

AN ABSTRACT OF THE THESIS OF

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Title: SOME CHARACTERISTICS OF SELECTED FRESHMAN IDENTIFIED AS  
CERTAIN OR UNCERTAIN ABOUT THEIR CHOICE OF ACADEMIC MAJOR  
AT THE TIME THEY ENROLLED IN OREGON STATE UNIVERSITY FALL  
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Abstract Approved: Dr. Daniel W. Poling

The purpose of this study was to compare two groups of freshmen entering Oregon State University in the fall of 1970; (1) men and women who were uncertain about choices of academic majors at the time of entry, and (2) men and women who were certain about choices of academic majors at the time of entry. The population was limited to those freshmen who participated in the 1970 OSU Summer Orientation and Advising Program (SOAP) and who subsequently enrolled at Oregon State University in the fall of 1970.

The study was designed to determine the difference between the two identified groups as measured by the College Student Questionnaire, Part I, a research questionnaire designed to describe groups of students. Comparisons were made on seven scaled scores: Family Independence, Peer Independence, Liberalism, Social Conscience, Cultural Sophistication, Motivation for Grades, and Family Social Status.

Random samples were drawn from four sub-groups identified within the population being investigated: (1) men who were uncertain about

their choices of academic majors at the time of enrollment at the university, (2) women who were uncertain about their choices of academic majors at the time of enrollment, (3) men who were certain about their academic choices at the time of enrollment, and (4) women who were certain about their academic choices at the time of enrollment.

Null hypotheses stating that no significant differences would appear between the groups compared were tested. The following comparisons were made: (1) Uncertain Men with Uncertain Women, (2) Certain Men with Certain Women, (3) All men (Certain and Uncertain) with all women (Certain and Uncertain), (4) Uncertain Men with Certain Men, (5) Uncertain Women with Certain Women, and (6) Uncertain freshmen (men and women) with Certain freshmen (men and women).

The "Student's t test" was utilized to test the difference between means for each pair of groups compared with the .05 and .01 levels of significance being accepted as indicating degrees of confidence that differences were real.

In order to determine if the factor of abilities was related to certainty or uncertainty about choice of academic majors, high school grade point averages and Scholastic Aptitude Test Score comparisons were made.

From the findings of this study the following conclusions were drawn:

1. Freshmen who identified themselves as uncertain about choices of academic majors are as academically talented as those who said they were certain about their choices of academic majors.
2. There are few characteristics which readily identify entering freshmen with regard to their certainty or uncertainty about choices of academic majors. The primary difference appears to be the degree of certainty about choice.

3. The only significant differences found in the study were not related to the basic question of certainty or uncertainty about academic majors, but to the ancillary factor of differences between sex groupings.
4. It is not possible to assume that all freshmen entering Oregon State University are at similar stages of decision-making with regard to selecting a major field of study.
5. It may not be realistic for Oregon State University to insist (as it presently does), that all students declare a major field of study at the time they enroll. Some entering freshmen have need for an opportunity to continue their exploration of numerous possible choices of academic fields.

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FALL TERM, 1970

by

JACK CLINTON RYE

A THESIS

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CHAPTER I

INTRODUCTION

Students' concern about career choice is no new problem for colleges and universities. Curriculum planners in most institutions are well aware of the theories which contend that vocational choice involves a developmental process with stages and hierarchies, and that individuals in a given environment will differ in relative position of development toward selection of vocations (Ginzberg, 1952; Super, 1957; Tiedeman, 1961).

Entering freshman come to a university at varying stages of exploration, crystallization and choice development. An individual may be encouraged or handicapped in this developmental process, depending on the recognition the institution has given to the fact that some entering freshman, at the time of entry, are uncertain of vocational choice and academic major.

Institutions differ greatly in their consideration of curricular choice for the undecided student: some ignore the problem, others have developed curricula which allow students to continue the developmental process of exploration and decision-making. Presently, Oregon State University requires each entering freshman to declare a choice of schools and majors before his initial enrollment. The undecided student is many times placed in the dilemma of being forced to declare a major

before he has had an opportunity to explore fully the possible choices available to him.

There is reason to believe that some students presently declaring majors in the various schools at Oregon State University are, in fact, undecided at the time of entry. LeMay (1970) in a study of the graduation rate of entering OSU freshmen males during a four-, five-, and six-year period, points out that of the 1514 OSU male freshmen who entered a college for the first time in the fall of 1963 a total of 410 (27%) graduated from the school in which they originally enrolled as freshmen, and 265 (17.5%) transferred from their original school and graduated during the six-year period.

In 1969 the Curriculum Council of the Oregon State University Faculty Senate, at the request of the Associated Student Senate, created a subcommittee to investigate the development of a general approach to the freshmen year for those who would elect to postpone declaration of a choice of school and major. It was with recognition of this subcommittee's need to identify the undecided student and his characteristics that this study was initiated. Although the study will pertain to the characteristics of undecided students and students certain of an academic major at Oregon State University, the results may be useful to other institutions in light of the fact that specific research on the undecided student has been limited (Baird, 1969).

### Purpose of the Study

The purpose of this study is to compare two groups of freshmen entering Oregon State University; those who are uncertain about a choice of academic major and those who are certain of their choices, on a variety of definable characteristics, to determine if measurable differences exist.

The population will consist of freshmen males and females who participated in the 1970 Summer Orientation and Advising Program (SOAP) and subsequently enrolled at Oregon State University in the fall of 1970. Samples of men and women who are certain of their choice of academic majors upon entering the university and men and women who are uncertain of their choice of academic majors at the time of enrollment will be studied with regard to the variables of: (1) the seven scales of the College Student Questionnaire, Part I, and, in a subsidiary manner, (2) academic ability as measured by high school grade point averages and Scholastic Aptitude Test scores.

### Statement of the Problem

The problem of the study may be stated in the following question:

To what extent do entering freshman men and women who are uncertain about choice of academic majors and freshman men and women who are certain about choice of academic majors differ on the following scales, as measured by the College Student Questionnaire, Part I:

- A. Family Independence
- B. Peer Independence
- C. Liberalism
- D. Social Conscience
- E. Cultural Sophistication
- F. Motivation for Grades
- G. Family Social Status

The study will identify four sub-groups within the population being investigated: (1) men who are uncertain about their choices of academic major at the time of enrollment at the university, (2) women who are uncertain about their choices of academic major at the time of enrollment at the university, (3) men who are certain about their choices of academic major at the time of enrollment at the university and, (4) women who are certain about their choices of academic major at the time of enrollment at the university.

To examine the extent of differences which may exist, the following comparisons will be made:

1. Men who are uncertain about choices of academic majors with women who are uncertain about choices of academic majors.
2. Men who are certain about choices of academic majors with women who are certain about choices of academic majors.
3. Men of the certain and uncertain groups with women of the certain and uncertain groups.
4. Men who are uncertain about choices of academic majors with men who are certain about choices of academic majors.

5. Women who are uncertain about choices of academic majors with women who are certain about choices of academic majors.
6. Men and women who are uncertain about choices of academic majors with men and women who are certain about choices of academic majors.

### State of the Hypotheses

The problem of the study will be investigated through the testing of the following null hypotheses:

- H<sub>01</sub>. There is no significant difference between a selected group of college freshman men who are uncertain about their choices of academic majors and a selected group of college freshman women who are uncertain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part 1:
- A. Family Independence
  - B. Peer Independence
  - C. Liberalism
  - D. Social Conscience
  - E. Cultural Sophistication
  - F. Motivation for Grades
  - G. Family Social Status

- Ho2. There is no significant difference between a selected group of college freshman men who are certain about their choices of academic majors and a selected group of college freshman women who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part 1.
- Ho3. There is no significant difference between the combined groups of men from the certain and uncertain categories and the combined groups of women from the certain and uncertain categories, as measured by the seven scales of the College Student Questionnaire, Part 1.
- Ho4. There is no significant difference between a selected group of college freshman men who are uncertain about their choices of academic majors and a selected group of college freshman men who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part 1.
- Ho5. There is no significant difference between a selected group of college freshman women who are uncertain about their choices of academic majors and a selected group of college freshman women who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part 1.
- Ho6. There is no significant difference between a selected group of college freshmen (men and women) who are uncertain about their choices of academic majors and



a selected group of college freshmen (men and women) who are certain about their choices of academic majors, in any one of the following areas, as measured by the seven scales of the College Student Questionnaire, Part 1.

### Preliminary Investigation of Academic Ability

Prior to investigating the above stated questions and testing the hypotheses of the study, group and sub-group comparisons will be made to ascertain whether academic ability is a factor which might act as a possible discriminator. In a subsidiary manner the following question will be explored:

To what extent do selected groups of college freshman men and women differ in academic ability, as measured by high school cumulative grade point averages and Scholastic Aptitude Test scores, when the following comparisons are made:

1. Men who are uncertain about choices of academic majors with women who are uncertain about choices of academic majors.
2. Men who are certain about choices of academic majors with women who are certain about choices of academic majors.
3. Men of the certain and uncertain groups with women of the certain and uncertain groups.
4. Men who are uncertain about choices of academic majors with men who are certain about choices of academic majors.

5. Women who are uncertain about choices of academic majors with women who are certain about choices of academic majors.
6. Men and women who are uncertain about choices of academic majors with men and women who are certain about choices of academic majors.

### Significance of the Study

A brief review of the literature infers that theories of vocational choice have had little to say about the undecided student and only limited information is available comparing the undecided student with others (Baird, 1969). The findings regarding the undecided students' aptitude, characteristics and attitude: Marshall (1936) indicated that students who had definite vocational choice made higher grades in college than those with no vocational choice, while another early study by Williamson (1937) found that there was no relation between grade point average and the fact that a student had made a vocational choice. In a more recent study, Abel (1966) determined that there was no relationship between academic performance and decision. With regard to other characteristics, Ashby, Wall and Osipow (1966) found no differences between decided and undecided students on the basis of demographic information, on Strong Vocational Interest Blank group scores and on tests of academic aptitude. Baird (1968) suggests that the undecided student may be more intellectually oriented and less vocationally oriented, more often chooses the goal of developing his mind, and perhaps wishes to use the opportunity that college provides of exploring himself and the world before he chooses a vocation.

As Oregon State University begins to consider the possibility of planning an alternative approach to the freshman year for some students, this study identifying characteristics and aptitudes of undecided students and making some comparisons with students certain of academic choices may be useful in providing direction for a plan to meet the developmental needs of this undecided group. As implied earlier, the research in the area of the undecided student appears to be limited and this study will add to the existing body of knowledge and be of use to other educators investigating this area.

#### Limitations of the Study

This study will be concerned with (a) demographic information and characteristics of selected groups of Oregon State University freshman males and females as measured by the College Student Questionnaire, Part 1, and (b) indications of academic ability as reflected by high school grade point averages and Scholastic Aptitude Test scores. The study will be limited to samples of males and females in two groups of freshmen who participated in the 1970 Oregon State University Summer Orientation and Advising Program: (1) those who are identified as being uncertain about choice of academic major and, (2) those who appear to be certain about choice of academic major.

#### Definitions of Terms

##### Entering Freshmen

Students new to Oregon State University who have not had previous college experience, have met the university's entrance requirements and

are entering for the first time in the fall of 1970.

Certain Men, (CM)

Male participants in the 1970 Summer Orientation and Advising Program at Oregon State University who are identified as definitely or somewhat certain about their choices of academic majors at the time of enrollment at the university in the fall of 1970.

Certain Women, (CW)

Female participants in the 1970 Summer Orientation and Advising Program at Oregon State University who are identified as definitely or somewhat certain about their choices of academic majors at the time of enrollment at the university in the fall of 1970.

Uncertain Men, (UCM)

Male participants in the 1970 Summer Orientation and Advising Program at Oregon State University who are identified as definitely or somewhat uncertain about their choices of academic majors at the time of enrollment at the university in the fall of 1970.

Uncertain Women, (UCW)

Female participants in the 1970 Summer Orientation and Advising Program at Oregon State University who are identified as definitely or somewhat uncertain about their choices of academic majors at the time of enrollment at the university in the fall of 1970.

Summer Orientation and Advising Program, (SOAP)

A series of voluntary orientation sessions open to all newly admitted Oregon State University freshmen, conducted at various times during the summer before the beginning of fall term.

### Scholastic Aptitude Test Scores

The total of raw verbal and raw mathematical scores of the College Entrance Examination Board's Scholastic Aptitude Test (SAT) which is required of all freshmen entering Oregon State University.

### High School Grade Point Average

The cumulative average of high school grades in coursework considered by the university in admitting a student as an entering freshman.

### College Student Questionnaire, Part 1, (CSQ, Part 1)

The College Student Questionnaire, Part 1 is a research questionnaire designed to describe groups of students. The questionnaire was developed as a means of gathering a diversity of biographical and attitudinal information. Part 1 is designed for administration to entering students and contains questions about (a) educational and vocational plans and expectations, (b) activities, achievements, and perceptions during secondary school, (c) family background, and (d) personal attitudes (Peterson, 1968).

### Scales of the College Student Questionnaire, Part 1)

The following definitions of the scales of CSQ, Part 1 are from the College Student Questionnaire - Technical Manual (1968), pp. 19-20):

(FI) Family Independence refers to a generalized autonomy in relation to parents and parental family. Students with high scores tend to perceive themselves as coming from families that are not closely united, as not consulting with parents about important personal matters, as not concerned about living up to parental expectations, and the like. Low scores suggest "psychological" dependence on parents and family.

(PI) Peer Independence refers to a generalized autonomy in relation to peers. Students with high scores tend not to be concerned about how their behavior appears to other students, not to consult with acquaintances about personal matters, and the like. They might be thought of as unsociable, introverted, or inner-directed. Low scores suggest conformity to prevailing peer norms, sociability, extraversion, or other-directedness.

(L) Liberalism is defined as a political-economic-social value dimension, the nucleus of which is sympathy either for an ideology of change or for an ideology of preservation. Students with high scores (liberals) support welfare statism, organized labor, abolition of capital punishment, and the like. Low scores (conservatism) indicate opposition to welfare legislation, to tampering with the free enterprise system, to persons disagreeing with American political institutions, etc.

(SC) Social Conscience is defined as moral concern about perceived social injustice and what might be called "institutional wrongdoing" (as in government, business, unions). High scores express concern about poverty, illegitimacy, juvenile crime, materialism, unethical business and labor union practices, graft in government, and the like. Low scores represent reported lack of concern, detachment, or apathy about these matters.

(CS) Cultural Sophistication refers to an authentic sensibility to ideas and art forms, a sensibility that has developed through knowledge and experience. Students with high scores report interest in or pleasure from such things as wide reading, modern art, poetry, classical music, discussions of philosophies of history, and so forth. Low scores

indicate a lack of cultivated sensibility in the general area of the humanities.

(MG) Motivation for Grades refers to a relatively strong desire --retrospectively reported--to earn good marks in secondary school. High MG scores represent the respondent's belief that others (e.g., teachers, classmates) regarded him as a hard worker, that the respondent, in his own estimation, studied extensively and efficiently, was capable of perseverance in school assignments, and considered good grades to be personally important. Low scores indicate lack of concern for high marks in secondary school.

(FS) Family Social Status is a measure of the socioeconomic status of the respondent's parental family. The scale is comprised of four questions, each having nine scaled alternatives. The four items have to do with: father's occupation, father's education, mother's education, and family income. Father's occupation is given a weight of three. Raw scores may range from six through fifty-four.

## CHAPTER 11

## REVIEW OF THE LITERATURE

Introduction

The review of related literature will be presented in three sections: (1) The Entering Freshman, (2) Choice of Major, Change of Major and the Undecided Freshman and, (3) College Major and Career Choice: Theoretical Models.

Primary emphasis will be placed on the second section, with specific focus on significant research related to college students' choices of academic major, degree of certainty about academic choice and some characteristics of college freshmen who are undecided about choices of academic majors.

Since this study deals with selected groups of college students at the time of entry into the university, the first section, The Entering Freshman, is interjected to review the literature of research related to the transition from high school to college and studies having to do with the new college student.

Further, this study was undertaken to gather data preliminary to possible curricular developments which might consider the fact that some freshmen entering the university are undecided about choices of academic majors. Much of the literature reviewed suggested that there were few differences between students who were certain about academic choices and those who were uncertain, and that academic choice was arrived at through a developmental decision-making process. There may be some parallels between the process of selecting a college major and



the process of choosing a career or a vocation. Therefore, the third section of the review of literature will investigate various theories of vocational development which may be useful in viewing the decision-making which occurs as students select college majors.

### The Entering Freshman

A review of the literature related to the new college student indicates a need for more comprehensive data about the entering freshman. McConnell and Heist (1962) contend that comprehensive studies of growth and development, and especially of changes in values, attitudes and fundamental aspects of personality, are few, and specifically:

Knowledge about the student at the time of entry, beyond the widely used academic aptitude scores and records of high school achievement, seems to have been foreign to the interests of college administrators and faculties... The collection of comprehensive information on interests, values, motives, attitudes, special aptitudes and cultural background, has remained a rarity; and, in schools where such a variety of data was collected, it was seldom used in "fitting" the students to the educational program or in adapting the program to the clientele, or in dealing with the problems of individualized instruction (McConnell and Heist, 1962, p. 226).

McConnell and Heist state that little is known about the relationship between personality structure and the attainment of personal maturity and effectiveness. They take the position that the first step to more knowledge in these areas is, "to know the entering student, to know him as an actual or potential scholar, to know him as a person and to see him against his background and against the college environment and its subculture" (p. 249).

Douvan and Kaye (1962) note that we have little systematic information about the decision to go to college. This position is supported in the introductory statement of The Student in Higher Education, published by the Hazen Foundation (1968), as follows:

"... since the end of the second World War, U. S. colleges and universities have assumed responsibility for offering post-high school education to almost everyone who desires it--regardless, in many instances, of why they desire it" (p. 3).

The Student in Higher Education describes the new student by stating that:

Some students represent a third or a fourth-generation of college graduates in their family; others are the first from their ethnic group to venture beyond secondary school. Some are young men with clearly defined career goals, and others are young women who expect college to provide them with a mate. A few are seeking knowledge for its own sake, and others, equally few in number, are interested purely in vocational training. In between lies the majority who are realistic enough to know that a college degree is required for occupational success, but idealistic enough to want to learn something in the process of getting a degree (p. 17).

Trent and Medsker (1968) conducted a psychosociological study of 10,000 high school graduates and followed the personal and vocational development of a large sample during the first four years after graduation. From this study Trent and Medsker concluded that the development of the individual, whether vocational or personal, is a transactional process at each stage with parents, family, physical and emotional environment, quality of education, close friends, and special influential events. Ability, opportunity and chance are critical factors in the process, as are the values, attitudes, perceptions, and desires that are fostered by all these variables. Predisposition, potential, environment and opportunity, are interlocking elements which form a regulator for many of the directions the young adult takes.

Sanford (1962), in discussing the developmental status of entering freshmen, suggested that to render a comprehensive account of the situation

of the new student it is important to specify for each type of institution the circumstances of academic work, social organization and general culture that impinge upon students of varying personalities, backgrounds and degrees of academic and social preparation. Sanford pointed out that this kind of analysis will reveal that for some students entering college is a critical event that initiates immediate and dramatic personality development. On the other hand, some students are able, by their choice of college and by their academic and social preparation, to reduce the strains of college entrance to the point where there are few new patterns of adaptation. For still others, the pressures of the first few weeks of college are so great that the student may leave college during the freshman year.

Erikson (1963) theorized that the period immediately following high school is a time in which the individual is seeking his identity as he prepares for adult maturity:

The adolescent mind is essentially a mind of the moratorium, a psychosocial stage between childhood and adulthood... (Erikson, 1963, p. 262).

Axelrod et al. (1969), in elaborating on a theory of personality, suggested that the student entering college has a wide array of adaptive mechanisms and ways of ordering experiences that have served him well in the past and maintain his stability in the present. The implication is that as the student is confronted with new experiences he is not so much eager for change in himself as he is for the opportunity to prove the strength and competence he already has. This is associated with the "prematurity" of students who feel that they have made decisions about what they want to be and the fact that most adults---including

secondary school and college officials--press students to make such premature judgments (Axelrod et al., 1969, p. 17).

Berdie (1954) completed a study in the mid-fifties which investigated the future plans of approximately 25,000 Minnesota high school seniors who graduated in 1950. From the results of this initial study a ten percent sample was selected for an intensive follow-up study. Berdie discovered that the following factors influence whether a student attended college: (1) easy access to a college; (2) sex differences (although practically no significant differences in college aptitude was found between boys and girls, boys most frequently attended college); (3) economic status of the family; (4) cultural level of the home; and (5) college aptitude.

Trent and Medsker (1968) concurred with Berdie's findings in their more recent study. They reported that after graduation from high school fifty percent of the boys and thirty-seven percent of the girls were in college. Ability and socioeconomic status were found to be associated with college attendance. This study indicated that social status had more bearing. Of the graduates of the high socioeconomic level, (with fathers in professional or managerial positions), nearly sixty percent in the lowest forty percent of the sample's ability distribution matriculated. Of the graduates at the low socioeconomic level (with fathers in semiskilled and unskilled occupations), only about forty percent in the upper forty percent of the ability distribution went on to college. This study also revealed that there was a strong association between a senior's decision to go to college and his parents' educational level. Parental encouragement readily distinguished

those who went to college from non-attenders. More than twice as many college attenders as non-attenders had parental encouragement to pursue college enrollment (Trent and Medsker, 1968, p. 26). Differences in attitudes were determined by the results of the Omnibus Personality Inventory. The college attenders were distinguished on the scales of Thinking Introversion, Social Maturity and Nonauthoritarianism.

Berdie contended that a close relationship exists between the plans made by students during their senior year in high school and their subsequent behavior during the following year, and that:

It appears that a succession of psychological and situational barriers must be overcome before an adolescent can attain his educational and vocational goals. One group of these barriers must be overcome before these plans are placed in operation. The same factors, however, appear to be effective in overcoming both sets of barriers. That is, those conditions which result in a student's formulating a given plan tend also to be the conditions which determine the extent to which he is able to follow those plans (Berdie, 1954, p. 231).

Douvan and Kaye postulated that:

If we know little about the decision to go to college, we know even less about how adolescents choose the particular schools they enter (Douvan and Kay, 1962, p. 216).

They suggest that although the choice of school is not a uniform process, there are certain criteria which may be conceived as a part of the conscious need-structure that the choice must satisfy. Major among these criteria are: geographic criteria, academic quality, status-prestige and cost. Hammond (1959) elaborates on a number of other criteria which contribute to students' choice of colleges; public or private support, coed or like-sexed student-body, size, and physical facilities.

Holland's study, based on samples of National Merit Scholars, tended to confirm his hypothesis that different types of colleges attract different kinds of students with characteristic patterns of academic abilities, vocational goals, educational values, personalities, and family backgrounds. Specifically, he found that:

1. The selection of an undergraduate institution is probably the outcome of a complex set of forces including student goals, abilities and personality, which interact with parental values, education, socioeconomic status, and parental images of the "best" and ideal college.
2. The evidence for institutional choice strongly suggests that colleges receive talent supplies which differ not only in their abilities for academic work but also in their personalities and values; consequently, it is likely that there is a great range of potential for various kinds of achievement among student populations (Holland, 1959, p. 26).

Chickering and McCormick (1970) conducted a longitudinal study of the students entering the thirteen colleges participating in the Project on Student Development in 1965. These freshmen were administered the Omnibus Personality Inventory and, during the spring of 1969, students still enrolled in twelve of the colleges completed the instrument again. Although it was recognized that there were dramatic differences in the institutions and wide differences in the characteristics of the students entering these diverse colleges, the study revealed that there was a close fit between the characteristics of the students and the characteristics of the colleges they entered.

Most students move toward institutions whose purposes and programs fit their own interests and inclinations and whose students and faculty hold values and attitudes similar to their own. This process of self-selection and institutional selection creates a comfortable fit between the college and the person for substantial numbers of students (Chickering and McCormick, 1970, p. 16).

In accord with Chickering and McCormick, Sanford (1962) stated earlier that students differ from one institution to another, and different institutions attract or select or develop different types of students. He implied that certain students are "selected" by certain colleges because of the admission policies and the educational programs.

Annually since 1966 the American Council on Education has published the results of a survey of college freshmen. This year's report, National Norms for Entering College Freshmen---Fall 1970 provides a profile and comparative data which may be useful in analyzing freshman classes at particular institutions.

The report indicates that 96% of the entering freshmen are 18 or older, with 73.2% being 18 years old. Nearly all are U. S. citizens and most grew up in small towns, moderate sized cities, or suburbs of large cities. Seventy-three and three-tenths percent of their fathers and 78.5% of their mothers have graduated from high school. Eighty-two and five-tenth percent attended public high schools and 50.5% characterized their neighborhoods as middle class, 15.4% as working class, and 1.4% as lower class. The high school grades reported indicated that only 11.7% had C or D averages.

Fifty-five and one-tenth percent of the parents earned an income of \$12,499 or less and most entering freshmen were concerned about financing their college education. Only 33.8% indicated no concern, while 11.1% showed major concern. Most students are utilizing personal savings or employment (37.3%) or parental aid (55.3%) as a major source of financial support and 39.3% are using loans, scholarships, grants and gifts.



There was a broad distribution of choices of probable major fields of study, and 15.9% of the students estimated that chances are very good they will change major fields, although 64.7% said they would probably be satisfied with college. Eleven and six-tenths percent were undecided about career occupations, and of those who were decided 16.2% estimated that they would probably change.

Some activities reported were similar to item responses in the College Student Questionnaire, Part 1. Students reported that during the past year they discussed their future with parents frequently (38.7%), attended religious service (87.6%), did extra reading for class frequently (15.6%), tutored another student (45.2%), read poetry not required in a course (57.2%), visited an art gallery or museum (68.8%), discussed politics frequently (26.8%), and had vocational counseling (52.9%).

The responses regarding the entering freshmen's objectives and opinions were categorized according to the type of college they were attending. Those entering public universities reported a number of objectives considered essential or very important. Among those reported were: becoming an authority in my field (68.1%); influencing the political structure (20.1%); influencing social values (33.6%); having friends with different backgrounds (62.6%); being well-off financially (37.3%); helping others in difficulty (62.4%); contributing to scientific theory (12.6%); keeping up with political affairs (58.2%); and developing a philosophy of life (79.3%).

Freshmen entering public universities agreed strongly or somewhat that students should have a major role in curriculum design (92.0%), chief benefit of college is monetary (60.0%), college grades should be

abolished (46.5%), disadvantaged should get admission preference (39.9%), colleges have been too lax on student protests (54.9%), can barely communicate with parents (18.6%), beliefs are similar to most students (69.3%), women should receive the same opportunities as men (84.1%), and all should have a chance to go to college (52.4%).

### College Major and Career Choice: Theoretical Models

The decision-making associated with selecting an academic major may or may not be directly related to the broader task of selecting a career. Super (1961) defines career as "the sequence of occupations, jobs and positions in the life of an individual."

Davis, whose study sampled undergraduate career preferences of students in 135 colleges, discussed the effects of college:

The college years are not the sole determinant of vocational choice---nor is any span of four years---for vocational choice is the result of a continuous decision process over decades, but there is no evidence in our data that the college years do not contribute their fair share of influence. Although our guess is that the last two years of high school are the most strategic period of all for vocational choice, college is not without its effect (Davis, 1965, p. 33).

Even if choosing and pursuing an academic major is not an integral part of choosing a career, there may be some similarities in the decision-making processes associated with selecting a college major and selecting a career. Theories of vocational development may be useful in understanding the intricacies of the process of deciding on an academic major.

Osipow (1968) has suggested four approaches to career development theory (pp. 10-11). He categorized the oldest approach as trait-factor theories and indicated that vocational counseling and development of interest inventories such as the Strong Vocational Interest Blank and the Kuder Preference Record originated with the trait-factor approach.

Osipow refers to a second category of career development theory as the sociological model:

This approach has as its central point the notion that circumstances beyond the control of the individual contribute significantly to the career choices he makes and that the principal task confronting the youth (or older person, for that matter) is the development of techniques to cope effectively with his environment (Osipow, 1968, p. 11).

The last two categories of theory proposed by Osipow appear to be most applicable to this study related to college major decision-making. They are the self-concept theory and the personality theory.

Self-concept theory: Osipow refers to the theoretical work of Ginzberg (Ginzberg et al, 1951; Ginzberg, 1952) and Super (Super, 1953, 1957; Super et al, 1957) in relating self-concept theory to career decision-making.

Ginzberg, Ginsburg, Axelrod and Herma (1951) began their study of work in the late 1930's and published Occupational Choice: An Approach to a General Theory in 1951. They suggested three elements to a theory of occupational choice: (1) occupational choice is a developmental process; (2) the process is largely irreversible; and (3) the process ends in compromise. More specifically, occupational choice is a series of decisions made over a period of years. Each decision made during the process is dependent on the chronological age and development of the individual, and later decisions are limited by previous decisions. The final choice of careers is dependent upon a compromise between interest and opportunity (pp. 185-196).

Ginzberg et al found that the process of occupational decision-making could be analyzed in terms of three periods related to age: fantasy choices (before 11), tentative choices (between 11 and 17), and realistic choices (between 17 and young adulthood) (Ginzberg, 1952).

We discerned four stages within the tentative period and three stages within the period of realistic choices. The first stage in the tentative period was called the interest stage because tentative choices made at this time are based almost exclusively on interests. Next, the adolescent takes into consideration his capacities, and later, his values---the next two stages---and around seventeen he is in the transition stage, looking forward to college or a job. The realistic period begins with the exploration stage during which the individual seeks for the last time to acquaint himself with his alternatives. This is followed by the crystallization stage, when he determines his choice, and finally, by the specification stage, during which he delimits it. (Ginzberg, 1952, p. 493).

Super proposed a self-concept theory of vocational choice in The American Psychologist (Super, 1953), The Psychology of Careers (Super, 1957), and in Vocational Development: A Framework for Research (Super et al, 1957). His theory was refined and revised through additional study and was elaborated on in a College Entrance Examination Board research monograph (Super, 1963a, 1963b, 1963c). Super (1963a) related general theories of self-concept to a self-concept theory of vocational development which contains the elements of formation, translation and implementation of the self concept (Super, 1963a, p. 11).

In the Career Pattern Study's preliminary theoretical postulation (Super et al, 1957), Super proposed five vocational life stages; Growth stage (Birth-14), Exploration stage (age 15-24), Establishment stage (age 25-44), Maintenance stage (age 45-64), and Decline stage (age 65 on) (pp. 40-41).

Super later focused on adolescent and adulthood life stages of Exploration and Establishment and suggested that individuals move through these stages with concern for five vocational developmental tasks; (1) crystallizing a vocational preference, (2) specifying a vocational preference, (3) implementing a vocational preference,

(4) stabilizing a vocation and, (5) consolidation status and advancing in a vocation (Super, 1963c, p. 81).

Personality theory: Osipow (1968) referred to Holland (Holland, 1959, 1966) and Roe (Roe, 1957) among others as theorists who have explored the implications of personality in career development.

Holland's theory originally contended that at the time an individual makes a vocational choice he is the product of the interaction of his heredity and a variety of cultural and personal forces. The person develops a hierarchy of "adjustive orientations" through which he makes compatible vocational choices. At this time Holland categorized the major occupational environments as Motoric, Intellectual, Supportive, Conforming, Persuasive, and Esthetic (Holland, 1959, pp. 35-36).

Later, (Holland, 1966) Holland concentrated on a refined statement of theory which explored several ideas: (1) the assumption that people can be characterized by their resemblance to one or more personality types; (2) the assumption that the environments in which people live can be characterized by their resemblance to one or more model environments; and (3) the knowledge of personality types and environmental models allows for the pairing of persons and environments and the prediction of outcomes (Holland, 1966, p. 9).

Roe (1957) postulates that people have inherited tendencies, supported by childhood experiences, to develop a particular life-style and, as a part of that life-style, to be drawn toward particular careers. There is an assumption that individuals differ at birth---both physically and psychologically---and these factors, when combined with familial patterns, are useful in predicting vocational choice.

In a paper read at the APA Symposium on Theories of Vocational Choice, Roe offered eight hypotheses on relation of early experience to vocational choice:

1. The hereditary bases for intelligence, special abilities, interests, attitudes and other personality variables seem usually to be non-specific.
2. The pattern of development of special abilities is primarily determined by the directions in which psychic energy comes to be experienced involuntarily.
3. These directions are determined in the first place by the patterning of early satisfactions and frustrations.
4. The eventual pattern of psychic energies, in terms of attention directedness, is the major determinant of the field or fields to which the person will apply himself.
5. The intensity of these unconscious needs, as well as their organization, is the major determinant of the degree of motivation as expressed in accomplishment.
6. Needs satisfied routinely as they appear do not develop into unconscious motivators.
7. Needs for which even minimum satisfaction is rarely achieved will, if lower order, prevent the appearance of higher order needs, and will become dominant and restricting motivators.
8. Needs, the satisfaction of which is delayed but eventually accomplished, will become unconscious motivators, depending largely upon the degree of satisfaction felt. (Roe, 1957, pp. 212-214)

Tiedeman (1961) referred to Super's writings to develop a paradigm for decision-making as it applies to vocational development. Tiedeman assumed that educational choices and educational development may be a part of vocational development, but, in any event, his analysis of the problem of deciding has implications for educators who are attempting to understand the developmental process involved with selecting an academic major.

Tiedeman proposed that deciding may be divided into periods of anticipation and implementation or adjustment.

I. The Period of Anticipation. Tiedeman suggested that anticipatory behavior has four developmental stages (1) Exploration, where an individual considers the various alternatives and goals. Here, "a person attempts to take the measure of himself in relation to each alternative as he senses it" (p. 16); (2) Crystallization, a time of stabilization; (3) Choice, at this time a particular goal, selected with varying degrees of certainty, orients the behavioral system of the person--- "choice readies the individual to act upon his decision" (p. 17); (4) Specification, a time prior to initiation when an individual elaborates, specifies, and perfects his image of the future.

II. The Period of Implementation and Adjustment. Tiedeman describes this period as the time when "imaginative concerns come face to face with reality" (p. 17). Developmentally, this period is divided into three stages of (1) Induction, (2) Transition, and (3) Maintenance. Induction is the time when the experience starts, (i.e., enrollment in the selected major): "Supervisors and colleagues associated with the position a person elects to fill start the process of perfecting



their expectations for him" (p. 17). Transition begins when a person can ascertain that he is being successful and he asserts himself in the position. The last developmental stage, Maintenance, is a period when the individual is satisfied with his progress and is considered successful by others involved---a time of "dynamic equilibrium".

Tiedeman emphasizes that these periods and stages are reversible and that disturbances, as elected by the person or as forced upon him, contribute to development or disintegration.

### Choice of Major, Change of Major, and the Undecided Freshman

A review of previous research indicates support for Baird's contention that there are few differences between freshmen who have chosen majors and those who are still undecided (Baird, 1967). The primary difference may be simply that some have chosen majors and others have not. This section will survey the literature pertinent to the characteristics of students and the conditions surrounding choice of major, change of major, and the undecided student.

Choice of Major. Freshmen who have selected majors have arrived at this choice through a developmental process such as those described later in the review of theoretical models of vocational choice (Ginzberg, 1952, Super et al., 1957, Holland, 1959, Roe, 1957).

Students who initially enter various major fields of study tend to be somewhat identifiable with the major area of their choice. Abe and Holland, in an American College Testing study describing college freshmen who planned to enter different fields of study, reported that:

The descriptions of students seeking different fields imply, to a limited degree, that students know where they belong. They seek fields which are appropriate to their interests, values, and their special talents. Students with scientific accomplishments, abilities, and interests seek scientific fields and at the same time they avoid fields which demand interpersonal competencies. Similar patterns of attraction and repulsion exist for most of the remaining areas of study. These results make clear that the process of making an educational decision is dependent upon a great range of student characteristics: interests, values, self-conceptions, competencies, achievements, range of experience, and family resources (Abe and Holland, 1965, p. 50).

This study utilized a comprehensive assessment of 12,432 college freshmen attending 31 institutions in 1964.

Studies by Davis (1965), Wertz (1966), and Baird (1967), in addition to those of Abe and Holland (1965), indicate that socioeconomic background, sex, race, and other demographic characteristics may distinguish those who initially choose particular fields of study.

Warnath and Fordyce (1961) found that if college freshmen are classified by prospective fields of study they differ significantly on personality and attitude measures. It would appear that different fields of study tend to attract different kinds of students. The study was designed to test the values which students declaring different majors as freshmen at a large western university reveal. It hypothesized that a substantial group of students were able to identify themselves with certain values and would select an academic major which was "congenial" with that set of values.

The study utilized the Poe Inventory of Values, (PIV), which yields scores in eight areas of values; Aesthetic, Intellectual, Material, Power, Social Contact, Religious, Prestige, and Humanitarianism. This instrument was administered to all freshmen entering the University of Oregon in the fall of 1958. Warnath and Fordyce concluded that "students come to college with differential value orientations which seem to be translated into a choice of major" (p. 280).

Baird (1967) focused on students' educational goals and the relationship to choice of major. In this study, college-bound high school students were asked to choose their most important goal in attending college from these alternatives:

To learn how to enjoy life.

To develop my mind and intellectual abilities.

To secure vocational or professional training.

To make a desirable marriage.

To earn a higher income.

To develop moral standards.

To become a cultured person.

To develop my personality.

To develop a satisfying philosophy.

None of these.

Baird utilized a three percent sample of 612,000 students who were tested by American College Testing between November, 1964 and October, 1965. Ten thousand seventy-three men and 8,305 women were sampled. Baird concluded that educational goals were clearly related to choice of college, choice of college activities and educational plans (pp. 24-25).

Change of Major. Although a freshman may enter college with a commitment to a particular major, there is reason to believe that he may change. Axelrod said, "There is a great deal of indecision about careers, even among the most studious high school students, as they enter college and learn about themselves and the world" (Axelrod et al., 1969, p. 60). Studies indicate that there is a long-standing pattern of change in academic and career plans among college students.

Strong (1952) sampled 255 male freshmen at Stanford in 1930. He compared their occupational choices as freshmen and sophomores and reported that 42% changed choices.

In another early study, Sparling used the Vocational Fitness scale and questionnaire to sample male and female seniors at Long Island University to ascertain change in vocational choice. He discovered

that 42% of those sampled reported a change in vocational plans from the time they had entered the university (Sparling, 1933).

More recently, Holland (1963) provided some insight into change among academically talented students when he studied 98 female and 248 male high school senior finalists in the 1956 National Merit Scholarship program. He compared their vocational choices as high school seniors and their choices four years later and reported that 58% of the females and 44% of the males changed vocational choice.

Axelrod et al (1969) supported Holland's findings in reporting that the Center for Research and Development in Higher Education at Berkeley found that 40% of the winners and runners-up in the National Merit Scholarship competition changed their intended field of specialization between the summer before college entrance and at the end of the sophomore year.

In research conducted at a large public university, Juola studied freshmen entering Michigan State University in the fall of 1964. The follow-up studies showed that over one-half of beginning freshmen, (exclusive of those who initially indicated No Preference), tended to change majors between the time of initial choice and graduation, and the majority of these changes were outside the original major preference area:

...a typical move is from technically oriented curricula to non-technical ones. It is apparent that a logical alternative to making an initial commitment only to change later at some sacrifice is to remain non-committed at first and make a decision only after one has had the opportunity to explore his interests and abilities and the institution's demands (Juola, 1966, pp. 11-12).

At Oregon State University, LeMay (1970) studied the graduation rate of entering OSU freshman males during a four-, five-, and six-year period and reported that of the 1514 OSU male freshmen who entered college for the first time in the fall of 1963 a total of 410 (27%) graduated from the school in which they originally enrolled as freshmen and 265 (17.5%) transferred from their original school and graduated during the six-year period.

The Undecided Freshman. With the exception of the emphasis placed on the concept that there is involvement of developmental processes, the various vocational theories do not give attention to the undecided student. At the same time, the studies which explore academic uncertainty and its relationship to student characteristics and ability are few (Baird, 1969). Weitz, Clark and Jones (1955) indicated that there is little in the literature suggesting a major effort to study the particular relationship between certainty of choice and ability. Abel (1966) said that the literature on the relation of academic performance and choice of major is contradictory.

In early studies, Marshall and Simpson (1943) identified undecided students as being low in academic aptitude and performance, while Williamson (1937) found no relation between academic achievement and the fact that a student had made a vocational choice.

Marshall and Simpson's study (Marshall and Simpson, 1943) began in 1937 and was a four-year study of 270 college men attempting to determine the effect of choice of vocation upon college grades. They identified, through the interview method, the group as initially including about one-third who had definite vocational decisions,

one-third with tentative decisions, and one-third who were undecided. They noted that throughout the four years the proportion of the group with tentative decisions remained relatively constant but that the decided group increased and the undecided group decreased. However, even during the last semester, 14% of the class were still undecided about vocational preference (p. 304). Scores on the American Council Psychological Examination and grades were utilized to compare the groups. Marshall and Simpson concluded that:

1. Students of limited academic ability were most likely to have a definite vocational decision. Although these students did not rank high in academic aptitude, their academic performance was usually high.

2. Students with high intelligence generally had only tentative choices of vocations and earned average grades.

3. College students who were undecided about their vocational choices ranked 'mediocre to low' in academic aptitude but academic performance was consistently low (p. 305).

Weitz, Clark and Jones (1955) were supportive of Marshall and Simpson's findings. They studied 2192 men and women entering the liberal arts colleges of Duke University in the fall terms of 1951, 1952 and 1953. They hypothesized that:

1. Students who express a preference for a major field of study in college are better prepared for college than students who express no such preferences.

2. When preparation for college is held constant, men students who express a preference for a major field of study perform better in college than men who express no preference.

3. When preparation for college is held constant, women students who express a preference for a major field of study perform about as well in college as women students who express no such preference (Weitz et al., 1955, p. 28).

They utilized placement test performance and academic performance during the first semester of the freshman year to conclude that, (1) men and women with identifiable educational goals appear to be better prepared for college than those who do not, (2) men students with educational goals appear to do better in college than those who do not and (3) women students do about equally well in college whether they have educational goals or not (p. 34).

One other study was found which was indirectly supportive of differences between decided and undecided students. Walsh and Russel (1969) investigated the differences in reported personal adjustment problems between freshmen students who made a congruent college major choice and students who made an incongruent choice. Subjects who made a congruent college major choice reported fewer personal adjustment problems when compared with subjects in the incongruent group (Walsh and Russel, 1969, p. 685).

In contrast, and in support of Williamson's earlier findings, most recent studies report few differences between decided and undecided students.

Watley (1965) conducted a one-year study on new freshmen entering the Institute of Technology at the University of Minnesota in the fall of 1961. When these students attended a two-day orientation session each was asked to indicate on a questionnaire how confident he was that



he would remain in his chosen field of study. Watley categorized 547 males as being Very Confident, Quite and Somewhat Confident, and Not Confident. He found that students who were not confident about choice of majors had higher grades at the end of the first quarter, but there was no difference in persistence between the groups. The Minnesota Multiphasic Personality Inventory was used to assess personality characteristics of the group and it was discovered that characteristics of personality had more influence than ability or measured interest in student's expressions of confidence in continuing in their chosen major.

Juola (1966) compared No Preference students to all other entering students at Michigan State University. This study indicated that:

1. The No Preference category attracted proportionately more females than males.
2. Ability levels showed little difference between No Preference and others.
3. In the fall of 1964 the two groups had identical scores on English and reading tests.
4. No Preference students were slightly higher on the vocabulary tests but lower on quantitatively-oriented numerical and information tests.

When No Preference students do elect majors, usually during the third term of the freshman year or the first term of the sophomore year, they tend to select majors in the more linguistic or non-technical areas.

Ashby, Wall and Osipow (1966) studied three groups of first-term freshmen at Pennsylvania State University. The groups, which included

both men and women, were identified as Decided, Tentative, and Undecided regarding education-vocational plans. Comparisons were made using a number of variables, including the CEEB-SAT scores and the Strong Vocational Interest Blank. This study indicated that both the Decided and Undecided groups were academically superior to the Tentative group, and that there was no relationship between the degree of career decisiveness and SVIB group scores. The Undecided group was found to be capable but exhibited greater dependency and needed extra support in their academic endeavors.

The most detailed of the recent studies on the undecided student were conducted by Baird (1969). In two related studies he compared students who were undecided about a vocational choice with those who were decided. The first study sampled 6,289 male and 6,143 female college freshmen from 31 institutions including selective liberal arts colleges, state universities and two-year community colleges. In this study, 5,838 males and 5,848 females were identified as decided while 451 males and 295 females were undecided. In the second study 59,618 college-bound students who took the American College Testing battery comprised a ten percent sample of those who had completed the ACT on the national test dates in November 1965 and September 1966. The 45,923 students who were decided about a vocation were compared with the 13,695 students who had not made a decision.

In the first study, only chance differences were found between men and women and "no real differences between the student who had decided upon a vocation and the student who has not" (p. 432).

The second study showed no differences between undecided and decided college-bound students on the basis of academic aptitude or

high school grades. Baird found the undecided students to be more intellectually oriented and less vocationally oriented (p. 429). He pointed out that:

Perhaps the undecided student wishes to use the opportunity that college provides of exploring himself and the world before he chooses a vocation (Baird, 1969, p. 433).

### Summary of the Review of the Literature

This review of literature was presented in three sections: (1) The Entering Freshman, (2) Choice of Major, Change of Major and the Undecided Freshman, and (3) College Major and Career Choice: Theoretical Models.

There is a need for more comprehensive data about the entering freshman. Although there are numerous studies related to academic aptitude, few studies have dealt specifically with the values, attitudes, or motives of the entering freshman. Furthermore, some researchers note that even the decision to go to college deserves more systematic investigation. Important influences in the decision to attend college include: academic ability, socioeconomic status, parental educational level, access to a college and parental encouragement.

Different types of colleges attract different kinds of students with characteristic patterns of academic abilities, vocational goals, educational values, personalities and family backgrounds. Some studies revealed that usually there is a close fit between the characteristics of the students and the characteristics of the colleges they enter.

Previous research indicates that there are few differences between freshmen who have chosen majors and those who are still undecided. Students seek out choices of majors appropriate to their interests, values and talents, and a variety of demographic characteristics may distinguish those who choose particular fields of study. Numerous studies indicated that there is ample reason to anticipate that entering college students may change their academic objectives, thus supporting the literature related to the developmental process of decision-making.

Few students were found which related academic uncertainty and student characteristics. Some studies were supportive of differences between decided and undecided students, but most recent studies and some earlier investigations reported few differences between these two groups.

Two theoretical approaches to career development---self-concept theory and personality theory---may be useful references when viewing the developmental processes of students as they make decisions about academic majors in college. Self-concept theory suggests that occupational choice is a series of decisions made over a period of years, with each decision based on the age and development of the individual. Later decisions are dependent upon earlier decisions and final choice is a compromise between interest and opportunity. Proponents of the self-concept theory seem to agree that the decision-making process can be identified by developmental stages. However different theorists have organized and identified these developmental stages with varying nomenclature. The literature which related personality theory to career choice suggested that it may be possible to utilize the knowledge of personality types and environmental models, and peoples' relation to these types and models, to predict outcomes in terms of career decisions. Personality theory also assumes that individuals differ physically and psychologically at birth and that these factors combined with familial patterns may be useful in predicting vocational choice.

## CHAPTER III

### METHODOLOGY AND PROCEDURE

The subjects of this study were selected from among those freshmen entering Oregon State University in the fall of 1970 who had participated in the 1970 OSU Summer Orientation Advising Program (SOAP).

#### Criteria for Sample Selection

The intent of this study was to compare selected groups of entering Oregon State University freshmen participating in SOAP on the variables of (1) the scales of the College Student Questionnaire, Part I, and (2) academic ability as measured by high school grades and Scholastic Aptitude Test scores, with the population being limited to those who had participated in the Summer Orientation program prior to enrollment.

To be eligible for sample selection a student:

1. must have been identified as a beginning freshman, with no previous college enrollment;
2. must have participated in Oregon State University's 1970 Summer Orientation and Advising Program;
3. must have been enrolled at Oregon State University at the time of the sample selection;
4. must have had high school cumulative grade average and Scholastic Aptitude Test scores on file in the Office of the Dean of Students;
5. must have been identified as either certain or uncertain about academic major at the time of enrollment at Oregon State University.

### Selection of Samples

The following procedures were utilized to identify the sample sub-groups of (1) men certain about choices of academic majors, (2) women certain about choices of academic majors, (3) men uncertain about choices of academic majors, and (4) women uncertain about choices of academic majors:

1. Before the beginning of fall term, but after the last summer orientation session, the records on file in the Office of New Student Programs were used to identify all Summer Orientation and Advising Program (SOAP) participants and their home addresses. Eight Hundred eighty-nine participants were identified.
2. All 889 SOAP participants were contacted at their home addresses with a communication from the Office of New Student Programs containing a letter of explanation (Appendix A) and a Likert-scaled questionnaire designed to determine the participant's degree of certainty or uncertainty about academic major at the time he received the questionnaire (Appendix B). Seven hundred forty-five of the 889 SOAP participants responded to this initial request.
3. A follow-up communication was sent from the Office of New Student Programs to those who had not responded to the initial request. Ninety-nine additional responses were subsequently received from this follow-up request. A total of 844 of the 889 SOAP participants responded and

identified themselves as (a) definitely or somewhat certain about academic major or (b) definitely or somewhat uncertain about academic major. It was later determined that of the 45 SOAP participants who did not respond, six did not enroll at Oregon State University. Thus, of the 883 SOAP participants who subsequently enrolled at Oregon State University in the fall of 1970, 844 (95.6%) responded; 39 did not. Ninety-nine (11.7%) of the 844 identified themselves as definitely or somewhat uncertain about choice of academic major (see Table 1).

TABLE 1: Distribution of male and female 1970 Summer Orientation and Advising Program participants identified as Certain or Uncertain about choice of academic major at the time of enrollment at Oregon State University

	Certain	Uncertain	Total
Males	394	39	433
Females	351	60	411
Total	745	99	844

4. At the end of the 1970 fall registration an examination of the records in the Office of the Dean of Students revealed that all 745 of the Certain group, and all 99 of the Uncertain group had enrolled and met the requirements for sample selection. This combined group of 844 comprised the original population from which the sub-group samples were selected.
5. Sample members of each sub-group, (1) Certain Men, (2) Certain Women, (3) Uncertain Men and, (4) Uncertain Women, were drawn by utilizing a table of random numbers (Freund, 1967). The



intent was to develop sub-group samples of size fifty as recommended by Educational Testing Service for use of the College Student Questionnaire, Part I. It was decided that if no differences were found to be statistically significant for small groups, they would have little practical significance for future policy matters or Program Planning. Since there were fewer than fifty men identified as Uncertain who met the criteria for sample selection it was decided to include all 39 Uncertain men in that sub-group (see Table 2).

TABLE 2. Distribution of men and women in the Certain and Uncertain sub-group samples.

	Certain	Uncertain	Total
Men	50	39	89
Women	50	50	100
Total	100	89	189

#### Sources of Data

Data were obtained from two sources:

##### Official University Records

Information about high school grade point averages and Scholastic Aptitude Test scores was obtained from the Office of the Dean of Students.

##### The College Student Questionnaire, Part I

CSQ, Part I is a research questionnaire designed to describe groups of students. The questionnaire was developed as a means of gathering a diversity of biographical and attitudinal information. Part I is designed for administration to entering students and contains questions about

(a) educational and vocational plans and expectations, (b) activities, achievements, and perceptions during secondary school, (c) family background, and (d) personal attitudes (Peterson, 1968). These data are compiled in the CSQ, Part I scales of (1) Family Independence (2) Peer Independence (3) Liberalism (4) Social Conscience (5) Cultural Sophistication (6) Motivation for Grades and (7) Family Social Status.

### Collection of Data

A. The members of all four sub-group samples were contacted and invited to participate in the study and to complete the College Student Questionnaire, Part I (see Appendices C, D, and E).

1. The CSQ, Part I was administered to those who responded to the initial invitation in a reserved room of the Memorial Union Building.
2. Follow-up communication, both by letter and by telephone, and individual administrations of the CSQ, Part I resulted in a total response from 178 members of the sub-group samples. All 50 of the sub-group of Certain Women responded. Of the sub-group sample of 50 Certain Men, 45 responded, three indicated an initial willingness to participate but subsequently did not respond, and two other members of this sub-group provided insufficient campus addresses for contact. Of the sub-group sample of 50 Uncertain Women, 49 responded and one indicated her preference not to participate. Of the sub-group of 39 Uncertain Men, 34 responded, two withdrew from the university, initial contact was not made with one member and two others refused to respond (see Table 3).

TABLE 3. Distribution of men and women in sub-group samples who completed CSQ, Part I and met all other qualifications for participation in the study.

	Certain		Uncertain		Total			
	N	%	N	%	N	%		
Men	50	(45)	90.0	39	(34)	87.1	79	88.8
Women	50	(50)	100	50	(49)	98.0	99	99.0
Total		95	95.0		83	93.1	178	94.1

B. The records at the Office of the Dean of Students were utilized to obtain cumulative high school grade-point averages and Scholastic Aptitude Test scores for all sub-group members who completed the College Student Questionnaire, Part I.

### Analysis of the Data

#### The College Student Questionnaire, Part I

When answer sheets had been collected from all participants they were checked for errors. Each answer sheet was coded to identify the respondent with the appropriate sub-group. The answer sheets were then sent to Educational Testing Service, Princeton, New Jersey, for tabulating and scoring.

After the answer sheets had been scored by Educational Testing Service (ETS), they were returned with the tabulations provided through the ETS Standard Service, which included punched data cards and a computer print-out of results consisting of:

1. Abstracted item stems and response alternatives, response frequencies and proportions for the total group and four sub-groups.

2. Scale scores: frequency distributions, means, and standard deviations for the total group and sub-groups.

3. Comparison data: item response proportions, scale means.

The data from the scale scores were punched on standard punch cards and analyzed for significant difference through the facilities available at the Oregon State University Computer Center.

#### High School Grade Point Averages and Scholastic Aptitude Test Scores

After their collection from the records on file in the Office of the Dean of Students these data were sorted according to appropriate sub-groups and punched on standard punch cards. These data, too, were analyzed for significant difference through the facilities of the Oregon State University Computer Center.

#### Statistical Treatment

The following null hypotheses were tested:

Ho1. There is no significant difference between a selected group of college freshman men who are uncertain about their choices of academic majors and a selected group of college freshman women who are uncertain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.

Ho2. There is no significant difference between a selected group of college freshman men who are certain about their choices of academic majors and a selected group of college freshman women who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.

- Ho3. There is no significant difference between the combined groups of men from the Certain and Uncertain categories and the combined groups of women from the Certain and Uncertain categories, as measured by the seven scales of the College Student Questionnaire, Part I.
- Ho4. There is no significant difference between a selected group of college freshman men who are uncertain about their choices of academic majors and a selected group of college freshman men who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.
- Ho5. There is no significant difference between a selected group of college freshman women who are uncertain about their choices of academic majors and a selected group of college freshman women who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.
- Ho6. There is no significant difference between a selected group of college freshmen (men and women) who are uncertain about their choices of academic majors and a selected group of college freshmen (men and women) who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.

In the preliminary investigation of academic ability, this question was posed:

To what extent do selected groups of college freshmen men and women differ in academic ability as measured by high school cumulative grade point averages and Scholastic Aptitude Test scores?

In order to statistically test the hypotheses and preliminary question of the study the following comparisons were made:

1. Uncertain Men with Uncertain Women
2. Certain Men with Certain Women
3. All men (Certain and Uncertain) with all women  
(Certain and Uncertain)
4. Uncertain Men with Certain Men
5. Uncertain Women with Certain Women
6. Uncertain freshmen (men and women) with Certain freshmen  
(men and women)

For each pair of groups, difference between means were tested using the "Student t test" with the .05 and .01 levels of significance being accepted as indicating degrees of confidence that differences were real (Snedecor and Cochran, 1967). The test statistic utilized to analyze the data may be outlined as follows:

$n_1$  — number in first group

$n_2$  — number in second group

$\bar{x}$  — sample mean of one group

$\bar{y}$  — sample mean of second group

$$\text{where } s_x^2 = \sum_{i=1}^n 1 (x_i - \bar{x})^2 / n_1 - 1$$

$$\text{and } s_y^2 = \sum_{i=1}^n 2 (y_i - \bar{y})^2 / n_2 - 1$$

$\mu_1$  — population mean of first group

$\mu_2$  — population mean of second group

$$t = \frac{(\bar{x} - \bar{y}) - (\mu_1 - \mu_2)}{s_{\bar{x} - \bar{y}}}$$

where  $s_{\bar{x} - \bar{y}}^2 = s_p^2 \frac{n_1 \times n_2}{n_1 + n_2}$

and  $s_p^2 = \frac{(n_1 - 1) s_x^2 + (n_2 - 1) s_y^2}{n_1 + n_2 - 2}$

Because of the statement of the null hypothesis

$$(\mu_1 - \mu_2) = 0$$

## CHAPTER IV

## ANALYSIS OF DATA

In this chapter data relevant to the hypotheses and preliminary questions stated in Chapter One are tabulated and analyzed. These data are related to characteristics of selected groups of Oregon State University freshmen as measured by (a) high school cumulative grade point average, (b) Scholastic Aptitude Test scores, and (c) the scales of the College Student Questionnaire, Part I.

For this study two groups of freshmen entering Oregon State University in the fall of 1970 have been identified; (1) those who were uncertain about choices of academic majors at the time of entry, and (2) those who were certain about choices of academic majors at the time of entry.

A. Analysis Related to the Preliminary Investigation of Academic Ability

Preliminary investigation was conducted to ascertain whether academic ability was a factor which might act as a possible discriminator in the study related to the hypotheses. The intent of this preliminary investigation was to explore the extent to which selected groups of college freshman men and women might differ in academic ability as measured by high school cumulative grade point averages and Scholastic Aptitude Test scores.

Group comparisons identical to those utilized in investigating the hypotheses were analyzed. The "Student's t" test was used to compare statistically the means of the groups to determine the existence of significant differences.



1. Comparison of Difference in High School Cumulative Grade Point Average:

Tables 4 through 9 show the comparison of differences in high school cumulative grade point averages for the various groups.

Table 4 shows the comparison of difference in high school cumulative grade point average for Uncertain Men (UCM) and Uncertain Women (UCW). There were no significant differences between these two groups of freshmen.

When Certain Men (CM) were compared with Certain Women (CW) there was a significant difference in high school cumulative grade point averages, as is illustrated in Table 5. These groups differed significantly at the .05 confidence level, with the Certain Women having higher grade point averages than Certain Men.

Table 6 shows that when all of the men, both Certain and Uncertain, were combined and compared with the combined group of Certain and Uncertain women significant difference was found at the .01 level.

Tables 7 and 8 indicate that there were no significant differences between Certain and Uncertain Men nor between Certain and Uncertain Women when comparisons were made on the variable of cumulative high school grade point average.

Table 9 indicates that there was no significant difference in high school cumulative grade point averages when all of the men and women of the study who were identified as certain about choices of academic majors were compared with all of the man and women who were uncertain about choices of academic majors.

TABLE 4. Comparison of Difference in High School Cumulative Grade Point Average Using the t-Test for Freshman Men Uncertain About Choice of Academic Majors and Freshman Women Uncertain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.989 Sig. at .05	2.638 Sig. at .01
High School Cumulative Grade Point Average	Uncertain Men	34	3.14	.529	1.7785	N.S.	N.S.
	Uncertain Women	49	3.32	.418			

TABLE 5. Comparison of Difference on High School Cumulative Grade Point Average Using the t-Test for Freshman Men Certain About Choice of Academic Majors and Freshman Women Certain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.986 Sig. at .05	2.631 Sig. at .01
High School Cumulative Grade Point Average	Certain Men	45	3.15	.400	2.2744	Sig.	N.S.
	Certain Women	50	3.33	.399			

TABLE 6. Comparisons of Difference in High School Cumulative Grade Point Average Using the t-Test for Freshman Men of the Certain and Uncertain Groups and Freshman Women of the Certain and Uncertain Groups.

		N	Mean	S.D.	t	1.960 Sig. at .05	2.576 Sig. at .01
High School Cumulative Grade Point Average	Men (CM + UCM)	79	3.14	.457	2.8626	Sig.	Sig.
	Women (CW + UCW)	99	3.33	.406			

TABLE 7. Comparison of Difference in High School Cumulative Grade Point Average Using the t-Test for Freshman Men Certain About Choice of Academic Majors and Freshman Men Uncertain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.994 Sig. at .05	2.648 Sig. at .01
High School Cumulative Grade Point Average	Certain Men	45	3.15	.401	.0679	N.S.	N.S.
	Uncertain Men	34	3.14	.529			

TABLE 8. Comparison of Difference in High School Cumulative Grade Point Average Using the t-Test for Freshman Women Certain About Choice of Academic Majors and Freshman Women Uncertain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.986 Sig. at .05	2.631 Sig. at .01
High School Cumulative Grade Point Average	Certain Women	50	3.33	.399	.1062	N.S.	N.S.
	Uncertain Women	49	3.32	.418			

TABLE 9. Comparison of Difference in High School Cumulative Grade Point Average Using the t-Test for Freshmen Men and Women Certain About Choice of Academic Majors and Freshman Men and Women Uncertain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.960 Sig. at .05	2.576 Sig. at .01
High School Cumulative Grade Point Average	Certain Men and Women	95	3.24	.408	.0592	N.S.	N.S.
	Uncertain Men and Women	83	3.25	.473			

## 2. Comparison of Difference in Scholastic Aptitude Test Scores:

Tables 10 through 15 indicate that there were no significant academic ability differences when the various groups were compared on the variable of Scholastic Aptitude Test scores.

In summary, the comparisons analyzed in this section indicate that there was some academic ability difference between men and women (as measured by high school grades). However, no significant difference in academic ability (as measured by either high school grades or Scholastic Aptitude Test scores) was found in group comparisons based on certainty or uncertainty about choice of academic major. It was therefore concluded that although academic ability acts as a discriminator on the variable of sex it is not a discriminating factor on the variables of certainty or uncertainty about choice of academic majors.

### B. Analysis Related to the Hypotheses

Tabulation and analysis related to the hypotheses are presented in the following six sections:

1. Comparison of differences between freshman men who are uncertain about their choices of academic majors and women who are uncertain about their choices of academic majors on the seven scales of the College Student Questionnaire, Part I.
2. Comparison of differences between freshman men who are certain about their choices of academic majors and women who are certain about their choices of academic majors on the seven scales of the College Student Questionnaire, Part I.

TABLE 10. Comparison of Difference in Total Scholastic Aptitude Test Scores Using the t-Test for Freshman Men Uncertain About Choice of Academic Majors and Freshman Women Uncertain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.989 Sig. at .05	2.638 Sig. at .01
Total SAT Scores	Uncertain Men	34	1075.32	165.34	.6549	N.S.	N.S.
	Uncertain Women	49	1052.31	151.79			

TABLE 11. Comparison of Difference in Total Scholastic Aptitude Test Scores Using the t-Test for Freshman Men Certain About choice of Academic Majors and Freshman Women Certain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.986 Sig. at .05	2.6310 Sig. at .01
Total SAT Scores	Certain Men	45	1035.18	127.70	.0477	N.S.	N.S.
	Certain Women	50	1036.90	209.69			

TABLE 12. Comparison of Difference in Total Scholastic Aptitude Test Scores Using the t-Test for Freshman Men of the Certain and Uncertain Groups and Freshmen Women of the Certain and Uncertain Groups.

		N	Mean	S.D.	t	1.9600 Sig. at .05	2.5758 Sig. at .01
Total SAT Scores	Men (CM + UCM)	79	1052.46	145.48	.3145	N.S.	N.S.
	Women (CW + UCW)	99	1044.53	182.56			

TABLE 13. Comparison of Difference in Total Scholastic Aptitude Test Scores Using the t-Test for Freshman Men Certain About Choice of Academic Majors and Freshman Men Uncertain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.9940 Sig. at .05	2.6480 Sig. at .01
Total SAT Scores	Certain Men	45	1035.18	127.70	1.2182	N.S.	N.S.
	Uncertain Men	34	1075.32	165.34			

TABLE 14. Comparison of Difference in Total Scholastic Aptitude Test Scores Using the t-Test for Freshman Women Certain About Choice of Academic Majors and Freshman Women Uncertain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.9860 Sig. at .05	2.6310 Sig. at .01
Total SAT Scores	Certain Women	50	1036.90	209.69			
	Uncertain Women	49	1052.31	151.79	.4180	N.S.	N.S.

TABLE 15. Comparisons of Difference in Total Scholastic Aptitude Test Scores Using the t-Test for Freshman Men and Women Certain About Choice of Academic Majors and Freshman Men and Women Uncertain About Choice of Academic Majors.

		N	Mean	S.D.	t	1.960 Sig. at .05	2.576 Sig. at .01
Total SAT Scores	Certain Men and Women	95	1036.08	174.80			
	Uncertain Men and Women	83	1061.73	156.90	1.0241	N.S.	N.S.



3. Comparison of differences between all freshman men (certain and uncertain) and all freshman women (certain and uncertain) on the seven scales of the College Student Questionnaire, Part I.
4. Comparison of differences between freshman men who are certain about choices of academic majors and freshman men who are uncertain about choices of academic majors on the seven scales of the College Student Questionnaire, Part I.
5. Comparison of differences between freshman women who are certain about choices of academic majors and freshman women who are uncertain about choices of academic majors on the seven scales of the College Student Questionnaire, Part I.
6. Comparison of differences between all freshmen (men and women) who are uncertain about their choices of academic majors and all freshmen (men and women) who are certain about their choices of academic majors on the seven scales of the College Student Questionnaire, Part I.

The data were analyzed by utilization of the "Students t" statistic to test the null hypotheses at both the five percent and one percent confidence levels. In the analysis of each section the seven scales of the CSQ, Part I were treated and analyzed independently.

COMPARISON OF DIFFERENCES BETWEEN FRESHMAN MEN AND WOMEN  
WHO ARE UNCERTAIN ABOUT THEIR CHOICES OF ACADEMIC MAJORS  
ON THE SEVEN SCALES OF THE CSQ, PART I

The comparison of freshman men and women who were uncertain about choices of academic majors revealed that there were significant differences on three scales of the CSQ, Part I. Table 16 indicates that on the Family Independence scale a significant difference was recorded at the .05 confidence level, with men having higher scores than women. There was a significant difference at the .01 confidence level on the scales of Peer Independence, where the men had higher scores, and Social Conscience, where the women had higher scores.

COMPARISON OF DIFFERENCES BETWEEN FRESHMAN MEN AND WOMEN WHO  
ARE CERTAIN ABOUT THEIR CHOICES OF ACADEMIC MAJORS ON THE SEVEN  
SCALES OF THE CSQ, PART I

As indicated by Table 17, Certain Men (CM) and Certain Women (CW) differed significantly on the scales of Social Conscience and Cultural Sophistication. On both scales the difference was significant at the .01 confidence level, and in both instances Certain Women had higher scores than Certain Men. It should be noted that there was significant difference on the Social Conscience scale when comparing of men and women in the Uncertain Group and also in the certain group, with women having higher scores in both instances.

COMPARISON OF DIFFERENCE BETWEEN FRESHMAN MEN OF THE CERTAIN  
AND UNCERTAIN GROUPS AND FRESHMAN WOMEN OF THE CERTAIN AND  
UNCERTAIN GROUPS ON THE SEVEN SCALES OF THE CSQ, PART I

Table 18 indicates that when all of the men (Certain and Uncertain) sampled were compared with all of the women (Certain and Uncertain) sampled there were significant differences on five of the scales of the CSQ, Part I. There was a significant difference at the .05 confidence level on the Family Independence scale, with the men scoring higher. The men also scored higher on the Peer Independence scale, with a significant difference recorded at the .01 confidence level. The women scored higher on the remaining three scales where a significant difference was recorded. There were significant differences at the .01 confidence levels on the scales of Social Conscience and Cultural Sophistication and a significant difference at the .05 confidence level on the Motivation for Grades scale.

COMPARISON OF DIFFERENCES BETWEEN FRESHMAN MEN WHO ARE CERTAIN  
ABOUT CHOICES OF ACADEMIC MAJORS AND FRESHMAN MEN WHO ARE UNCERTAIN  
ABOUT CHOICES OF ACADEMIC MAJORS ON THE SEVEN SCALES OF THE CSQ,  
PART I

Table 19 indicates that there were no significant differences between Uncertain Men (UCM) and Certain Men (CM) on any of the seven scales of the CSQ, Part I.

COMPARISON OF DIFFERENCES BETWEEN FRESHMAN WOMEN WHO ARE CERTAIN  
ABOUT CHOICES OF ACADEMIC MAJORS AND FRESHMAN WOMEN WHO ARE  
UNCERTAIN ABOUT CHOICES OF ACADEMIC MAJORS ON THE SEVEN SCALES  
OF THE CSQ, PART I

Comparison of Uncertain Women (UCW) and Certain Women (CW) revealed that there were no significant differences on any of the seven scales of the College Student Questionnaire, Part I. Table 20 presents the summary of this analysis.

COMPARISON OF DIFFERENCES BETWEEN ALL FRESHMEN (MEN AND WOMEN)  
WHO ARE UNCERTAIN ABOUT THEIR CHOICES OF ACADEMIC MAJORS AND  
ALL FRESHMEN (MEN AND WOMEN) WHO ARE CERTAIN ABOUT THEIR CHOICES  
OF ACADEMIC MAJORS ON THE SEVEN SCALES OF THE CSQ, PART I

Table 21 indicates that when the total group of selected freshman men and women identified as uncertain about choices of academic majors were compared with the total group of freshman men and women identified as certain about choices of academic majors there were no significant differences on any of the seven scales of the CSQ, Part I.

TABLE 16. Comparison of Difference in Score Distribution on the Seven Scales of the CSQ, Part I  
Using the t-Test for Freshman Men Uncertain About Choices of Academic Majors and  
Freshman Women Uncertain About Choices of Academic Majors.

		Uncertain Men Uncertain Women		$\frac{N}{34}$ 49	t	Sig. at .05	Sig. at .01
		Mean	S.D.				
Family Independence	UCM	24.45	4.89	2.2749		Sig.	N.S.
	UCW	22.19	4.02				
Peer Independence	UCM	25.25	3.38	2.9548		Sig.	Sig.
	UCW	22.83	3.72				
Liberalism	UCM	27.06	5.84	.4770		N.S.	N.S.
	UCW	26.50	4.40				
Social Conscience	UCM	28.67	4.31	2.7255		Sig.	Sig.
	UCW	31.23	4.01				
Cultural Sophistication	UCM	21.26	5.03	1.5063		N.S.	N.S.
	UCW	22.85	4.47				
Motivation for Grades	UCM	23.85	4.91	1.5001		N.S.	N.S.
	UCW	25.53	5.09				
Family Social Status	UCM	31.74	11.19	.9670		N.S.	N.S.
	UCW	34.08	8.76				

TABLE 17. Comparison of Difference in Score Distribution on the Seven Scales of the CSQ, Part I Using the t-Test for Freshman Men Certain About Choices of Academic Majors and Freshman Women Certain About Choices of Academic Majors.

		Certain Men Certain Women		$\frac{N}{45}$ 50	t	Sig. at .05	Sig. at .01
		Mean	S.D.				
Family Independence	CM	23.45	4.57		.7217	N.S.	N.S.
	CW	22.72	5.16				
Peer Independence	CM	25.09	5.40		1.1819	N.S.	N.S.
	CW	23.92	4.18				
Liberalism	CM	25.39	4.53		1.1443	N.S.	N.S.
	CW	26.47	4.47				
Social Conscience	CM	27.41	4.58		3.4626	Sig.	Sig.
	CW	30.53	4.11				
Cultural Sophistication	CM	19.34	4.29		4.1245	Sig.	Sig.
	CW	23.08	4.47				
Motivation for Grades	CM	23.68	5.57		1.5291	N.S.	N.S.
	CW	25.28	4.57				
Family Social Status	CM	33.05	8.60		.0980	N.S.	N.S.
	CW	32.86	8.28				

TABLE 18. Comparison of Difference in Score Distribution on the Seven Scales of the CSQ, Part I  
Using the t-test for Freshman Men of the Certain and Uncertain Groups and Freshman  
Women of the Certain and Uncertain Groups

		Men (CM + UCM) Women (CW + UCW)		<u>N</u> t	Sig. at .05	Sig. at .01
		Means	S.D.			
Family Independence	Men	23.88	4.71	2.03	Sig.	N.S.
	Women	22.46	4.62			
Peer Independence	Men	25.16	4.61	2.76	Sig.	Sig.
	Women	23.38	3.98			
Liberalism	Men	26.11	5.17	.52	N.S.	N.S.
	Women	26.48	4.41			
Social Conscience	Men	27.95	4.48	4.56	Sig.	Sig.
	Women	30.88	4.06			
Cultural Sophistication	Men	20.17	4.69	4.07	Sig.	Sig.
	Women	22.97	4.45			
Motivation for Grades	Men	23.75	5.26	2.18	Sig.	N.S.
	Women	25.40	4.81			
Family Social Status	Men	32.49	9.75	.71	N.S.	N.S.
	Women	33.46	8.50			

TABLE 19. Comparison of Difference in Score Distribution on the Seven Scales of the CSQ, Part I  
Using the t-Test for Freshman Men Certain About Choice of Academic Majors and Fresh-  
man Men Uncertain About Choice of Academic Majors.

		Certain Men Uncertain Men		<u>N</u> t	Sig. at .05	Sig. at .01
		Means	S.D.			
Family Independence	CM	23.45	4.57	.9221	N.S.	N.S.
	UCM	24.45	4.89			
Peer Independence	CM	25.09	5.40	.1477	N.S.	N.S.
	UCM	25.25	3.38			
Liberalism	CM	25.39	4.53	1.4040	N.S.	N.S.
	UCM	27.06	5.84			
Social Conscience	CM	27.41	4.58	1.2249	N.S.	N.S.
	UCM	28.67	4.31			
Cultural Sophistication	CM	19.34	4.29	1.8177	N.S.	N.S.
	UCM	21.26	5.03			
Motivation for Grades	CM	23.68	5.57	1.4064	N.S.	N.S.
	UCM	23.85	4.91			
Family Social Status	CM	33.05	8.60	.5540	N.S.	N.S.
	UCM	31.74	11.19			

TABLE 20. Comparison of Difference in Score Distribution on the Seven Scales of the CSQ, Part I Using the t-Test for Freshman Women Certain About Choice of Academic Majors and Freshman Women Uncertain About Choice of Academic Majors

		Certain Women Uncertain Women		<u>N</u> t	Sig. at .05	Sig. at .01
	Means	S.D.				
Family Independence	CW	22.72	5.16	.5656	N.S.	N.S.
	UCW	22.19	4.02			
Peer Independence	CW	23.92	4.18	1.3616	N.S.	N.S.
	UCW	22.83	3.72			
Liberalism	CW	26.47	4.47	.0322	N.S.	N.S.
	UCW	26.50	4.40			
Social Conscience	CW	30.53	4.11	.8442	N.S.	N.S.
	UCW	31.23	4.01			
Cultural Sophistication	CW	23.08	4.47	.2546	N.S.	N.S.
	UCW	22.85	4.47			
Motivation for Grades	CW	25.28	4.57	.2573	N.S.	N.S.
	UCW	25.53	5.09			
Family Social Status	CW	32.86	8.28	.6156	N.S.	N.S.
	UCW	34.08	8.76			



TABLE 21. Comparison of Difference in Score Distribution on the Seven Scales of the CSQ, Part I Using the t-Test for Freshmen Certain About Choices of Academic Majors (Men and Women Combined) and Freshmen Uncertain About Choices of Academic Majors (Men and Women Combined)

		Certain Freshmen Uncertain Freshmen		$\frac{N}{95}$ 83	t	Sig. at .05	Sig. at .01
		Means	S.D.				
Family Independence	CF	23.07	4.88		.0707	N.S.	N.S.
	UCF	23.12	4.51				
Peer Independence	CF	24.47	4.81		.999	N.S.	N.S.
	UCF	23.80	3.76				
Liberalism	CF	25.96	4.51		1.080	N.S.	N.S.
	UCF	26.73	5.01				
Social Conscience	CF	29.05	4.59		1.686	N.S.	N.S.
	UCF	30.17	4.30				
Cultural Sophistication	CF	21.30	4.75		1.248	N.S.	N.S.
	UCF	22.10	4.74				
Motivation for Grades	CF	24.52	5.10		.419	N.S.	N.S.
	UCF	24.84	5.06				
Family Social Status	CF	32.95	8.39		.126	N.S.	N.S.
	UCF	33.12	9.83				

### Summary

In this study of freshman men and women who were uncertain about their choices of academic majors and freshman men and women who were certain about their choices of academic majors, the following comparisons were made:

1. Uncertain Men vs. Uncertain Women
2. Certain Men vs. Certain Women
3. All Men vs. All Women
4. Certain Men vs. Uncertain Men
5. Certain Women vs. Uncertain Women
6. Uncertain Men and Women vs. Certain Men and Women

The preliminary investigation compared the groups on the variable of academic ability as measured by (1) high school cumulative grade point averages, and (2) Scholastic Aptitude Test scores. Significant difference in academic ability (as measured by high school grades) was found in the comparison of Certain Men and Certain Women (Table 17), and in the comparison of All Men and All Women (Table 18). No significant differences in high school cumulative grade point average was found in any of the other comparisons. There were no significant differences in academic ability as measured by the Scholastic Aptitude Test among any of the groups compared.

In the study related to the hypotheses, the groups were compared on the scales of the College Student Questionnaire, Part I. It was found that:

- a. in the comparison of Uncertain Men vs. Uncertain Women there were significant differences on three scales: Family Independence,

where the men scored higher; Peer Independence, where the men again had higher scores; and Social Conscience, where the women had higher scores;

- b. in the comparison of Certain Men vs. Certain Women there was significant difference on the scales of Social Conscience and Cultural Sophistication, with the women scoring higher on both scales;
- c. when all of the men were compared with all of the women significant differences were recorded on five scales of the CSQ, Part I. The men scored significantly higher on the scales of Family Independence and Peer Independence, while the women scored higher on the scales of Social Conscience, Cultural Sophistication and Motivation for Grades;
- d. when Certain Men were compared with Uncertain Men no significant difference was found on any of the scales of the CSQ, Part I;
- e. similarly, when the Certain Women were compared with the Uncertain Women, no significant differences were found on any of the seven scales;
- f. there were no significant differences between Uncertain freshmen (men and women combined) and Certain freshmen (men and women combined) on any of the seven scales of the CSQ, Part I.

## CHAPTER V

### SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter includes four sections. The first section is a summary of the purpose, problem and procedures of the study; the second section includes findings based on the data analyzed in Chapter IV; conclusions and implications drawn from the findings appear in the third section; and the fourth section contains recommendations made on the basis of the results of the study.

#### Summary

The problem of this study was to compare two groups of freshmen entering Oregon State University in the fall of 1970; (1) men and women who were uncertain about choices of academic majors at the time of entry, and (2) men and women who were certain about choices of academic majors at the time of entry. The population was limited to those freshmen who participated in the 1970 OSU Summer Orientation and Advising Program (SOAP) and who subsequently enrolled at Oregon State University in the fall of 1970.

The study was designed to determine specifically the extent of difference between the two identified groups as measured by the College Student Questionnaire, Part I, a research questionnaire designed to describe groups of students. Comparisons were made on scaled scores derived from item responses contained in the various sections of the questionnaire. The seven scales of the College Student Questionnaire, Part I, were Family Independence, Peer Independence, Liberalism, Social

Conscience, Cultural Sophistication, Motivation for Grades and Family Social Status.

For the purposes of the study the following four sub-groups were identified within the population being investigated:

1. men who were uncertain about their choices of academic majors at the time of enrollment at the university;
2. women who were uncertain about their choices of academic majors at the time of enrollment at the university;
3. Men who were certain about their choices of academic majors at the time of enrollment at the university; and,
4. women who were certain about their choices of academic majors at the time of enrollment at the university.

The objectives of the study were to determine if differences exist (1) between men who are uncertain about choices of academic majors and women who are uncertain about choices of academic majors; (2) between men who are certain about choices of academic majors and women who are certain about choices of academic majors; (3) between all men sampled (certain and uncertain) and all women sampled (certain and uncertain); (4) between men who are uncertain about choices of academic majors and men who are certain about choices of academic majors; (5) between women who are uncertain about choices of academic majors and women who are certain about choices of academic majors; and, (6) between freshmen (men and women) who are uncertain about choices of academic majors and freshmen (men and women) who are certain about choices of academic majors.

### Summary of Procedures Followed in the Study

The 1970 Summer Orientation and Advising Program participants were contacted and identified with regard to certainty or uncertainty about choices of academic majors. Of the 883 SOAP participants who subsequently enrolled at Oregon State University in the fall of 1970, 844 (95.6%) responded. Ninety-nine (11.7%) of the 844 were identified as uncertain about academic majors and 745 indicated certainty about their choices of academic majors.

Since all 844 freshmen met the requirements for sample selection, sample members of each sub-group, (1) Certain Men, (2) Certain Women, (3) Uncertain Men, and (4) Uncertain Women were drawn from this population.

Official records in the Office of the Dean of Students were utilized to obtain information about high school grade point averages and Scholastic Aptitude Test scores for members of the sub-group samples. These data were analyzed for significant difference through the facilities of the Oregon State University Computer Center. It was found that there were no significant differences in ability between Certain and Uncertain freshmen. Difference in ability was found when groups of men were compared with groups of women.

The College Student Questionnaire, Part I, was administered to volunteer members of the sub-group samples. A total of 178 (94.1%) of those freshmen sampled participated in the study.

After administration of the CSQ, Part I, the answer sheets were tabulated and scored by Educational Testing Service (ETS). The statistical data received from ETS included scale scores, (frequency

distributions, means and standard deviations), for each of the sub-groups. These data, too, were analyzed for significant difference through the facilities of the Oregon State University Computer Center.

#### Summary of Analysis of Data

In order to statistically test the hypotheses of the study the following comparisons were made:

1. Uncertain Men with Uncertain Women
2. Certain Men with Certain Women
3. All men (Certain and Uncertain) with all women (Certain and Uncertain)
4. Uncertain Men with Certain Men
5. Uncertain Women with Certain Women
6. Uncertain freshmen (men and women) with Certain freshmen (men and women)

Statistical comparisons were made by utilizing the "Student's t" test. All differences were tested at the .05 and .01 levels of significance.

#### Findings

The findings which follow are predicated on the analysis of the statistical data in Chapter IV and are related to the questions and hypotheses of the study.

##### A. Findings Related to the Preliminary Investigation of Academic Ability

In order to determine if the factor of ability was related to certainty or uncertainty about choices of academic majors, high school

grade point averages and Scholastic Aptitude Test scores comparisons were made.

It was found that, when considering comparisons of Scholastic Aptitude Test scores, there were no significant differences between any of the groups compared. When the six comparisons were made on the variable of high school cumulative grade point average, sex-related differences of significant proportions were found in two comparisons, (Certain Men vs. Certain Women and All men vs. All women). No significant differences were found in any of the other comparisons and there was no evidence of significant difference in ability between freshman men and women who were certain about their choices of academic majors and freshman men and women who were uncertain about their choices of academic majors. It was therefore concluded that although academic ability acts as a discriminator on the variable of sex it is not a discriminating factor on the variables of certainty or uncertainty about choice of academic major.

#### B. Findings Related to the Hypotheses of the Study

The following are findings related to the hypotheses of this study:

Hypothesis 1: There is no significant difference between a selected group of college freshman men who are uncertain about their choices of academic majors and a selected group of college freshman women who are uncertain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.



Significant differences were found on three scales of the CSQ, Part I, when Uncertain Men were compared with Uncertain Women. Thus, the first null hypothesis was not accepted. These two sub-groups differed significantly at the .05 confidence level on the Family Independence scale. The Uncertain Men had higher scores and appeared to perceive themselves as being more autonomous in relation to family than did Uncertain Women. Significant difference at the .01 confidence level was found on the Peer Independence scale, with the men again scoring higher and appearing to be less concerned about how their behavior appeared to other students than did the women of the Uncertain group. On the other hand, where these two groups differed significantly at the .01 confidence level on the Social Conscience scale, the Uncertain Women scored higher--an indication that they were more concerned than were the Uncertain Men about poverty, illegitimacy, juvenile crime, materialism, unethical business practices and other social injustices.

Hypothesis 2: There is no significant difference between a selected group of college freshman men who are certain about their choices of academic majors and a selected group of college freshman women who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.

Significant differences were found between Certain Men and Certain Women on two scales; Social Conscience and Cultural Sophistication. Therefore, the second null hypothesis was not accepted. As was the case with the comparison of Uncertain Men and Uncertain Women, the difference on the Social Conscience scale between the Certain Men and the

Certain Women was significant at the .01 confidence level, with Certain Women scoring higher than Certain Men. On the scale of Cultural Sophistication the difference between these two sub-groups was significant at the .01 confidence level. The men scored considerably lower than the women, indicating that the Uncertain Men reported less interest or pleasure from such things as wide reading, modern art, poetry, classical music, discussions of philosophies of history and other areas of the humanities than did the Uncertain Women.

Hypothesis 3: There is no significant difference between the combined groups of men from the Certain and Uncertain categories and the combined groups of women from the Certain and Uncertain categories, as measured by the seven scales of the College Student Questionnaire, Part I.

When all of the men were compared with all of the women, significant differences were found on the Family Independence, Peer Independence, Social Conscience, Cultural Sophistication and Motivation for Grades scales of the CSQ, Part I. The men scored higher on Family Independence and Peer Independence, indicating that they were less concerned about living up to parental expectations, did not consult as often with parents on important personal matters and were less concerned about how their behavior appeared to other students than were women. Women scored significantly higher than men on the scales of Social Conscience, Cultural Sophistication, and Motivation for Grades. This suggests that the women of this study had a higher moral concern for perceived social injustice, had developed more of a sensibility to ideas and art forms, and had more of a concern for earning high grades than did the men of the study.

Hypothesis 4: There is no significant difference between a selected group of college freshman men who are uncertain about their choices of academic majors and a selected group of college freshman men who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.

Significant differences between Certain Men and Uncertain Men were not observed on any of the seven scales of the CSQ, Part I. Therefore, the fourth hypothesis was accepted. The men were found to be most similar on the scales of Family Independence, Peer Independence and Family Social Status.

Hypothesis 5: There is no significant difference between a selected group of college freshman women who are uncertain about their choices of academic majors and a selected group of college freshman women who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.

No significant differences were found between Certain Women and Uncertain Women on any of the scales of the CSQ, Part I. The fifth null hypothesis was accepted. The obtained mean scores for both groups of women were very similar on all scales except Peer Independence. On this scale, although Certain Women scored higher than Uncertain Women, the difference was not significant.

Hypothesis 6: There is no significant difference between a selected group of college freshmen (men and women) who are uncertain about their choices of academic majors and

a selected group of college freshmen (men and women) who are certain about their choices of academic majors, as measured by the seven scales of the College Student Questionnaire, Part I.

No significant differences were observed when all of the Uncertain freshmen were compared with all of the Certain freshmen. Therefore, the sixth null hypothesis was accepted.

Since the score range for each of the scales of the CSQ, Part I, is 10 through 40, with the exception of Family Social Status (where the range is 6 through 54), it was possible to refer to the obtained mean scores of these two groups and establish some generalized descriptions. Both groups--Certain and Uncertain freshmen--perceive themselves as being relatively independent from their families, and although there is concern for living up to parental expectations, there is no great "psychological" dependence on parents and family.

Although their scores on the Peer Independence scale were not so high that they might be identified as unsociable or introverted, both Certain and Uncertain freshmen indicated a tendency toward autonomy. The scores would imply the retention of some concern for sociability and prevailing peer norms.

The scores of the Liberalism scale would indicate that neither of these two groups was over-committed to either liberal or conservative values, or extremely sympathetic to either an ideology of change or an ideology of preservation.

As groups, Certain freshmen and Uncertain freshmen scored higher on the scale of Social Conscience than on most scales. This finding

indicates a moral concern about perceived social injustice and what might be called "institutional wrongdoing".

Both groups recorded their lowest scores on the scale of Cultural Sophistication, a scale which refers to an authentic sensibility developed through knowledge and experience of ideas and art forms. The scores on this scale were not so low, however, as to suggest an extreme lack of cultivated sensibility in the general area of the humanities.

Both Certain and Uncertain freshmen indicated a relatively strong desire to earn good grades in secondary school. The scores on the Motivation for Grades scale would indicate that most members of both groups believed that others saw them as being hard workers, and that they perceived themselves to be capable of perseverance in school assignments and considered good grades to be personally important.

The scores of both Certain and Uncertain freshmen on the Family Social Status scale would indicate that they are very similar as groups in their socio-economic backgrounds.

### Conclusions

The following conclusions can be drawn from the findings of this study:

1. The freshmen of this study who identified themselves as uncertain about choices of academic majors are as academically talented as those who said they were certain about their choices of academic majors. In fact, the comparisons made on the variables of certainty or uncertainty about academic majors indicated that in nearly every instance uncertain

freshmen scored slightly higher as measured by high school grade point averages and Scholastic Aptitude Test Scores. This conclusion is supported by the findings of Williamson (1937), Juola (1966) and Baird (1969).

2. There may be few characteristics which readily identify entering freshmen with regard to their certainty or uncertainty about choices of academic majors. As stated previously, this study found no reason to conclude that Certain freshmen were more academically talented than Uncertain freshmen. In addition, it is not appropriate to assume that the Uncertain freshman has lower educational or vocational goals, that he achieved less in high school, that he is from a different family background or that he brings to college a different set of personal attitudes than does the Certain freshman. The primary difference appears to be the degree of certainty about choice. Freshmen of the same sex who were uncertain about choices of academic majors and those who were certain about choices did not differ significantly as described by the seven scales of the College Student Questionnaire, Part I. These groups responded in a similar fashion to questions about (a) educational and vocational plans and expectations, (b) activities, achievements and perceptions during secondary school, (c) family background, and (d) personal attitudes. This is in agreement with the conclusions of Baird (1969) that there are few meaningful differences between decided and undecided students but that, in contrast, the similarities are great.

3. The only significant differences found in the study were not related to the basic question of certainty or uncertainty about academic majors, but to the ancillary factor of differences between sex groupings. Women in this study earned higher grades in secondary school, were generally more concerned about social injustice and were more culturally sophisticated than were the men studied. Men demonstrated a higher degree of independence, both from family and peers, than did the women.
4. It is not possible to assume that all freshmen entering Oregon State University are at similar stages of decision-making with regard to selecting a major field of study. Of the group which participated in this study, some have selected majors with a high degree of certainty; others have selected majors with some degree of indecision; and others have not yet reached a developmental stage of readiness to select a specific major field of study.
5. During the time of this investigation some freshmen enrolled at Oregon State University who identified themselves as being uncertain about their choices of academic majors. Even after participation in the OSU Summer Orientation and Advising Program, over eleven percent of those involved indicated an uncertainty about their choices of majors. This finding may substantiate the possible relationship of career development theory (Ginzberg et al., 1951; Super et al., 1957; Osipow, 1968; and, Tiedeman, 1961) to the developmental aspects of choosing an academic major.

6. Finally, if it is true that freshmen enter Oregon State University with varying degrees of certainty about choices of academic majors, it may not be realistic to insist that all students declare a major field of study at the time they enroll. Instead, and with reference to the various theories of developmental decision-making, it can be concluded that some entering freshmen have need for an opportunity to continue their exploration of numerous possible choices of academic fields, rather than being faced with immediate commitment to a specific major.

#### Recommendations

This study is limited by the small sample size and is restricted to only those freshmen who voluntarily participated in the summer orientation program. It may well be that those who volunteered for the summer orientation program are an unbiased, random representation of the total freshman class. However, non-volunteers may be different. It is recommended that this investigation be replicated to include larger samples of the total group of freshmen entering Oregon State University in the fall of 1971. This would permit more reliable identification of the number of freshmen entering the university with some degree of uncertainty about choice of academic majors and would allow for more substantial generalizations about the characteristics of the groups of freshmen identified in this study.

The review of literature indicated a need for more comprehensive data about the entering freshman and revealed that little research has



dealt directly with the characteristics of the undecided student.

Replication of this study at other colleges and universities would add to the existing knowledge about students who are entering these institutions with varying degrees of certainty about choice of academic majors.

Other research questions might be integrated into an investigation involving sub-groups of students identified in this study, through further utilization of the College Student Questionnaire, Part I. For example, this questionnaire utilizes the Clark-Trow typology of student subcultures (Trow, 1960; Clark and Trow, 1966) to enable students to indicate their orientations to college. The CSQ-Part I contains condensed statements of the Vocational, Academic, Collegiate and Non-conformist orientations based on Clark and Trow's descriptions of the four student culture types. Comparisons of freshmen who are uncertain about their choices of academic majors with freshmen who are certain about their choices might be useful references in any attempts to structure curricular programs to the orientations of groups of students.

It is recommended that consideration be given to follow-up studies which could be conducted utilizing the data gathered in this study and comparing it with data which can be obtained from administering the College Student Questionnaire, Part 2. The CSQ-Part 2 is for administration sometime after a student has entered college, and contains scales which overlap with some of the scales of the CSQ-Part I. The purpose in constructing partially overlapping instruments was to enable the study of student change from the time of entrance up to the time of graduation.

There should be other follow-up studies on these identified Certain and Uncertain students to investigate patterns of persistence and flow in the various academic areas. Careful consideration should be given to the feasibility of a study which would determine which students persist and which students shift to other academic majors.

Curricular designs should be developed at Oregon State University which recognize that freshmen enter the university with varying degrees of certainty about choices of academic majors. Further, there is no evidence that mere statement of certainty implies persistence or ultimate success in the program originally selected. It may well be that there is little or no relationship between the degree of certainty expressed and either persistence or quality of performance.

With reference to the section of the review of related literature which dealt with theoretical models of career development, and with specific reference to Tiedeman's paradigm for decision-making (Tiedeman, 1961), it is possible that a significant number of freshmen entering the university are in what Tiedeman calls "the period of anticipation". If this is true, these freshmen may be moving through the developmental stages which Tiedeman labels exploration, crystalization, choice and specification. Those who say they are certain about academic choices may indeed have native interest patterns, but they may also be in an adolescent stage in interest development (Strong, 1952). Any curriculum development for freshman students should be made with acceptance of the concept that many freshmen are at some level of decision-making with regard to academic major and career choice while others are far from a decision. The freshman curriculum should offer the new college student

the opportunity to explore various academic disciplines, possibly through creation of some broad-based introductory courses--maybe even interdisciplinary in nature--which would be provided along with general education courses to establish a basic foundation for later choice and specialization.

It is recommended that the freshman year should not only meet the needs of the new student who is relatively certain of his academic direction, but should also include alternative curricular patterns which make it acceptable for an entering freshman to be uncertain about his choice of academic major. This freshman should feel free to explore various possibilities through interchange with appropriate counselors and through a curriculum which allows him to become familiar with different academic disciplines and relate them to his own interests and abilities.

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## APPENDICES



## APPENDIX A

August, 1970

Dear Summer Advisee:

We would appreciate greatly your support of our efforts to discover how effective the recent orientation and advising sessions were in assisting students to determine their academic majors. We are also interested in learning how students perceive their career choices as they enter Oregon State University. To help us in doing so we seek your cooperation in completing the enclosed postcard questionnaire. Will you take half a minute, answer the three questions, and mail the card to us right away?

It will not be necessary for you to sign the postcard unless you elect to do so. However, in order to help in analyzing responses in relation to other admissions data we have assigned the number which appears in the upper left of the questionnaire card. This is solely for the purpose of permitting us to match responses with other data. Your individual responses will be kept confidential.

Thank you for your cooperation.

Sincerely,

Dan W. Poling  
Director  
New Student Programs

sln

## APPENDIX B

1. 407-C2

When applying for admission to OSU, were you, in your choice of an academic major,

<input type="checkbox"/> definitely certain	<input type="checkbox"/> somewhat uncertain
<input type="checkbox"/> somewhat certain	<input type="checkbox"/> definitely uncertain

At the time of enrollment in a July Orientation-Advising Program, were you, in your choice of an academic major,

<input type="checkbox"/> definitely certain	<input type="checkbox"/> somewhat uncertain
<input type="checkbox"/> somewhat certain	<input type="checkbox"/> definitely uncertain

Having participated in an Orientation-Advising Program, are you now, in your choice of an academic major,

<input type="checkbox"/> definitely certain	<input type="checkbox"/> somewhat uncertain
<input type="checkbox"/> somewhat certain	<input type="checkbox"/> definitely uncertain

## APPENDIX C

Mr. Jack C. Rye is a doctoral student at OSU in the College Student Personnel Administration Program. He was a graduate assistant in our office last year and worked with us in the planning of our Summer Orientation-Advising Programs.

Mr. Rye is currently on leave from Eastern Oregon College in LaGrande where he is a member of the Student Personnel Staff.

Your participation in the study which Mr. Rye is undertaking will be of assistance to our office.

Sincerely,

Dan W. Poling  
Director, New Student Programs  
Associate Dean of Students

sln

## APPENDIX D

November 27, 1970

The Office of New Student Programs is very interested in exploring ways by which a new student's experience at OSU can be made more productive.

Efforts will be continued to improve opportunities for new students. There will be further consideration of modifying advisement programs and broadening curricular opportunities for beginning freshmen. To pursue these efforts it is important to determine some of the attitudes and opinions which freshmen have as they enter the University.

As a part of this determination, you and some other men and women who participated in the 1970 Summer Orientation-Advising Program are being invited to complete a nationally standardized questionnaire concerned with college student attitudes. Your response to the questionnaire (this will be held in confidence) will be utilized as a part of a study designed to obtain information about groups of students rather than focusing on an individual response.

Because you have been selected by a random sample technique it is important that you participate in the study, since you are representative of a larger group of students. We hope you will do so.

In an effort to comply with your busy schedule, arrangements have been made for you to come to the Memorial Union, Room 213 A, any time between 1:00 p.m. and 9:00 p.m. on Thursday, December 3, to complete the questionnaire. It will take, at the very most, an hour of your time.

To assist in the planning, will you please indicate on the enclosed card the time you will arrive to complete the questionnaire and drop it in the mail (campus mail if you live in a residence hall) by Tuesday. If it is more convenient, you may call Miss Sharon Newberry at 754-2431.

Thank you for your continued assistance.

Sincerely,

Jack C. Rye

sln  
Enclosures

## APPENDIX E

January 14, 1971

Last December the Office of New Student Programs invited you to participate in a study designed to determine some of the attitudes, opinions, and aspirations of groups of Oregon State University freshmen. You may recall that we emphasized that there was no attempt to single out individual students and that the study will focus on group responses.

When we sought your cooperation to complete a questionnaire on December 3, in the Memorial Union, we realized that the end of fall term was a bad time to extend such an invitation. In spite of the time the response to our invitation was excellent. We are now in the process of making another contact with those of you who did not find it convenient to complete the questionnaire at that time.

Because you have been selected by a random sample technique, it is important that you participate in the study if at all possible. We sincerely hope you will wish to do so.

I'll be happy to make any arrangements which will allow you to complete the questionnaire at your convenience. If you are willing to assist us, please complete the enclosed card and return it to Dean Poling's office through the campus mail. We hope to complete our contacts sometime next week, so a response by return campus mail would be appreciated.

Sincerely,

Jack C. Rye

sln  
Enclosure