	C	2,3	2,3	1,2	4,5	3,4	3,4	1	1,2	5,6
Radio/TV/Film Technology	G	G	5,6	3,4	3,4	2,3	1,2	3,4	1,2	1,2	3,4
Range/Resource Management	B	E	2,3	2,3	3,4	2,3	4,5	1	3,4	3,4	5,6
Recreation	E	G	4,5	3,4	2,3	3,4	3,4	2,3	1,2	2,3	3,4
Religion (Theology)	E	A,C	5,6	5,6	1,2	3,4	2,3	3,4	1,2	1,2	5,6
Social Science (General)	F	C	5,6	3,4	1	2,3	2,3	3,4	1,2	1,2	5,6
Social Work	E	C	5,6	4,5	1,2	3,4	3,4	3,4	1	1,2	4,5
Sociology	F	C	5,6	3,4	1,2	2,3	3,4	3,4	1,2	1,2	5,6
Soil Science	B	E	2,3	1,2	4,5	3,4	5,6	1,2	3,4	3,4	2,3
Speech Pathology/Audiology	E	C,E	2,3	2,3	2,3	4,5	4,5	3,4	1,2	1,2	3,4
Systems Analysis	C	F	1,2	2,3	3,4	1,2	4,5	3,4	3,4	2,3	3,4
Technology (Medical)	D	F	2,3	1,2	5,6	5,6	4,5	3,4	4,5	4,5	1,2
Urban Studies	A,C	B,F	2,3	2,3	2,3	1,2	3,4	1,2	1,2	1,2	3,4
Transportation Studies	C	F	2,3	2,3	2,3	1,2	3,4	1,2	2,3	2,3	3,4
Veterinary Science	D	E	2,3	1,2	3,4	2,3	4,5	1,2	2,3	2,3	2,3
Zoology	B	E	2,3	1,2	4,5	4,5	4,5	1,2	3,4	3,4	3,4

WHEN YOU HAVE FINISHED SEARCHING ALL MAJORS,
TURN YOUR INSERT FOLDER TO PAGE 12 TO COMPLETE YOUR RESEARCH...

APPENDIX K

EXPERIMENTAL GROUP PARTICIPANTS' GUIDE FOR SECURING ACADEMIC ADVICE

Appendix K

Experimental Group Participants' Guide For Securing Academic Advice

1. What is a brief description of your curriculum?

2. What are some areas of specialization in your curriculum?

3. What are some of the special types of skills and character traits that one usually possesses in order to succeed in this field?

4. What has been the employment rate of your recent graduates?

5. What is the future outlook for jobs in this area?

6. What are the requirements for graduation in this curriculum?

7. What is the number of electives available to students in this field?

8. Do you have any printed information that will help me to learn more about this curriculum (ex. curriculum guide)?

9. Whom should I contact for additional information relative to this curriculum?

APPENDIX L

EXPERIMENTAL, CONTROL, AND COMPARISON GROUPS PARTICIPANTS' GUIDE FOR WRITING A PARAGRAPH RELATIVE TO THEIR INTENTION TO RETURN TO NSU THE SPRING SEMESTER AND THE RELATIONSHIP BETWEEN THE COURSES IN WHICH THEY ARE ENROLLED AND THEIR CAREER GOALS

Appendix L

Experimental, Control, and Comparison Groups Participants' Guide For Writing A Paragraph Relative To Their Intention To Return To NSU The Spring Semester And The Relationship Between Courses In Which They Are Enrolled And Their Career Goals

Write a paragraph relative to your future plans for attending Norfolk State University and indicate how the courses in which you are enrolled are related to your career goal(s).

Do you plan to attend Norfolk State University second semester?

Are you enrolled in major courses related to your career goal(s)?

APPENDIX M

DECISION-MAKING GUIDE FOR CHOOSING A CAREER

Appendix M

Decision-Making Guide for Choosing a Career

Name _____ Date _____

Instructions: Listed below are several tasks believed to be important in the selection of a college major. Indicate on a scale of 1 to 4 the extent to which you have completed each task by circling the appropriate number.

1 - Have not started on the task

2 - Have completed a portion of the task

3 - Have completed a great deal of the task

4 - Have completed the task

	Task	Response			
1.	I have become aware of my values, abilities and interests.	1	2	3	4
2.	I have identified life goals based on my self awareness.	1	2	3	4
3.	I have explored the relationship between life and career goals.	1	2	3	4
4.	I have gained information about several occupations and educational programs.	1	2	3	4
5.	I have identified a college major related to my values, abilities, and interests.	1	2	3	4
6.	I have secured information related to the educational requirements in a chosen field of interest.	1	2	3	4
7.	I have explored elective courses that may be related to my career goals.	1	2	3	4
8.	I have developed an educational plan that is consistent with my career goals.	1	2	3	4

APPENDIX N

CHANGE OF MAJOR FORM

NORFOLK STATE UNIVERSITY
Norfolk, Virginia 23504

Office of the Registrar
PETITION TO CHANGE MAJOR

I, _____ desire to change

my major from _____

To _____ I have completed ____

hours in the Department of _____
(Indicate Department)

and have a general point average of _____.

My reasons for requesting the changes are: (state reasons frankly)

_____

_____

_____

_____

Approved _____
Date

_____
Head of Department from which change is made

_____
Head of Department to which change is made

_____
Registrar

_____
Student requesting change

Social Security Number ___/___/___

Not Approved-Reason:

_____

_____

_____

_____

_____

White - Registrar's Office
Yellow - Old Dept
Pink - New Dept.
Goldenrod - Counseling Center
Green - Student Copy

VITA

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The two page vita has been removed from the scanned document. Page 2 of 2

THE EFFECTS ON SHORT-TERM RETENTION AND COLLEGE MAJOR SELECTION RESULTING FROM SYSTEMATIC CAREER PLANNING OF ENTERING COLLEGE FRESHMEN

by

Dorothy M. Goodson
Committee Chairman: Dr. Robert R. Richards
Educational Administration

(ABSTRACT)

The purpose of this study was to investigate the impact of a Systematic Career Planning Program on short-term retention and the academic major selection rate of entering college freshmen. The sample consisted of 111 randomly selected freshmen who were enrolled in freshman orientation classes during the fall semester at a historically Black university. Three groups (experimental, control, and comparison) were identified and compared. There were 37 subjects in each group.

The experimental and control groups were comprised of students who were undecided about a college major, with the experimental group participating in a Systematic Career Planning Program, the treatment variable. The comparison group had declared college majors and did not participate in the Systematic Career Planning Program. The Major-Minor-Finder was employed to assist students in career decision-making (Cutler, Ferry, Kauk, and Robinett, 1983).

Based on the findings in the study, short-term retention and college major selection rate differed significantly among the groups. More of the experimental group participants chose college majors and remained in college during the spring semester than did the control group participants.

The retention rate was greater for males than for females. Noted differences among the groups implied that the treatment had a positive impact on experimental group participants.

Similar career planning programs were recommended for entering college freshmen as well as other undecided students on a larger scale. It was also recommended that a systemic study be conducted to determine whether the salutary impact of the Systematic Career Planning Program resulted from the administration of the career decision-making instrument and other instruments or from the efforts of a trained professional adult, or both.