

THE RELATIONSHIP BETWEEN PERSONALITY TRAITS AND VOCATIONAL  
INTERESTS IN THE CHOICE OF FIELD OF STUDY OF  
SELECTED JUNIOR COLLEGE STUDENTS  
IN BUSINESS ADMINISTRATION

APPROVED:

Graduate Committee:

Ben Coody  
Major Professor

C. L. Littlefield  
Minor Professor

Wm. K. Kitchett  
Committee Member

Ray L. Bellamy  
Committee Member

Dwaine Kingery  
Dean of the School of Education

Robert B. Toulous  
Dean of the Graduate School

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SELECTED JUNIOR COLLEGE STUDENTS  
IN BUSINESS ADMINISTRATION

DISSERTATION

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By

Evelyn R. Grace, B. S., M. A.

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## CHAPTER I

### INTRODUCTION

The emerging recognition on the part of businessmen that the personality and interests of an individual are of prime importance in his job success emphasizes the importance that should be attributed to it by educators.

American businesses spend millions of dollars every year sending personnel recruiters to talk to college graduates. They have definite ideas on what they are seeking (8). Nearly every company--Armstrong Cork Company, Xerox Corporation, E. I. du Pont de Nemours and Company, United Air Lines, Bethlehem Steel Corporation, and others--are searching for young people who are capable, intelligent, and personable. Versatility, breadth of interest, the positive outlook, ability to express oneself, "high energy" people, leadership, socially conscious, personality projectors, quiet enthusiasm, promotable types--those are the personal qualities so many companies are looking for in their new recruits.

#### Statement of the Problem

The problem in this study was the relationship of personality factors and interests to the choice of major fields of study.

### Statement of the Purpose

The purposes of this study were

1. To determine the relationship between and within freshmen junior college students who selected accounting, data-processing, management, or office practice as their major field of study, and their personality profiles as measured by the Guilford-Zimmerman Temperament Survey and their interests as measured by the Strong Vocational Interest Blank.
2. To compare the freshmen junior college students with men and women who were already employed in each of the areas in regard to personality and interest relationships.

### Hypotheses

The hypotheses to be tested were

1. Accounting
  - a. Students majoring in accounting would have significantly higher scores in "Objectivity" and "Thoughtfulness" and significantly lower scores in "Friendliness" and "Sociability" than each of the other three freshmen groups.
  - b. Students majoring in accounting would score significantly higher on the traits of "Objectivity" and "Thoughtfulness" and significantly lower on "Friendliness" and "Sociability" than the norming group.

- c. Freshmen students majoring in accounting would show no significant differences in their scores on "Objectivity," "Thoughtfulness," "Friendliness," and "Sociability" from a comparison group of practicing accountants in business.
- d. Freshmen students majoring in accounting would show no difference on their preference for accounting from a comparison group of practicing accountants in business, as measured by their scores on the Strong Vocational Interest Blank.

2. Data-Processing

- a. Students majoring in data-processing would have significantly higher scores in "General Activity" and "Restraint" and significantly lower scores in "Personal Relations" and "Ascendance" than the other three freshmen groups.
- b. Students majoring in data-processing would score significantly higher on the traits of "General Activity" and "Restraint" and significantly lower on "Personal Relations" and "Ascendance" than the norming group.
- c. Freshmen students majoring in data-processing would show no significant differences in their scores on the traits of "General Activity," "Restraint," "Personal Relations," and "Ascendance" from a comparison group of employed people in data-processing.

d. Freshmen students majoring in data-processing would show no difference on their preference for data-processing from a comparison group of employed people in data-processing, as measured by their scores on the Strong Vocational Interest Blank.

3. Management

- a. Students majoring in management would have significantly higher scores in "Ascendance" and "Personal Relations" and significantly lower scores in "Restraint" and "Thoughtfulness" than the other three freshmen groups.
- b. Students majoring in management would score significantly higher on the traits of "Ascendance" and "Personal Relations" and significantly lower on "Restraint" and "Thoughtfulness" than the norming group.
- c. Freshmen students majoring in management would show no significant differences in their scores on "Ascendance," "Personal Relations," "Restraint," and "Thoughtfulness" from a comparison group of employed management personnel.
- d. Freshmen students majoring in management would show no difference on their preference for management from a comparison group of employed

management personnel, as measured by their scores on the Strong Vocational Interest Blank.

4. Office Practice

- a. Students majoring in office occupations would have significantly higher scores in "Friendliness" and "Emotional Stability" and significantly lower scores in "Objectivity" and "General Activity" than the other three freshmen groups.
- b. Students majoring in office occupations would score significantly higher on the traits of "Friendliness" and "Emotional Stability" and significantly lower on "Objectivity" and "General Activity" than the norming group.
- c. Freshmen students majoring in office occupations would show no significant differences in their scores on "Friendliness," "Emotional Stability," "Objectivity," and "General Activity" from a group of employed people in office occupations.
- d. Freshmen students majoring in office occupations would show no difference on their preference for office occupations from a comparison group of employed people in office occupations, as measured by their scores on the Strong Vocational Interest Blank.

### Definition of Terms

Specific terms used in this study were defined as follows

Trait--A distinctive pattern of behavior which is more or less permanent; or the tendency, due to habit, attitude, or other proponent factor, toward a certain type of behavior.

Personality Traits--A term used in conjunction with the traits contained in the Guilford-Zimmerman Temperament Survey.

Interest Inventory--Questionnaire in which items are given an experimentally determined weight, yielding a score that represents a pattern of interest, or of likes and dislikes (7).

Vocational Choice--Kind of projection of self in total imagination into the occupational role as perceived by the individual (6).

Technical, Vocational Program--A core of sixty hours of specific post-secondary education courses in technical skills, vocationally oriented to occupational proficiency in the world of work, for which an Associate in Applied Science degree is awarded.

University Parallel Program--A core of sixty hours of general education offerings consisting of humanities, social science, foreign language or mathematics, natural science, physical education, and electives, for which an Associate in Arts degree is awarded.

### Assumptions

This study was based on the assumptions that the responses to the questions on the measuring instruments would be true feelings of the respondents and given in good faith, and that vocational choices and major areas of study expressed by the students would be as nearly accurate as they were able to express them or as they understood them to be.

### Significance of Study

A great many research studies have been concerned with securing a better understanding of the relationship between different personality traits and interest of college students and the areas of study being pursued by these students, because they provide a more effective basis upon which to assist the individual in his choice of a field of study.

Discussing the importance of personality in this area, Cattell (2) states

It is a sad illustration of the meager harvest accruing to pure science from comparatively heavy expenditure on applied science that, in spite of the enormous attention vouchsafed in the last forty years to the psychology of vocational guidance, we still have no figures even for the means of occupations in regard to the principal personality factors . . . (p. 418)

Enrollment in the wrong field of study seems to be one of the causes of failure or withdrawal of college students. It represents a real service to guide the student into the field for which he is best suited both intellectually and temperamentally.

In his study of the factors related to the change of major by college students, Firkins (3) found that although vocational and educational guidance is, to a certain extent, available to most high school and college students, many freshmen enter college without an adequate appraisal of their ability to cope mentally with the type of college work required for successful study of their chosen field. Firkins' study was particularly related to the appraisal of junior college students.

This problem becomes more and more acute, when increased enrollments are facing every college. Education is almost overwhelmed by the sheer mass of students--from 3,500,000 in 1960 to an estimated 6,800,000 in 1970 seeking admission to and graduation from colleges and universities each year (1). It becomes most important then that the facilities, both faculty and plant, be utilized efficiently. Obviously, with 50 percent of the students dropping out of college in the first two years (5), there is some question whether in all cases colleges are using their facilities wisely.

Limited data (4) are available on the causes or reasons for college dropout, but among many factors which might be related, one would surely include academic competence or unsuitability related to the student's major field of study.



### Use of Comparison Groups

Experienced business people in the areas of accounting, data-processing, management, and office occupations were compared with junior college freshmen on personality traits and interests. Fifty (50) business people were selected in each of these occupations on the basis of at least three years' experience considered successful by their supervisors, and because of their willingness to cooperate in this study.

The purpose of this comparison was to determine if the personality factors and interests of the junior college freshmen in each of the major fields of study related to those of experienced business people in these occupations.

### Delimitations of the Study

This study was delimited to the following

1. A representative sampling of fifty (50) students randomly chosen from the total freshmen enrollment in each of the major areas of accounting, data-processing, management, and office occupations, at Tarrant County Junior College District, Fort Worth, Texas, during the fall semester of the academic year 1968-69.
2. The personality factors of the subjects were those measured by the Guilford-Zimmerman Temperament Survey: General Activity, Restraint, Ascendance, Sociability, Emotional Stability, Objectivity, Friendliness, Thoughtfulness, and Personal Relations.
3. The interests of the subjects were those measured by the Strong Vocational Interest Blank.

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## CHAPTER II

### THEORETICAL BACKGROUND FOR HYPOTHESES AND A REVIEW OF RELATED LITERATURE

#### Rationale for the Formulation of Hypotheses

An investigation of the relationships that exist between personality characteristics, choices of major field of study in business, and academic performance was made by Pilgrim (40) in 1965, with 357 upperclassmen enrolled in a university school of business administration. Seven fields of business were included in her study: accounting, business education, banking and finance, insurance management, marketing, and secretarial administration. She found that significant differences among the major fields existed with respect to scores on the Guilford-Zimmerman Temperament Survey in "General Activity," "Restraint," "Ascendance," "Sociability," "Objectivity," and "Friendliness." When she ranked the mean scores of all areas, accounting majors were highest in "Thoughtfulness" and "Restraint," and lowest in "Sociability" and "Personal Relations." Management majors ranked highest in "Objectivity," "General Activity," and "Emotional Stability," and were never lower than fourth rank in any trait. Secretarial administration majors ranked highest in "Friendliness," and lowest in

"Objectivity" and "Ascendance." She did not study accounting majors, an area which is included in this study. Her findings were carefully considered in the formulation of hypotheses for the areas of accounting, office occupations, and management in this study.

Earlier studies by Knapp and Goodrich (30), Roe (42, 43, 45), Farwell (17), and others (13, 16) have shown that there is a correlation between personality and vocation.

Although there have been some unsuccessful efforts to differentiate members of nonprofessional occupations by use of the Bernreuter Personality Inventory, later studies by Dodge (11, 12) did succeed in differentiating clerical workers and retail sales people on the social dominance scales of the Bernreuter. However, they had no success in separating the good from the poor clerical workers on items drawn from the personality inventory.

A direct relationship between "Social Activity" and vocational interest was found by Lanna (32). Male students who differed in personality tended to have differentiated vocational interest patterns. Those who were relatively socially inactive tended to be more interested in scientific-technical (nonperson-oriented) activities, while students who were relatively socially active tended to be interested in business contact-persuasive activities.

In prediction of academic success in a college of

business administration, Watley (62) found "Restraint" and "Thoughtfulness" traits on the Guilford-Zimmerman Temperament Survey were identified as the most effective of test measures for prediction purposes.

Finance managers were studied by Pederson (37), who found them to be interested in making order out of chaos, highly capable in quantitative reasoning but less so in verbal, and critical, as well as having little imagination and creativity. In studying accountants, Harrell (23) found the average accountant to be very capable, especially with numbers, but with relatively little imagination and creativity. Also, he found that the accountant values security more than others, is pessimistic and at times depressed, values independence in the work situation, and does not like to interact with others.

In a study of the psychological components related to success and failure of Sears Executives, Bentz (3) found that sales managers were interested in power, status, in persuading people, and that they were optimistic, masculine, enthusiastic, and dominant.

Dunnette and Kirchner (14) in studying the psychological test differences between industrial salesmen and retail salesmen found that the retail salesman placed heavy emphasis on planning, hard work, and persuading other people of his point of view or way of doing things. The success of the retail salesman was predicted not by a measure of his

reasoning ability but rather by the level of his motivation toward selling and toward gaining a dominant position in inter-personal relationships.

Perry and Cannon (38, 39) in 1964 and again in 1966, investigated the vocational interests of computer programmers using the Strong Vocational Interest Blank. In the first study, 1,378 computer programmers participating included 186 females. In the second study, scores of 293 female computer programmers on the Strong for men were found to be quite similar to those of male programmers, although interests of women were somewhat higher in aesthetic and scientific fields and lower in technical and technical-supervision occupations. Female programmers indicated interest in all forms of mathematics and lack of interest in people, especially in activities involving responsibility for helping people. The similarity of the profiles for men and women was apparent, emphasizing the similarity of interests of male and female programmers. The female programmers as differentiated from women in general, were more interested in physical science and technical activities and less so in natural and social science and literature. They preferred independent, non-routine work.

In a study concerned with scores on an interest blank and scores on a personality inventory, using the Strong Vocational Interest Blank and the Guilford-Martin Personality Inventory among salesmen, Thomas (56) attempted

to classify a group of subjects by means of the SVIB in essentially a similar manner as they were classified by the Guilford-Martin. A highly significant relationship between the two was obtained. All correlations were significant except "Agreeableness." The highest was "Social Introversion." Seven of the thirteen traits were .50 or higher.

The interests of accountants differed from those of other business alumni in a study by Shaffer and Kuder (50). Accountants were higher in the computational and clerical scales, and lower in social services and persuasive. Likewise, Huttner and others (27) studied accounting executives and found that they showed the least signs of original thought or creativity, were the least optimistic group, and had more frequent indications of overt depression.

In a study to develop and evaluate methods for isolating factors that differentiated between successful and unsuccessful executive trainees in a large multibranch bank, Scholl (47) used the GZTS, and found it was possible to isolate factors that differentiated between successful and unsuccessful trainees, to appraise relative effectiveness of executive trainees, to isolate biographical data items, and to measure by psychological tests characteristics which differentiated between successful and unsuccessful executive trainees.

Trying to isolate non-intellectual personality traits of high achievers in college, Raley (41) found high-achieving

students score significantly higher than moderate-achieving students on the Occupational Level of the SVIB, indicating greater similarity of interest to managerial and professional persons. He also found high-ability students' scores consistently higher on the Specialization Level scale of the SVIB, indicating this scale is more closely associated with ability than achievement.

Investigating the vocational interests and personalities at two levels of management, Bedrosian (2), using the SVIB and the Wesman Personnel Classification Test, found that field of work is an important variable in the study of managerial interest, that difference in the clarity of the pattern of interest was related to the level and field of work, and that the interests of top management were more like business and professional men than were those of mid-management, but there was no difference in decisiveness of expressions of vocational interests.

In examining the relationship between passivity of personality and certain personal factors which influenced the choice of ministry as a vocation, Whitlock (63) found that the "Passive" ministerial candidate tended to be unrealistic in his vocational goal, and had a tendency to seek ego-oriented values. He was more dependent on immediate gratification, more easily deflected from future vocational plans, and more sensitive to ego-satisfaction not directly relevant to work itself. There was some evidence



that "passive" students scored higher on the Ministry Scale of the SVIB, but idealized self-image.

Investigating possible significant relationships between personal characteristics of counseling trainees and their performance in counseling interviews, Brown (7) used several measuring instruments: Ohio State University Psychological Test, GZTS, Edwards PPS, SVIB, Ed. Int. Inv., MMPI, and a sociometric scale. A performance rating scale, rated by judges who were advanced graduate students, was the criterion for performance. His results support the conclusion that performance of Guidance Institute Trainees at their stage of development is not dependent on temperament traits except for "General Activity," "Ascendance," "Sociability," and "Thoughtfulness" on the GZTS. The results did suggest that performance in counseling was related to verbal ability and also outgoing behavior in social activities.

Studying the relationship between measured interest and differential academic achievement, Johnson (28) selected SVIB interest scales correlated with scores received on four parts of the ACT, used with 1,875 university freshmen males. He found interest scores had much greater power to show the differences between achievement than to show the achievements themselves. The relationship between interests and differential achievement might be shown to be even greater if the variables were corrected for attenuation and used in combination.

Analyzing junior executive training programs in department stores in Texas in 1960, Ermert (15) implied that the requirements for executive competency apparently depends primarily on the prospective executive trainees possessing certain temperamental and personality characteristics which enable them to work with others.

### Review of Related Literature

This review of related literature is concerned with the following three areas of research

1. Research concerning personality as related to choice of occupation or major field of study.
2. Research concerning interests as related to choice of occupation or major field of study.
3. Research concerning personality and interests as related to choice of occupation or major field of study.

#### Research Concerning Personality as Related to Occupational Choice or Major Field of Study

Many research studies show an awareness of the importance of personality factors as related to occupational choice or major field of study. There is a general assumption in these studies that personality factors may be determinants of measured interest, of occupations entered, or of occupational success.

The idea of a theory of occupational choice is quite recent. It was probably given its greatest impetus by

Ginzberg and his associates in their study in the early 1950's (19). Ginzberg emphasized that intensive research should be undertaken to study the role of specific emotional factors in occupational choice determination. He states, "It is our position that even though no psychological theory can adequately explain the choice process, emotional factors are inherent in it; since relatively little is known about this fundamental relation, we strongly recommend further research (p. 201)."

Hoppock's theory (24, 25) of occupational choice is based on the psychological principles of needs. He feels that the occupations that are chosen will be the individual's choice on the basis of what he feels will best satisfy his needs, which may be perceived intellectually, or be emotionally felt. He places emphasis on the influence of feelings and emotions. When emotion or feeling produce the need, the intellectual phase comes into action and plans a course of action which will meet the psychological needs. The degree of complexity of the needs determines the level of aspiration of the individual.

The "developmental self-concept" theory of vocational development by Super (54) is mentioned or discussed in almost every piece of literature written on this subject today. His theory finds its origin in the "life stages" of Charlotte Bucher and more recently Ginzberg. Super points out that vocational development is an important

phase of one's total personal development and cannot be separated from the development of the whole personality. It is a medium through which the total personality can manifest itself.

While no truly comprehensive work has been done with personality tests as such in the field of occupational psychology, Roe (44, p. 80) says there nevertheless seems to be no doubt that some specialized occupations attract persons who resemble each other in some personality characteristics showing some regular patterns. She also states that certain kinds of people are genuinely unsuited to some kinds of occupations, and personality is of major importance in determining this.

In an address before the New York Academy of Sciences, Roe (45) took the position that there is a close relationship between the needs of the individual and the vocation he selects. She says, "There is more to working than earning a living; and there is more to choosing a job than just finding one. Herein, then lies the basis for the idea that interests reflect ways of perceiving and valuing events."

Roe's findings (42, 43) offer insights into the dynamics of vocational choice and adjustment, but more importantly, they reveal personality correlates in which groups tend to differ. She stresses that the only way to understand the role of occupational choice in the life of an individual is to first understand the individual and his personality needs.

Further importance of the study of personality traits in relation to vocational choice was stressed by Forer (18) who puts the focus on the personality of the college student by stating:

There is a growing awareness among vocational counselors, as well as among clinical psychologists, that the selection of one's occupation is not basically a fortuitous process. While the limits and pressures of uncontrollable external circumstances play a part, the general psychological factors listed below are of major causal importance.

1. Choice of a vocation is not primarily rational or logical, but is a somewhat blind, impulsive, emotional, and automatic process and is not always subject to practical and reasonable considerations.

2. Primary reasons for selecting a particular vocation are unconscious in the sense that when the individual is pressed to elaborate beyond the supervicial rationalization of economic advantage or opportunity, he is forced to admit that he does not know why he simply has to build bridges or he can't stand paper work. These activities have immediate appeal or distaste for him. We are saying that interests and references have unconscious roots.

3. Both of these factors point ultimately to the purposive nature of occupational choice. Obviously it is necessary for most persons to find gainful employment. But the economic motive is secondary. Occupational choice, or choice of a major field of study, is an expression of basic personality organization and can and should satisfy basic needs.

4. Selection of a vocation, like the expression of other interests, is a personal process, a culmination of the individual's unique psychological development.

5. Evidence indicates that persons of different kinds of personality seek to enter occupations which are peculiarly important to them by dove-tailing with the ways in which they characteristically handle their problems.

That personality evaluation is a very important element of vocational placement, and that there is a need to identify those personality factors most related to a certain selection of major study area, Beamish states (1):

Personality difficulties account for far more job failures than lack of ability to do the job. It has been the experience at this company, and it has been the conclusion reached by every research study with which this writer is familiar.

Even among employees who could be considered failures, comprehensive personality evaluations point out numerous and substantial opportunities to improve job performance, increase job satisfaction, reduce absenteeism and turnover, and generally improve harmony and efficiency of the work group.

The fact that accurate personality evaluation is difficult to obtain is an argument for more, not less, effort to obtain it. Indeed, unless the above considerations can be refuted completely, any selection program which ignores personality evaluation can attempt to do only a small portion of the job that needs to be done.

Personality tests, used in conjunction with all other available data and with full recognition of their limitations, can make a great contribution to the evaluation of personality in an industrial setting.

That traits of personality and character are important determinants of achievement in both academic and vocational pursuits was found by Critchfield and Hutson (8), and Goodstein and Heilbrun (21). In 1957, Scholl (47) also found that it was possible to measure characteristics which differentiate between successful and unsuccessful executive trainees through psychological tests.

College students who had already expressed their

preference for a major field of study but who had not been in the field long enough for it to affect their personalities were studied by Teevan (55). His investigation was conducted to determine whether or not personality factors correlated significantly with choice of major field of college. The broad groupings of college majors were compared on scores derived from the Blackey Pictures. He concluded that correlations between personality and vocation previously found by Roe (42, 43) for professional groups can be demonstrated during the period preceding entry into a profession.

Osipow (36) also studied entering college students by testing the adequacy of Holland's theory of vocational choice. The students evaluated themselves in terms of the six personality styles and vocational choices. Relationships between the personality styles and vocational choices were studied for groups of decided, tentative, and undecided students. The data possessed sufficient consistency to indicate that the personality identifications these students made in Holland's frame of reference were related to their initial vocational choices. The results support the prediction that students choose occupations consistent with their personality type, although not uniformly so. The categories of occupational choices made by the students do not appear to occur in a random fashion. Examination of the data reveals that although large proportions of the subjects make their choices in a manner consistent with Holland's theory, many do not. However,

the theory does appear to anticipate the choices of enough of the students to be of value in predicting vocational behavior. Maximum support for the theory is likely to derive from data on those who are "certain" of their choices.

In terms of number of investigations and volume of published results, there is little question but that the salesman is one of the most extensively studied men in the business world. The literature contains numerous reports of sizable correlations between various test and personal history measures and indexes of sales performance. Yet, our knowledge of what it is about a man that makes him a successful salesman as opposed to his colleague who never seems to reach quota has not progressed very far. Research in this area has contributed little that might serve as a basis for the development of any comprehensive theory of occupational performance. Miner's (35) study was undertaken because management wanted to improve the effectiveness of its sales force through better selection, and it was hoped that the study would yield not only a satisfactory prediction equation, but also some insight into the nature of the interaction between personal qualities and job demands. Miner found that test measures of dependence, sociophilia, self-confidence and happiness were to be associated with successful sales performances; measures of low aggression, sociophobia, and strong superego were found in association with poor performance. In the nature of the cause-effect relationship,



however, there is a question. The personality characteristics may be a result rather than a cause of superior performance. The data do not provide a clear-cut answer (64).

Many studies have been made concerning the relationship between achievement and personality factors. Using the GZTS, Howard (26) found that the roots of under-achievement are deep-seated in the personality structure of the student, and that changes in the under-achiever's performance must be preceded by changes in his phenomenal field. On the GZTS, he revealed significant relationships between academic achievement and personality characteristics measured by "Restraint," "Social Interest," and "Personal Relations" scales.

Watley (62) also studied achievement. To determine effectiveness of certain measures, he used the SAT, GZTS, Allport-Vernon-Lindsey Study of Values, SVIB, Bruce Business Judgment Test, Bruce Supervisory, Revised Minnesota Paper Form Board Test, and high school rank. On the GZTS, he found that academically successful males were significantly higher on "General Activity," "Restraint," "Ascendance," and "Thoughtfulness." The SVIB was not related to academic success.

Numerous other studies by Knapp and Goodrich (30), Farwell (17), Dunnette (13), Estes and Horn (16), Kaback (29), Golden (20), and Tomkins (58), have undertaken through the use of projective techniques, interesting experimental studies

in the relation of personality factors to occupational choice and have shown that there is a correlation between personality and vocation.

Research Concerning Interests as Related to Occupational Choice or Major Field of Study

Interests are important in occupational psychology because occupations can be differentiated in these terms. While interests are sometimes considered an aspect of personality, they can be measured separately. One of the best known instruments for measuring interests is the Strong Vocational Interest Blank, (SVIB).

Men and women engaged in particular occupations have been found to have a characteristic set of likes and dislikes which differentiate them from persons following other professions. The SVIB is a device by means of which such patterns of interests can be determined. It does not determine ability, including intelligence--it only measures interests. Evidence seems to be growing that, consciously or unconsciously, occupational choice is determined to a large degree prior to completion of high school. Interest scores have been found significant on many high school juniors and seniors (53).

There are major agreements among Darley (9), Thurstone (57), Vernon (61), Strong (53), Kuder (31), Guilford (22), and Tyler (59) on interest factors. They all separate interests into scientific, linguistic, social and business

interests. It should be noted that naming factors is somewhat impressionistic--different meanings are often given the same words by different investigators.

Sex differences in interests is a well-observed fact and they are one of the earliest differences to become apparent in children (59). Children know what things are appropriate for them to do before they are influenced by interests, however. In the first grade (60), boys begin to formulate differentiated roles in reference to their occupational responsibilities.

There have been extensive studies with interest inventories but the basic findings in earlier studies by Strong (53), in 1943, and Super (54), in 1947, have been extended rather than altered.

Interests are not completely independent psychological entities, they are multiple determined (44). They are the things the individual likes, pays spontaneous attention to, observes, thinks about, or does with satisfaction and enjoyment. People are, on the whole, more alike than they are different in interests, but the differences are important. Strong summarizes this as follows:

Because research regarding interests has been largely concerned with group differences, it has not been realized that likenesses among the interests of individuals are far more striking than differences. All groups so far studied agree very well in their interests. Men regardless of age and economic or occupational status agree on all types of items to a high degree. There is also good agreement between the interests of men and those of women of corresponding ages. Only when differences in age and sex

are both involved do we find correlations approximating zero for certain groups and adult women. Even here the correlation is .48 when all items on the inventory of interests are considered (p. 46).

Interests change with age, but become relatively stabilized in post-adolescence. They have some relationship to abilities, but are more closely related to attitudes.

Studying interest patterns as related to fields of concentration among engineering students, Estes and Horn (16) showed that students in specialties within a curriculum can be differentiated, and that an individual scale for the mechanical engineer, for example, could be designed.

Dunnette (13) also studied vocational interest differences among engineers in their different functions, producing differentiating keys for four groups of engineers: pure research, applied research and development, process and production, and sales and technical.

Measuring vocational interests in relation to intra-occupational proficiency in 1960, Stone (52) concluded that an intraoccupational interest scale can be constructed for subgroups of a given occupation by use of a standardized interest inventory, on the basis of statistically significant differentiation in group response, and that members of an occupational group can be classified on the basis of interest, and respect to quality of occupational performance.

Research Concerning Personality and Interests as Related to Occupational Choice or Major Field of Study

In her book, Roe (44, pp.100-199) states that we do not have occupational data based upon an adequate theory of the nature and development of personality, but we do have strong indications that occupational preferences are closely related to different aspects of personality. This relationship has so far been most thoroughly studied in terms of interests. These are more important as determiners of the kinds of occupations that an individual will enjoy and be successful at than are intellectual factors. In addition, attitude and masculinity-femininity scales have shown such relationships. A beginning has been made with clinical studies, and these offer many promising leads for a better understanding of these relationships.

The extent to which college students with various interest scores differed on structured personality tests was shown by Darley (9, 10), who published statistically significant data in his 1941 monograph. He presented interesting statistically significant evidence, suggesting that the personality tests used differentiated student groups differing in interest patterns. He states,

On the average, the less mature, socially adept, more "masculine" cases may be expected to show "technical" interests. The economically conservative, socially aggressive, physically robust individuals will probably have "business contact" interest. The more "feminine," slightly "feminine" student and the somewhat less socially aggressive liberal students will be interested in "welfare" and "uplift" jobs.

Berdie (4, 5, 6) studied relationships between number of "likes" and "dislikes" checked on the SVIB with the ACE, scores for morale, social adjustment, and emotionality from the MMPI, and grade standing, and found correlations between the various personality tests and the responses on the SVIB. He concluded that the extent of "likes" and "dislikes" is closely related to personality and vocational interests.

In 1940, a study by Sarbin and Berdie (46) examined the relationship between personality and interests by using the Allport-Vernon Study of Values. Although the study presented only a small number of cases, fifty-two, considerable relationship between occupational interest patterns and the individual's dominant value systems appeared. However, Launer (33) in studying the relationship of given interest patterns to certain aspects of personality states that their results could be that

. . . theoretical man seeks truth by way of empirical, rational, critical measures; economic man involves himself with what is practical and useful; aesthetic man looks upon form and harmony as his paramount concern and finds his chief interests in the artistic experience of life; political man seeks power in interpersonal relations, not necessarily in politics; and religious man is mystical and seeks unity in his experience.

In 1946, Kabach (29) studied vocational personality by applying the Group Rorschach Method to accountants and pharmacists and students preparing for these occupations. No personality-type differences emerged from the study because of apparent overlap in her groups. Since that

study, though, Schwebel (48), in 1951, studied pharmacists, putting them into the business-detail group, of which accountants are members, thus accounting for the lack of difference in Kabach's study.

A psychoanalytic analysis of personality factors in vocational choice was made by Segal (49) on two divergent occupational groups--accountants and creative writers. He chose fifteen advanced students in each of his occupational groups; both samples showed clear differences in patterns of interest on the SVIB. Two projective tests were used in the appraisal of personality--a concept formation test and a vocational autobiography. On the basis of two psychoanalytic premises, the significance of earlier emotional experiences and the role of the unconscious in determining behavior, he concluded that

. . . vocational choice is not a peripheral decision of the individual made on a chance or necessarily a realistic basis, but is a concrete expression of personality development and emotional experiences within the framework of the environmental pressures and opportunities with which an individual is confronted. Therefore, vocational choice is a resultant of the emotional development of the individual and is in part an expression of the individual's method of adjusting to his environment (p. 205).

. . . there is need for job-analysis data which reveal something about the personality needs gratified by a particular occupational outlet and the socially defined role of the worker in the community, i. e., the status value of the job (p. 203).

Another study investigating the relationships between personality and vocational interest, using the California

Test of Personality, Secondary, Form A , by Melton (34), concluded that there are definite measurable relationships between personality and vocational interest. He recommended that it would seem good psychological procedure to include the use of personality inventories as a "must" in guidance testing programs and at as early a stage in an individual's career as is practicable.

#### Summary

This part of the chapter is divided into three sub-sections. In the first sub-section, although the evidence isn't extensive, behavioral scientists nevertheless seem to have no doubt that personality characteristics related to occupational choice or major field of study do appear in regular patterns in some specialized occupations. Studies of college students show that correlations between personality and vocation can be demonstrated prior to entry into a profession. It is recommended that intensive research should be undertaken to study the role of specific emotional factors in occupational choice determination and that identification of specific personality factors most related to a certain selection of major study area should be obtained, because personality tests, used in conjunction with all other available data can make a great contribution to the guidance of students.

In the second sub-section, various authorities were cited concerning the importance of interests in occupational



psychology, since men and women engaged in particular occupations have been found to have a characteristic set of likes and dislikes which differentiate them from persons following other professions. Evidence seems to be mounting that occupational choice is determined to some extent in high school, but changes of interest with age are relatively mild between the ages of twenty and twenty-five, and change very little after the age of twenty-five. Interest patterns also have been differentiated within a field of concentration, such as with four kinds of engineers.

Since men and women in different jobs have different interests, the Strong Vocational Interest Blank has been successfully used to identify such differences among those occupations that college students usually enter. The results have been particularly useful in guidance situations where counselors are helping young people plan their futures into areas of interest where they will find their greatest job satisfaction.

Although there is some substantial relationship between interest and quality of performance, it is not at present well understood. Interest ratings appear to be better indices of job persistence than of job success, at present.

A beginning has been made with clinical studies of interests and personality relationships, as discussed in sub-section three. Correlations between selected personality characteristics and responses on the Strong Vocational Interest Blank have shown definite measurable relationships.

So, it appears that vocational choice is not a peripheral decision made by chance or perhaps even on a realistic basis, but rather a concrete expression of personality development and emotional experiences to be considered within the framework of the environmental pressures and opportunities of an individual.

In view of the above research and theories, the hypotheses of this study were formulated, as set forth in Chapter I.

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## CHAPTER III

### PROCEDURES OF THE STUDY

This chapter includes a description of the subjects, the measuring instruments, the procedures for collecting the data, and the procedures for treating the data.

#### Subjects

The 839 subjects included in this study consisted of 639 students and 200 experienced business people. The students represented approximately the total enrollment of full-time freshmen students in the Department of Business Administration, Tarrant County Junior College District, Fort Worth, Texas, during the fall term of the 1968-69 school year, who indicated a definite major area of study in business. These students were classified as follows: 140 accounting majors, 149 data-processing majors, 216 management majors, and 134 office practice majors. These groups were randomly reduced to fifty students in each major area of study, by means of randomization tables (11), and a total of 200 were used. The experienced business people were selected in the occupational areas of accounting, data-processing, management, and office practice, on the basis of at least

three years' successful experience. Of the total of 200 experienced business people, fifty (50) were chosen in each of the four selected areas from retailing, wholesaling, manufacturing, warehousing, and service business establishments in Tarrant County, Texas.

The total sample involved men only (no female majors) in the areas of accounting and management, and women subjects only (no male majors) in office practice. The women subjects were eliminated from the data-processing area because no current scale was available to determine their Strong Vocational interests in data-processing.

The final total subjects considered in the study thus became 400, of which 200 were students and 200 were experienced business people.

Although all subjects included indicated definite major areas, the data does not reveal if they were enrolled in the technical, vocational areas, or in the university parallel program.

The following summary shows the range of ages of the students and experienced business people, and the average age of the groups.

|                 | <u>STUDENTS</u> |                | <u>EXPERIENCED</u> |                |
|-----------------|-----------------|----------------|--------------------|----------------|
|                 | Age<br>Range    | Average<br>Age | Age<br>Range       | Average<br>Age |
| Accounting      | 18-45           | 23             | 25-50              | 32             |
| Data-Processing | 18-37           | 26             | 25-53              | 30             |
| Management      | 18-42           | 25             | 25-54              | 39             |
| Office Prac.    | 17-33           | 21             | 25-54              | 36             |

### The Instruments

The Guilford-Zimmerman Temperament Survey, hereafter referred to as the GZTS, was the instrument used in this study to measure personality traits of the subjects. The GZTS is composed of 300 items which measure ten personality traits: Ascendance, General Activity, Restraint, Sociability, Emotional Stability, Objectivity, Friendliness, Thoughtfulness, Personal Relations, and Masculinity-Femininity. These ten traits appear to be those most frequently mentioned by literature, surveys, and studies, and individuals as the traits most desirable among employees in the four areas of this study.

The GZTS was constructed with the following objectives in mind: (1) a single booklet of items; (2) a single answer sheet; (3) an efficient scoring method; (4) a coverage of the traits proven to have the greatest utility and uniqueness; and (5) condensations and omissions of trait scores where the inter-correlations were sufficiently high (3, p. 1).

Guilford (3) and others have variously identified the ten major traits by factor analysis, which were hitherto included in separate inventories: Nebraska Personality Inventory (SEM), Guilford-Martin Inventory of Factors GAMIN, Guilford-Martin Personnel Inventory I, and Inventory of Factors STDCR.

The GZTS gives a very favorable impression of a well-rounded, carefully worked out method of evaluating an important portion of the total personality (10). The reliability with which each of the traits is assessed is shown to be of the order of .80; and their intercorrelations are, as the authors say, "gratifyingly low," the implication being that all are approximately orthogonal in factor terms, that is, that "unique traits" are involved (8).

By using 300 items, thirty items for each of the ten traits, the instrument may be adapted to a standard IBM answer sheet, in which there are thirty item spaces per column. Scoring convenience is achieved by using only two stencils for hand-scoring; one for the front and one for the back of the answer sheet. The simplicity of the scoring eliminates the possibility of errors.

The instrument has clarity and individuals understand the items with little variation in their responses related to interpretation. Items in the test are stated affirmatively rather than in a question form in inventories of this type, and the second-person pronoun is used except when unavoidable. Examples are: "You find it easy to make new acquaintances," and "You give little thought to your failures after they are past." The alternative responses to each item are the familiar "yes," "?," and "no." "Yes" and "no" are preferred to "true" and "false" for the reason that with the latter responses, some examinees become too

concerned about the actual truth of statements where actually their more spontaneous responses, dictated to some extent by feelings, would probably be more diagnostic. Using the response of the "?" was determined by the results of an unpublished polling study of students toward different kinds of response alternatives, who expressed a preference for an opportunity to avoid being forced to reply in one direction or the other to all items (3).

The scores upon which the norms of the GZTS are based were obtained from 523 college men and 389 college women in a southern california university and two junior colleges, for all except trait "T," which was introduced into the survey later. The final form of the survey was administered, with the "T" items included, to a group of seniors in a southern california high school and to their parents. It was found that there were no significant differences in mean scores of parents and their high school offspring, so they were combined for norm purposes.

Interpretations of the traits measured by the Guilford-Zimmerman Temperament Survey are given in the manual as

1. G--General Activity. A high score indicates strong drive, energy and activity; a low score indicates anemia or inactivity.

2. R--Restraint. A high score indicates an over-restrained or over-serious individual; a low score indicates a carefree, impulsive individual.

3. A--Ascendance. Ascendance is a relative matter, and the need for it varies according to the personalities of those to be supervised and the extent of face-to-face contacts required. It would seem that C scores below six should be avoided in selecting foremen and supervisors.

4. S--Sociability. The high and low scores indicate the contrast between the person who is at ease with others, enjoys their company and readily establishes intimate rapport, versus the withdrawn, reserved person who is hard to get to know.

5. E--Emotional Stability. A high score indicates optimism and cheerfulness. A very low score is a sign of poor mental health in general or a neurotic tendency.

6. O--Objectivity. High scores mean less egoism; low scores mean touchiness or hypersensitivity.

7. F--Friendliness. A high score may mean lack of fighting tendencies to the point of pacifism, or it may mean a healthy, realistic handling of frustrations and injuries. A low score means hostility in one form or another--a fighting attitude.

8. T--Thoughtfulness. A high score indicates an introvert, and the low score that of an extrovert with a dislike for reflection and planning.

9. P--Personal Relations. A high score means tolerance and understanding of other people and ability to get along well with others. A low score indicates fault-finding and criticalness of other people.

10. M--Masculinity. A high score means that the person behaves in ways characteristic of men and that he is likely to be more acceptable to them. A very high score may indicate that the person is somewhat unsympathetic and callous. Women who score toward the masculine end of this dimension may have had masculinizing experiences through long association with the opposite sex or they may be rebelling against the female role.

Although many years have passed since the publication of this survey in 1949, it has become possible to apply fresh yardsticks to its evaluation (6). Because the instrument has appeared to merit relatively widespread use, substantial practical experience has been accumulated and begun to be reported. Its demonstrated utility for individual evaluation and in personality research has been widespread. For many years users of the GZTS have found it to be of value, and validation studies from many sources have provided objective testimony to support their confidence in it. Shaffer (7) says that, "the Survey is a superior instrument of its kind. As the outstanding omnibus instrument based primarily on factor analysis, the Survey will have usefulness for screening, rapid evaluation, and research."

The stability of the GZTS personality measures was demonstrated by Jackson (4) who concluded that the test was measuring relatively persistent characteristics of persons tested. The scores demonstrated considerable stability over



time, and high test-retest reliability, except perhaps in extreme changes occurring in the life situation of a subject, such as marriage for a quite young girl, markedly affecting her emotional stability, femininity, and security. The GZTS showed promise as a potential management aid in the selection of personnel for jobs in two commercial telephone office, as found by Jackson.

The Strong Vocational Interest Blank, Revised for Men and Women, is recommended for ages seventeen and over. It has 64 scoring scales (54 occupations, 6 occupational group scales, and 4 nonvocational scales). Astin (1), reporting in the Sixth Mental Measurements Yearbook, states that "Recent major research studies now make it clear that the SVIB is useful in predicting membership in given occupations over long periods of time . . . there is still little doubt that the SVIB remains as the best constructed and most thoroughly validated instrument of its kind."

Also, Furst (2) says the vitality of the SVIB has continued undiminished since its inception in 1959, that the scores show high retest consistency in late adolescence and adulthood, and that high and low scores on many scales correlate with outside ratings of personality. The basic merit of the SVIB is that it gives scores on specific occupational scales through a comprehensive inventory.

Layton (5) edited an excellent report about the SVIB in perhaps as complete an account of the historical and operational use of the instrument and the research studies

conducted with it as one can possibly imagine. It is well documented, and a particularly valuable paper is that of Ralph Berdie, who reports on the validities of it. Another is that of John Darley, who discusses the theoretical basis of interests. Remaining papers are of equally high caliber and serve to round out rather well a most complete and comprehensive symposium on the research and uses of the SVIB.

A criticism frequently made of the SVIB is that scoring is tedious and costly. However, several commercial firms now provide rapid and accurate scoring at a minimal cost.

In 1958, a national committee was established to provide a clearing house and depository to facilitate research on the blank and to insure continuing evaluation of it; and in 1962, Strong announced that a revised blank was to be published. The purposes, theory, and techniques (2) remain essentially the same in the new revised blanks. Strong still holds to his original position that the objective is not to measure interests as such, but to differentiate men (and women) engaged in different occupations and thus to aid young persons to find the jobs best suited to them.

An inspection of the 399 items on the SVIB, the vast majority of which are answered "like," "indifferent," and "dislike," reveals that most of them elicit attitudes about a great variety of stimuli not primarily vocational in content. Some of the items could just as well appear on a personality inventory, so it is not at all surprising

that the scores on many of the scales correlate with outside ratings of personality.

The SVIB is probably still preferable to its leading rival, the Kuder Vocational, but the latter has its own special advantages and uses. In any case, the two instruments differ enough so as to justify using both in some cases. To be a truly multi-stage instrument, the SVIB provides additional scales which permit finer differentiation of interests. With its 399 items, as against 100 in the Kuder Occupational (Form D), it appears to have splendid potential for this. It is perhaps still too early to compare the SVIB and the Kuder Occupational (Form D), as the latter is relatively new.

The extensive revision of the Men's form of the SVIB published in 1966 was instigated by Strong and carried out primarily by David P. Campbell, with the advice and counsel of Ralph Berdie and Kenneth Clark, over an eight-year period (9). The revision involved recalculating all the basic SVIB empirical data, as well as performing many types of analyses not employed before. At each stage in the development, reports to the psychological profession resulted in feedback that helped guide the further work of the revision. Some of the more important changes were the updating of the items in the booklet, expansion of the profile to include several more scales, development of a simpler hand-scoring system, and establishment of a new

reference group of men-in-general drawn from men with a wide variety of professional and interest patterns and tested over a wide time span, 1927-1964. The 1966 edition of the Manual, about twice the size of the former edition, contains, besides more extensive data on validity and reliability characteristics of the SVIB, information on the stability of interest patterns within occupations, a report of the development of a new scale related to academic achievement, and more extensive data on the changes in interests with age. Further research on a sustaining basis should continue to provide the SVIB with a firm empirical base.

#### Procedures for Collecting Data

Through the cooperation of the instructors in the freshmen business administration classes at Tarrant County Junior College District, approximately all the full-time freshmen took the Guilford-Zimmerman Temperament Survey soon after mid-term of the fall semester 1968-69. The students were asked to put the following information on a data sheet accompanying their answer sheet: name, date, sex, classification, class in which they were administered the test, college hours completed to date, if any, and major field of study. This information made it possible to sort the answer sheets into areas of study without duplication of subjects.

Fifty (50) subjects were then chosen randomly (11) from each major area of study, and these students were then

administered the Strong Vocational Interest Blank. Raw scores were tabulated and prepared for examination by use of statistical analysis.

The 200 experienced business people were selected from Tarrant County businesses from each of the occupational areas of accounting, data-processing, management, and office practice. Personnel directors or executives were contacted in each of several retailing, wholesaling, manufacturing, warehousing, and service businesses, for their approval to administer the GZTS and the SVIB to selected employees, who had been with the companies three years or longer, and who were interested and cooperative in this study. It was explained to these employees that participation was entirely voluntary, and that taking the tests was a personal favor to the investigator. Also, it was emphasized that the information would not become a part of their personnel files. Most of the subjects asked eagerly to have the results interpreted to them, which was done.

#### Procedures for Treating Data

After the data had been collected, it was tabulated, and analysis of variance designs were used to test hypothesis "a" in each of the four major areas of study to determine whether significant differences existed between and within the four groups with respect to mean scores on the specific personality characteristics. If the differences were significant, the material was re-examined and investigated by use of a  $t$  ratio to determine where the difference lay,

and the hypotheses were retained or rejected. The .05 level of confidence was used.

Hypothesis "b" in each of the four major areas of study was tested by use of the  $t$  ratio to determine if the students scored significantly higher or lower on selected personality traits than the norming group.

Hypotheses "c" and "d" in each of the four major areas of study were also tested by use of the  $t$  ratio to determine if there were any significant differences between the students and experienced business people in their personality traits and/or interests.

The results obtained by following these procedures were then tabulated, analyzed, and interpreted. The next chapter reports the findings, analyses, and the interpretation of these data.

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## CHAPTER IV

### PRESENTATION AND ANALYSIS OF DATA

The findings of this study are presented in five sections. The first section reports data assembled to show the comparison of freshmen junior college students, who selected accounting, data-processing, management, or office practice occupations as their major field of study, and their personality profiles as measured by the Guilford-Zimmerman Temperament Survey, (GZTS). This section deals with the "a" hypotheses for each of the four occupations. The second section reports the results of a comparison of specific GZTS traits for each student group with the norming group for the GZTS. This section deals with the "b" hypotheses for each occupational area. The third section reports the findings related to the "c" hypotheses in all four parts of the hypotheses and deals with the comparison of personality profiles between students, in each of the four business areas of major study, with experienced business people employed in each of these areas. The fourth section compares the student majors and experienced business people, on their preference, interest in, or "liking" for their major area as measured by the Strong

Vocational Interest Blank, (SVIB). Data related to the "d" hypotheses in all four parts is reported here. The final section presents additional treatment of data for which no hypotheses were made, but it includes information which has considerable meaning for the study as a whole. It presents a comparison of those students showing a high interest in their major area and experienced business people with high interest in the same area as measured by the SVIB on their GZTS traits. This would be indicative of the personality requirements of the vocations into which the students will very likely be entering upon graduation, as evidenced by their high scores on the SVIB.

All hypotheses were tested by comparing the mean scores through an analysis of variance design, by computing Fisher's  $t$  (2, p. 103), and consulting an appropriate table to determine the level of significance (2, p. 430). The statistical computations were made at the Computer Center at North Texas State University. The .05 level of significance was used to test all hypotheses.

#### Comparison of Mean Scores of the GZTS Factors for Students in Four Major Areas

The analyses data, presented in Table I, are for nine of the trait scales of the GZTS, by major field of study. The M--Masculinity scale was eliminated because it was not considered appropriate for the study.

TABLE I

SUMMARY TABLE FOR ANALYSIS OF VARIANCE OF THE SCORES  
ON THE GUILFORD-ZIMMERMAN TEMPERAMENT SURVEY FOR  
FOUR MAJOR FIELDS OF STUDY

| Source              | Sum of Squares | df  | Variance Estimate | F     | P   |
|---------------------|----------------|-----|-------------------|-------|-----|
| General Activity    |                |     |                   |       |     |
| Major field         | 461.20         | 3   | 153.73            | 5.11  | NS  |
| Within cells        | 5891.28        | 196 | 30.05             |       |     |
| Total               | 6352.48        | 199 | .                 | .     | .   |
| Restraint           |                |     |                   |       |     |
| Major field         | 95.42          | 3   | 31.80             | 1.45  | NS  |
| Within cells        | 4292.80        | 196 | 21.90             |       |     |
| Total               | 4388.22        | 199 | .                 | .     | .   |
| Ascendance          |                |     |                   |       |     |
| Major field         | 1842.82        | 3   | 614.27            | 24.40 | .05 |
| Within cells        | 4933.96        | 196 | 25.17             |       |     |
| Total               | 6776.78        | 199 | .                 | .     | .   |
| Sociability         |                |     |                   |       |     |
| Major field         | 293.45         | 3   | 97.81             | 3.05  | NS  |
| Within cells        | 6276.74        | 196 | 32.02             |       |     |
| Total               | 6570.19        | 199 | .                 | .     | .   |
| Emotional Stability |                |     |                   |       |     |
| Major field         | 473.69         | 3   | 157.89            | 5.04  | NS  |
| Within cells        | 6131.26        | 196 | 31.28             |       |     |
| Total               | 6604.95        | 199 | .                 | .     | .   |

TABLE I, Continued

| Source             | Sum of Squares | df  | Variance Estimate | F    | P   |
|--------------------|----------------|-----|-------------------|------|-----|
| Objectivity        |                |     |                   |      |     |
| Major field        | 732.29         | 3   | 244.09            | 8.63 | .05 |
| Within Cells       | 5541.58        | 196 | 28.27             |      |     |
| Total              | 6273.87        | 199 | .                 | .    | .   |
| Friendliness       |                |     |                   |      |     |
| Major field        | 258.77         | 3   | 86.25             | 3.46 | NS  |
| Within cells       | 4879.58        | 196 | 24.89             |      |     |
| Total              | 5138.35        | 199 | .                 | .    | .   |
| Thoughtfulness     |                |     |                   |      |     |
| Major field        | 90.42          | 3   | 30.14             | 1.43 | NS  |
| Within cells       | 4120.36        | 196 | 21.02             |      |     |
| Total              | 4210.78        | 199 | .                 | .    | .   |
| Personal Relations |                |     |                   |      |     |
| Major field        | 505.24         | 3   | 168.41            | 6.36 | NS  |
| Within cells       | 5185.08        | 196 | 26.45             |      |     |
| Total              | 5690.32        | 199 | .                 | .    | .   |

The general hypotheses "a" in each of the four parts was that there would be significant differences between the student groups, in their respective major fields of study, in their mean scores on four selected GZTS trait scales.

This was not supported, because an examination of the data in Table I reveals that significant differences between major fields were found in only two of the nine scales of the GZTS, namely, Ascendance, with an F-Ratio of 24.40, and Objectivity, with an F-Ratio of 8.63, both of which were significant at better than the .05 level.

Part 1  
Hypothesis "a"

This hypothesis stated that accounting majors would have significantly higher scores in Objectivity and Thoughtfulness and significantly lower scores in Friendliness and Sociability than each of the other three freshmen groups.

In examining the t ratios in Table II, to discover wherein the differences are between the groups, management majors were significantly higher than accounting majors in Objectivity, at the .01 level, and data-processing majors were significantly higher than accounting majors, at the .05 level. So, accounting majors did not score significantly higher than the other groups in Objectivity.

In Thoughtfulness, the accounting majors were not significantly different from the data-processing and management majors, but they were significantly higher than the office practice majors at the .05 level. In Friendliness, accounting majors did have the lowest score of all the groups which was significant at the .05 level for data-processing and management, and at the .01 level for office

TABLE II C

THE  $t$  TEST VALUES FOR SPECIFIC GUILFORD-ZIMMERMAN TRAIT SCALES  
OF ACCOUNTING STUDENTS VERSUS THE OTHER  
THREE FRESHMEN GROUPS

| Variable       | Accounting Students |       |    | Data-Processing Students |       |    | Significance |     |
|----------------|---------------------|-------|----|--------------------------|-------|----|--------------|-----|
|                | Mean                | S. D. | N  | Mean                     | S. D. | N  | $t$          | P   |
| Objectivity    | 16.54               | 5.76  | 50 | 18.86                    | 4.81  | 50 | -2.01        | .05 |
| Thoughtfulness | 20.06               | 3.66  | 50 | 18.96                    | 4.63  | 50 | 1.19         | NS  |
| Friendliness   | 13.02               | 4.44  | 50 | 15.28                    | 5.40  | 50 | -2.26        | .05 |
| Sociability    | 19.30               | 6.60  | 50 | 19.64                    | 5.39  | 50 | -.30         | NS  |

| Variable       | Accounting Students |       |    | Management Students |       |    | Significance |     |
|----------------|---------------------|-------|----|---------------------|-------|----|--------------|-----|
|                | Mean                | S. D. | N  | Mean                | S. D. | N  | $t$          | P   |
| Objectivity    | 16.54               | 5.76  | 50 | 19.38               | 5.53  | 50 | -2.67        | .01 |
| Thoughtfulness | 20.06               | 3.66  | 50 | 19.50               | 4.90  | 50 | .61          | NS  |
| Friendliness   | 13.02               | 4.44  | 50 | 15.14               | 5.22  | 50 | -2.12        | .05 |
| Sociability    | 19.30               | 6.60  | 50 | 21.84               | 5.57  | 50 | -2.24        | .05 |

| Variable       | Accounting Students |       |    | Office Practice Students |       |    | Significance |     |
|----------------|---------------------|-------|----|--------------------------|-------|----|--------------|-----|
|                | Mean                | S. D. | N  | Mean                     | S. D. | N  | $t$          | P   |
| Objectivity    | 16.54               | 5.76  | 50 | 14.50                    | 4.87  | 50 | 1.91         | NS  |
| Thoughtfulness | 20.06               | 3.66  | 50 | 18.24                    | 4.84  | 50 | 1.98         | .05 |
| Friendliness   | 13.02               | 4.44  | 50 | 16.10                    | 4.61  | 50 | -3.08        | .01 |
| Sociability    | 19.30               | 6.60  | 50 | 18.60                    | 4.66  | 50 | .61          | NS  |

practice. The accounting majors were not significantly different from data-processing and office practice students on Sociability, but management students were significantly higher than the accounting students, at the .05 level. Therefore, the hypothesis is accepted only in part--accounting majors did score significantly lower in Friendliness than the other three groups. The rest of the hypothesis is rejected.

#### Part 2 Hypothesis "a"

This hypothesis stated that students majoring in data-processing would have significantly higher scores in General Activity and Restraint and significantly lower scores in Personal Relations and Ascendance than the other three freshmen groups. Table III reveals that data-processing students were not significantly higher in General Activity than the accounting and management students, although they were significantly higher than the office practice students, at the .05 level. There was no significant difference on Restraint between the accounting students and the other three groups. On Personal Relations, data-processing students did not differ significantly from the management students, but they were significantly higher than the accounting students, at the .01 level, and the office practice students, at the .05 level. On Ascendance, data-processing students were not significantly different from the accounting students, though they were significantly lower

TABLE III

THE  $t$  TEST VALUES FOR SPECIFIC GUILFORD-ZIMMERMAN TRAIT SCALES  
OF DATA-PROCESSING STUDENTS VERSUS THE OTHER  
THREE FRESHMEN GROUPS

| Variable           | Data-Processing Students |       |    | Accounting Students |       |    | Significance |     |
|--------------------|--------------------------|-------|----|---------------------|-------|----|--------------|-----|
|                    | Mean                     | S. D. | N  | Mean                | S. D. | N  | $t$          | P   |
| General Activity   | 19.42                    | 5.43  | 50 | 19.06               | 5.95  | 50 | .32          | NS  |
| Restraint          | 17.32                    | 4.92  | 50 | 16.44               | 5.20  | 50 | .94          | NS  |
| Personal Relations | 17.42                    | 5.09  | 50 | 14.24               | 5.80  | 50 | 3.09         | .01 |
| Ascendance         | 15.74                    | 5.19  | 50 | 16.74               | 5.96  | 50 | .99          | NS  |

  

| Variable           | Data-Processing Students |       |    | Management Students |       |    | Significance |      |
|--------------------|--------------------------|-------|----|---------------------|-------|----|--------------|------|
|                    | Mean                     | S. D. | N  | Mean                | S. D. | N  | $t$          | P    |
| General Activity   | 19.42                    | 5.43  | 50 | 21.38               | 5.01  | 50 | -1.78        | NS   |
| Restraint          | 17.32                    | 4.92  | 50 | 17.28               | 4.13  | 50 | .04          | NS   |
| Personal Relations | 17.42                    | 5.09  | 50 | 18.10               | 5.22  | 50 | -.66         | NS   |
| Ascendance         | 15.74                    | 5.19  | 50 | 19.60               | 4.10  | 50 | 3.84         | .001 |

  

| Variable           | Data-Processing Students |       |    | Office Practice Students |       |    | Significance |      |
|--------------------|--------------------------|-------|----|--------------------------|-------|----|--------------|------|
|                    | Mean                     | S. D. | N  | Mean                     | S. D. | N  | $t$          | P    |
| General Activity   | 19.42                    | 5.43  | 50 | 17.10                    | 5.25  | 50 | 2.11         | .05  |
| Restraint          | 17.32                    | 4.92  | 50 | 15.64                    | 4.17  | 50 | 1.79         | NS   |
| Personal Relations | 17.42                    | 5.09  | 50 | 15.12                    | 4.09  | 50 | 2.23         | .05  |
| Ascendance         | 15.74                    | 5.19  | 50 | 11.16                    | 4.38  | 50 | 4.56         | .001 |



than the management students, at the .001 level, and significantly higher than the office practice students, at the .001 level. Therefore, this hypothesis is rejected.

Part 3  
Hypothesis "a"

This hypothesis stated that students majoring in management would have significantly higher scores in Ascendance and Personal Relations and significantly lower scores in Restraint and Thoughtfulness than the other three freshmen groups. In Table IV, on Ascendance, the management majors were significantly higher than the other three groups--the accounting group, at the .01 level, and the data-processing and office practice groups, at the .001 level, so this part of the hypothesis is accepted. On Personal Relations, management students were significantly higher than accounting students, at the .001 level, and the office practice students, at the .01 level, but they were not significantly different from the data-processing students. On Restraint and Thoughtfulness, the management students were not significantly different from the other three groups. Therefore, this hypothesis may only be accepted in part--that management majors do have significantly higher scores in Ascendance than the other three groups. The remainder of the hypothesis is rejected because management majors are not significantly higher than the other three groups on Personal Relations and not significantly lower in Restraint and Thoughtfulness.

TABLE IV

THE t TEST VALUES FOR SPECIFIC GUILFORD-ZIMMERMAN TRAIT SCALES  
OF MANAGEMENT STUDENTS VERSUS THE OTHER  
THREE FRESHMEN GROUPS

| Variable           | Management Students |       |    | Accounting Students |       |    | Significance |      |
|--------------------|---------------------|-------|----|---------------------|-------|----|--------------|------|
|                    | Mean                | S. D. | N  | Mean                | S. D. | N  | <u>t</u>     | P    |
| Ascendance         | 19.60               | 4.10  | 50 | 16.74               | 5.96  | 50 | 2.85         | .01  |
| Personal Relations | 18.10               | 5.22  | 50 | 14.24               | 5.80  | 50 | 3.75         | .001 |
| Restraint          | 17.28               | 4.13  | 50 | 16.44               | 5.20  | 50 | .89          | NS   |
| Thoughtfulness     | 19.50               | 4.90  | 50 | 20.06               | 3.66  | 50 | .61          | NS   |

| Variable           | Management Students |       |    | Data-Processing Students |       |    | Significance |      |
|--------------------|---------------------|-------|----|--------------------------|-------|----|--------------|------|
|                    | Mean                | S. D. | N  | Mean                     | S. D. | N  | <u>t</u>     | P    |
| Ascendance         | 19.60               | 4.10  | 50 | 15.74                    | 5.19  | 50 | 3.84         | .001 |
| Personal Relations | 18.10               | 5.22  | 50 | 17.42                    | 5.09  | 50 | .66          | NS   |
| Restraint          | 17.28               | 4.13  | 50 | 17.32                    | 4.92  | 50 | .04          | NS   |
| Thoughtfulness     | 19.50               | 4.90  | 50 | 18.96                    | 4.63  | 50 | .58          | NS   |

| Variable           | Management Students |       |    | Office Practice Students |       |    | Significance |      |
|--------------------|---------------------|-------|----|--------------------------|-------|----|--------------|------|
|                    | Mean                | S. D. | N  | Mean                     | S. D. | N  | <u>t</u>     | P    |
| Ascendance         | 19.60               | 4.10  | 50 | 11.16                    | 4.38  | 50 | 8.41         | .001 |
| Personal Relations | 18.10               | 5.22  | 50 | 15.12                    | 4.09  | 50 | 2.89         | .01  |
| Restraint          | 17.28               | 4.13  | 50 | 15.64                    | 4.17  | 50 | 1.75         | NS   |
| Thoughtfulness     | 19.50               | 4.90  | 50 | 18.24                    | 4.84  | 50 | 1.37         | NS   |

Part 4  
Hypothesis "a"

This hypothesis stated that students majoring in office practice would have significantly higher scores in Friendliness and Emotional Stability and significantly lower scores in Objectivity and general Activity than the other three freshmen groups. Table V shows no differences from the data-processing and management majors in Friendliness, although the office practice majors were significantly higher than the accounting majors, at the .01 level. On Emotional Stability, the office practice students were not significantly different from the accounting students, but they were significantly lower than the data-processing students, at the .001 level, and lower than the management students, at the .01 level. On Objectivity, the office practice students showed no significant difference from the accounting students, but were significantly lower than the data-processing management students, at the .001 levels. On General Activity, the office practice students showed no significant difference from the accounting students, but were significantly lower than the data-processing and management students, at the .001 level. This hypothesis is rejected.

In summary, the first section has dealt with the data assembled to show the comparison of freshmen junior college students who selected accounting, data-processing, management, or office practice as their major field of study, and their

TABLE V

THE t TEST VALUES FOR SPECIFIC GUILFORD-ZIMMERMAN TRAIT SCALES  
OF OFFICE PRACTICE STUDENTS VERSUS THE OTHER  
THREE FRESHMEN GROUPS

| Variable            | Office Practice Students |       |    | Accounting Students |       |    | Significance |     |
|---------------------|--------------------------|-------|----|---------------------|-------|----|--------------|-----|
|                     | Mean                     | S. D. | N  | Mean                | S. D. | N  | <u>t</u>     | P   |
| Friendliness        | 16.10                    | 4.61  | 50 | 13.02               | 4.44  | 50 | 3.08         | .01 |
| Emotional Stability | 15.00                    | 4.68  | 50 | 16.70               | 6.57  | 50 | -1.51        | NS  |
| Objectivity         | 14.50                    | 4.87  | 50 | 16.54               | 5.76  | 50 | -1.91        | NS  |
| General Activity    | 17.10                    | 5.25  | 50 | 19.06               | 5.95  | 50 | -1.78        | NS  |

| Variable            | Office Practice Students |       |    | Data-Processing Students |       |    | Significance |      |
|---------------------|--------------------------|-------|----|--------------------------|-------|----|--------------|------|
|                     | Mean                     | S. D. | N  | Mean                     | S. D. | N  | <u>t</u>     | P    |
| Friendliness        | 16.10                    | 4.61  | 50 | 15.28                    | 5.40  | 50 | .82          | NS   |
| Emotional Stability | 15.00                    | 4.68  | 50 | 18.78                    | 5.14  | 50 | -3.37        | .001 |
| Objectivity         | 14.50                    | 4.87  | 50 | 18.68                    | 4.81  | 50 | -3.93        | .001 |
| General Activity    | 17.10                    | 5.25  | 50 | 19.42                    | 5.43  | 50 | -2.11        | .05  |

| Variable            | Office Practice Students |       |    | Management Students |       |    | Significance |      |
|---------------------|--------------------------|-------|----|---------------------|-------|----|--------------|------|
|                     | Mean                     | S. D. | N  | Mean                | S. D. | N  | <u>t</u>     | P    |
| Friendliness        | 16.10                    | 4.61  | 50 | 15.14               | 5.22  | 50 | .96          | NS   |
| Emotional Stability | 15.00                    | 4.68  | 50 | 18.58               | 5.57  | 50 | -3.20        | .01  |
| Objectivity         | 14.50                    | 4.87  | 50 | 19.38               | 5.53  | 50 | -4.58        | .001 |
| General Activity    | 17.10                    | 5.25  | 50 | 21.38               | 5.01  | 50 | -3.90        | .001 |

personality profiles as measured by the Guilford-Zimmerman Temperament Survey.

Comparison of Specific Students' GZTS Factors With  
the GZTS Norming Groups

The analyses data, presented in this section, are for the specific trait scales of the Guilford-Zimmerman Temperament Survey for each of the four student groups compared with the GZTS norming groups (1, p. 7).

Part 1  
Hypothesis "b"

This hypothesis stated that students majoring in accounting would score significantly higher on the traits of Objectivity and Thoughtfulness and significantly lower on Friendliness and Sociability than the norming groups. The hypothesis must be rejected because there is no significant difference between the groups on the traits of Objectivity, Friendliness, and Sociability, in Table VI. However, the accounting majors were significantly higher in Thoughtfulness than the norming group, at the .05 level.

Part 2  
Hypothesis "b"

This hypothesis stated that students majoring in data-processing would score significantly higher on the traits of General Activity and Restraint and significantly lower on Personal Relations and Ascendance than the norming

TABLE VI

THE  $t$  TEST VALUES FOR SPECIFIC GUILFORD-ZIMMERMAN TRAIT SCALES  
FOR ALL STUDENT MAJOR GROUPS VERSUS THE  
GUILFORD-ZIMMERMAN NORMING GROUPS

| Variable            | Mean                     | S. D. | N             | Mean  | S. D. | N   | $t$          | P    |
|---------------------|--------------------------|-------|---------------|-------|-------|-----|--------------|------|
|                     | Accounting Students      |       | Norming Group |       |       |     | Significance |      |
| Objectivity         | 16.54                    | 5.76  | 50            | 17.90 | 4.98  | 523 | -1.81        | NS   |
| Thoughtfulness      | 20.06                    | 3.66  | 50            | 18.40 | 5.11  | 116 | 2.06         | .05  |
| Friendliness        | 13.02                    | 4.44  | 50            | 13.80 | 5.07  | 523 | -1.04        | NS   |
| Sociability         | 19.30                    | 6.60  | 50            | 18.20 | 6.97  | 523 | 1.06         | NS   |
|                     | Data-Processing Students |       | Norming Group |       |       |     | Significance |      |
| General Activity    | 19.42                    | 5.43  | 50            | 17.00 | 5.64  | 523 | 2.90         | .01  |
| Restraint           | 17.32                    | 4.92  | 50            | 16.90 | 4.94  | 523 | .57          | NS   |
| Personal Relations  | 17.42                    | 5.09  | 50            | 16.70 | 5.05  | 523 | .96          | NS   |
| Ascendance          | 15.74                    | 5.19  | 50            | 15.90 | 5.84  | 523 | -.18         | NS   |
|                     | Management Students      |       | Norming Group |       |       |     | Significance |      |
| Ascendance          | 19.60                    | 4.10  | 50            | 15.90 | 5.84  | 523 | 4.37         | .001 |
| Personal Relations  | 18.10                    | 5.22  | 50            | 16.70 | 5.05  | 523 | 1.86         | NS   |
| Restraint           | 17.28                    | 4.13  | 50            | 16.90 | 4.94  | 523 | .52          | NS   |
| Thoughtfulness      | 19.50                    | 4.90  | 50            | 18.40 | 5.11  | 116 | 1.28         | NS   |
|                     | Office Practice Students |       | Norming Group |       |       |     | Significance |      |
| Friendliness        | 16.10                    | 4.61  | 50            | 15.70 | 4.79  | 389 | .55          | NS   |
| Emotional Stability | 15.00                    | 4.68  | 50            | 15.50 | 5.76  | 389 | -.58         | NS   |
| Objectivity         | 14.50                    | 4.87  | 50            | 16.80 | 5.37  | 389 | -2.87        | .01  |
| General Activity    | 17.10                    | 5.25  | 50            | 17.00 | 5.20  | 389 | .12          | NS   |

group. The hypothesis must be rejected because there is no significant difference between the groups on three of the traits--Restraint, Personal Relations, and Ascendance. However, the data-processing majors were significantly higher in General Activity than the norming group, at the .01 level.

Part 3  
Hypothesis "b"

This hypothesis stated that students majoring in management would score significantly higher on the traits of Ascendance and Personal Relations and significantly lower on Restraint and Thoughtfulness than the norming group. The hypothesis must be rejected because there is no significant difference between the groups on the traits of Personal Relations, Restraint, and Thoughtfulness. However, the management majors were significantly higher in Ascendance than the norming group, at the .001 level.

Part 4  
Hypothesis "b"

This hypothesis stated that students majoring in office practice would score significantly higher on the traits of Friendliness and Emotional Stability and significantly lower in Objectivity and General Activity than the norming group. This hypothesis must be rejected because there is no significant difference between the groups on the traits of Friendliness, Emotional Stability, and

General Activity. However, the office practice majors were significantly lower in Objectivity than the norming group, at the .01 level.

This section has reported the results of a comparison of specific GZTS traits of the students with the norming groups. The students were more like than unlike the norming groups except in one trait in each of the variable groups.

#### Comparison of Mean Scores of the GZTS Factors for Students and Experienced Business People

This section deals with the "c" hypotheses in all four parts of the hypotheses and shows a comparison of specific personality traits between students in each of the four major areas of study with experienced business people employed in each of these four business areas. Significant differences exist in five of the personality traits-- General Activity, Ascendance, Emotional Stability, Objectivity, and Personal Relations. The F-Ratios are shown in Table VII.

#### Part 1 Hypothesis "c"

This hypothesis stated that freshmen students majoring in accounting would show no significant differences in their scores on Objectivity, Thoughtfulness, Friendliness, and Sociability from a comparison group of practicing accountants



TABLE VII

SUMMARY TABLE FOR ANALYSIS OF VARIANCE OF THE SCORES ON THE  
GUILFORD-ZIMMERMAN TEMPERAMENT SURVEY FOR STUDENTS  
 AND EXPERIENCED BUSINESS PEOPLE

| Source              | Sum of Squares | df  | Variance Estimate | F     | P    |
|---------------------|----------------|-----|-------------------|-------|------|
| General Activity    |                |     |                   |       |      |
| Between Groups      | 985.78         | 7   | 140.82            | 4.74  | .05  |
| Within Cells        | 11626.10       | 392 | 29.65             |       |      |
| Total               | 12611.88       | 399 | .                 | .     | .    |
| Restraint           |                |     |                   |       |      |
| Between Groups      | 441.10         | 7   | 63.01             | 2.98  | NS   |
| Within Cells        | 8276.34        | 392 | 21.11             |       |      |
| Total               | 8717.44        | 399 | .                 | .     | .    |
| Ascendance          |                |     |                   |       |      |
| Between Groups      | 2802.83        | 7   | 400.40            | 13.61 | .001 |
| Within Cells        | 11527.48       | 392 | 29.40             |       |      |
| Total               | 14330.31       | 399 | .                 | .     | .    |
| Sociability         |                |     |                   |       |      |
| Between Groups      | 784.82         | 7   | 112.11            | 3.09  | NS   |
| Within Cells        | 14193.62       | 392 | 36.20             |       |      |
| Total               | 14978.44       | 399 | .                 | .     | .    |
| Emotional Stability |                |     |                   |       |      |
| Between Groups      | 1084.66        | 7   | 154.95            | 5.21  | .05  |
| Within Cells        | 11658.34       | 392 | 29.74             |       |      |
| Total               | 12743.00       | 399 | .                 | .     | .    |

TABLE VII, Continued

| Source             | Sum of Squares | df  | Variance Estimate | F    | P   |
|--------------------|----------------|-----|-------------------|------|-----|
| Objectivity        |                |     |                   |      |     |
| Between Groups     | 1028.12        | 7   | 146.87            | 5.35 | .05 |
| Within Cells       | 10749.64       | 392 | 27.42             |      |     |
| Total              | 11777.76       | 399 | .                 | .    | .   |
| Friendliness       |                |     |                   |      |     |
| Between Groups     | 333.91         | 7   | 47.70             | 1.81 | NS  |
| Within Cells       | 10317.84       | 392 | 26.32             |      |     |
| Total              | 10651.75       | 399 | .                 | .    | .   |
| Thoughtfulness     |                |     |                   |      |     |
| Between Groups     | 337.88         | 7   | 48.26             | 2.45 | NS  |
| Within Cells       | 7707.42        | 392 | 19.66             |      |     |
| Total              | 8045.30        | 399 | .                 | .    | .   |
| Personal Relations |                |     |                   |      |     |
| Between Groups     | 1543.00        | 7   | 220.42            | 8.42 | .01 |
| Within Cells       | 10251.78       | 392 | 26.15             |      |     |
| Total              | 11794.78       | 399 | .                 | .    | .   |

in business. Table VIII shows that experienced accountants were significantly more Objective than accounting students, at the .05 level. However, the accounting students were significantly higher than the experienced accountants in the traits of Thoughtfulness and Sociability, at the .01 and .05 levels respectively. There was no significant

TABLE VIII  
 THE t TEST VALUES FOR SPECIFIC GUILFORD-ZIMMERMAN TRAIT SCALES  
 FOR STUDENTS AND EXPERIENCED BUSINESS PEOPLE

| Variable            | Mean                     | S. D. | N  | Mean                        | S. D. | N  | t     | P   |
|---------------------|--------------------------|-------|----|-----------------------------|-------|----|-------|-----|
|                     | Accounting Students      |       |    | Experienced Accountants     |       |    |       |     |
| Objectivity         | 16.54                    | 5.76  | 50 | 19.14                       | 5.11  | 50 | -2.48 | .05 |
| Thoughtfulness      | 20.06                    | 3.66  | 50 | 17.64                       | 4.59  | 50 | 2.72  | .01 |
| Friendliness        | 13.02                    | 4.44  | 50 | 14.24                       | 4.94  | 50 | -1.18 | NS  |
| Sociability         | 19.30                    | 6.60  | 50 | 17.86                       | 6.72  | 50 | 1.19  | .05 |
|                     | Data-Processing Students |       |    | Experienced Data-Processing |       |    |       |     |
| General Activity    | 19.42                    | 5.43  | 50 | 18.72                       | 5.80  | 50 | .64   | NS  |
| Restraint           | 17.32                    | 4.92  | 50 | 17.72                       | 4.51  | 50 | -.43  | NS  |
| Personal Relations  | 17.42                    | 5.09  | 50 | 17.86                       | 5.44  | 50 | -.43  | NS  |
| Ascendance          | 15.74                    | 5.19  | 50 | 15.90                       | 5.61  | 50 | -.14  | NS  |
|                     | Management Students      |       |    | Experienced Management      |       |    |       |     |
| Ascendance          | 19.60                    | 4.10  | 50 | 19.30                       | 5.55  | 50 | .27   | NS  |
| Personal Relations  | 18.10                    | 5.22  | 50 | 19.62                       | 4.49  | 50 | -1.48 | NS  |
| Restraint           | 17.28                    | 4.13  | 50 | 19.40                       | 4.41  | 50 | -2.30 | .05 |
| Thoughtfulness      | 19.50                    | 4.90  | 50 | 20.32                       | 3.28  | 50 | -.92  | NS  |
|                     | Office Practice Students |       |    | Experienced Office Practice |       |    |       |     |
| Friendliness        | 16.10                    | 4.61  | 50 | 15.88                       | 4.60  | 50 | .21   | NS  |
| Emotional Stability | 15.00                    | 4.68  | 50 | 16.56                       | 5.83  | 50 | -1.43 | NS  |
| Objectivity         | 14.50                    | 4.87  | 50 | 16.84                       | 5.15  | 50 | -2.23 | .05 |
| General Activity    | 17.10                    | 5.25  | 50 | 19.28                       | 4.81  | 50 | -2.00 | .05 |

difference between the two groups on Friendliness. This hypothesis is therefore rejected.

Part 2  
Hypothesis "c"

This hypothesis stated that freshmen students majoring in data-processing would show no significant differences in their scores on the traits of General Activity, Restraint, Personal Relations and Ascendance from a comparison group of employed people in Data-Processing. Table VIII shows that there were no significant differences on these traits, so the null hypothesis is accepted.

Part 3  
Hypothesis "c"

This hypothesis stated that freshmen students majoring in management would show no significant differences in their scores on Ascendance, Personal Relations, Restraint, and Thoughtfulness from a comparison group of employed management personnel. Table VIII shows that there were no significant differences between the two groups on General Activity, Personal Relations, and Thoughtfulness, so the null hypothesis may be accepted in part. However, the experienced management personnel showed a significantly higher score on Restraint than the students, at the .05 level.

Part 4  
Hypothesis "c"

This hypothesis stated that freshmen students majoring in office practice would show no significant differences in their scores on Friendliness, Emotional Stability, Objectivity, and General Activity from a group of employed women in office practice. This null hypothesis can be accepted in part because Table VIII shows that there were no significant differences between the two groups on Friendliness and Emotional Stability. However, the experienced office practice women were significantly higher than the students, at the .05 level, on Objectivity and General Activity.

This section has shown the relationship of specific personality traits between students in each of the four major areas of study with experienced business people employed in each of these four business areas.

Comparison of Mean Scores on SVIB Interests of Student  
Majors and Experienced Business People

The analyses data, presented in Table IX, are for the interest scores on the Strong Vocational Interest Blank comparing student interests with those of experienced business people in the same major areas.

All the "d" hypotheses in Parts 1, 2, 3, and 4 stated that freshmen students majoring in a specific area

TABLE IX

SUMMARY TABLE FOR ANALYSIS OF VARIANCE OF THE INTEREST SCORES  
ON THE STRONG VOCATIONAL INTEREST BLANK FOR STUDENTS  
AND EXPERIENCED BUSINESS PEOPLE

| Source          | Sum of Squares | df | Variance Estimate | F    | P  |
|-----------------|----------------|----|-------------------|------|----|
| Accounting      |                |    |                   |      |    |
| Major Field     | 18.49          | 1  | 18.49             | .17  | NS |
| Within Cells    | 10278.02       | 98 | 104.87            |      |    |
| Total           | 10296.51       | 99 | .                 | .    | .  |
| Data-Processing |                |    |                   |      |    |
| Major Field     | 295.84         | 1  | 295.29            | 2.18 | NS |
| Within Cells    | 13258.80       | 98 | 135.29            |      |    |
| Total           | 13554.64       | 99 | .                 | .    | .  |
| Management      |                |    |                   |      |    |
| Major Field     | 174.24         | 1  | 174.24            | 1.21 | NS |
| Within Cells    | 14082.32       | 98 | 143.69            |      |    |
| Total           | 14256.56       | 99 | .                 | .    | .  |
| Office Practice |                |    |                   |      |    |
| Major Field     | 104.04         | 1  | 104.04            | 1.91 | NS |
| Within Cells    | 5332.40        | 98 | 54.41             |      |    |
| Total           | 5436.44        | 99 | .                 | .    | .  |

would show no difference on their preference for that area from a comparison group of experienced business people working in the same area.

Table IX shows that the F-Ratios for accounting, data-processing, management, and office practice were not significant, indicating that there was agreement on interests between the students and experienced business people. All of the "d" hypotheses may therefore be accepted.

#### Comparison of "High-Interest" Students and Experienced Business People on their GZTS Factors

This section presents additional treatment of data for which no hypotheses were made. It presents a personality factor comparison of students and experienced business people, who had scores in the upper third on their Strong Vocational Interest Blank profile forms. The upper third of the scores begin just above the shaded area on the profile form and represent the upper-third of the men-in-general group. Considerable research has shown that a person with this rating has interests similar to those of people successfully engaged in that occupation and that these people enjoy that work.

It is interesting to note that 100 percent of the office practice students showed high-interest in office practice activities, while only 90 percent of the experienced women in office practice showed high-interest or liking for office practice. The following summary shows the number and

percentages of the students and experienced business people with the high interest rating according to the criterion stated above.

|                           | Students |     | Experienced |    |
|---------------------------|----------|-----|-------------|----|
|                           | N*       | %   | N*          | %  |
| Accounting . . . . .      | 32       | 64  | 33          | 66 |
| Data-Processing . . . . . | 34       | 68  | 41          | 82 |
| Management . . . . .      | 32       | 64  | 36          | 72 |
| Office Practice . . . . . | 50       | 100 | 45          | 90 |

\*N = 50 in each group

The criterion for inclusion in the experienced group was the same as those used for the derivation of the Strong Vocational Interest Blank comparison groups: 1. The person was between 25 and 55 years old; 2. He (or she) must have been employed in the occupation for three years or more, (this is taken as the minimum standard of success); 3. He (or she) must have indicated that he liked his work. Therefore, the range of high-interests within the experienced group from 66 to 90 percent would indicate that some of the people in these occupations would be happier doing something other than the jobs they hold, or at most, they are indifferent to occupational activities of their group. The data cannot indicate the probability of this. The student groups ranged from 64 to 100 percent, the lower percentages being in accounting and management. This may show an indecisiveness in their choices of a college major, a need for further testing, or a need for additional counseling



to help them prepare for a major field in which they show a higher interest, if any.

Further comparison of the high-interest students with high-interest experienced business people revealed that their Guilford-Zimmerman Temperament Survey traits were significantly different within the eight groups, as shown in Table X, in seven of the nine personality characteristics, General Activity, Restraint, Ascendance, Sociability, Emotional Stability, Objectivity, and Personal Relations. The only factors in which the eight groups did not show significant differences were in Friendliness and Thoughtfulness.

An examination of the  $t$  test values within the groups, Table XI, shows that the data-processing students were more like experienced data-processing people than any of the other business groups. Their only significant difference was in the area of Sociability, where the students were significantly more Sociable than the employed data-processing personnel. The least alike groups were the accounting students and experienced accountants. These groups showed significant differences in four characteristics: Ascendance, Sociability, Thoughtfulness, and Personal Relations. The students were higher in Ascendance, Sociability, and Thoughtfulness than the experienced accountants, and the accountants were higher in Personal Relations than the students. The management groups showed no differences

TABLE X

SUMMARY TABLE FOR ANALYSIS OF VARIANCE OF THE SCORES  
ON THE GUILFORD-ZIMMERMAN TEMPERAMENT SURVEY FOR  
HIGH SVIB INTEREST GROUPS

| Source              | Sum of Squares | df  | Variance Estimate | F     | P    |
|---------------------|----------------|-----|-------------------|-------|------|
| General Activity    |                |     |                   |       |      |
| Between Groups      | 904.40         | 7   | 129.20            | 4.44  | .05  |
| Within Cells        | 8571.98        | 295 | 29.05             |       |      |
| Total               | 9476.38        | 302 | .                 | .     | .    |
| Restraint           |                |     |                   |       |      |
| Between Groups      | 503.27         | 7   | 71.89             | 3.24  | .05  |
| Within Cells        | 6538.17        | 295 | 22.16             |       |      |
| Total               | 7041.45        | 302 | .                 | .     | .    |
| Ascendance          |                |     |                   |       |      |
| Between Groups      | 2849.63        | 7   | 407.09            | 14.44 | .001 |
| Within Cells        | 8316.01        | 295 | 28.18             |       |      |
| Total               | 11165.65       | 302 | .                 | .     | .    |
| Sociability         |                |     |                   |       |      |
| Between Groups      | 1327.78        | 7   | 189.68            | 5.57  | .05  |
| Within Cells        | 10037.16       | 295 | 34.02             |       |      |
| Total               | 11364.94       | 302 | .                 | .     | .    |
| Emotional Stability |                |     |                   |       |      |
| Between Groups      | 940.52         | 7   | 134.36            | 4.67  | .05  |
| Within Cells        | 8486.92        | 295 | 28.76             |       |      |
| Total               | 9427.45        | 302 | .                 | .     | .    |
| Objectivity         |                |     |                   |       |      |
| Between Groups      | 887.96         | 7   | 126.85            | 4.62  | .05  |
| Within Cells        | 8086.41        | 295 | 27.41             |       |      |
| Total               | 8974.38        | 302 | .                 | .     | .    |

TABLE X, Continued

| Source             | Sum of Squares | df  | Variance Estimate | F    | P   |
|--------------------|----------------|-----|-------------------|------|-----|
| Friendliness       |                |     |                   |      |     |
| Between Groups     | 200.98         | 7   | 28.71             | 1.04 | NS  |
| Within Cells       | 8115.27        | 295 | 27.50             |      |     |
| Total              | 8316.25        | 302 | .                 | .    | .   |
| Thoughtfulness     |                |     |                   |      |     |
| Between Groups     | 360.58         | 7   | 51.51             | 2.66 | NS  |
| Within Cells       | 5709.41        | 295 | 19.35             |      |     |
| Total              | 6069.99        | 302 | .                 | .    | .   |
| Personal Relations |                |     |                   |      |     |
| Between Groups     | 832.84         | 7   | 118.94            | 4.58 | .05 |
| Within Cells       | 7661.99        | 295 | 25.97             |      |     |
| Total              | 8494.84        | 302 | .                 | .    | .   |

except in the areas of Sociability and Restraint. The students were significantly higher in Sociability, at the .01 level, than the experienced managers, and the experienced managers were significantly higher than the students, at the .05 level, in Restraint. In the office practice groups, the experienced women were significantly higher than the students, at the .05 level, in Restraint, and in Personal Relations, at the .001 level.

In general, it appears that students are more Sociable, less Restrained, and less capable in the area of Personal

TABLE XI

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR STUDENTS  
AND EXPERIENCED BUSINESS PEOPLE SHOWING HIGH INTEREST  
SCORES ON THE SVIB

| Variable            | Accounting Students |       |    | Experienced Accountants |       |    | Significance |      |
|---------------------|---------------------|-------|----|-------------------------|-------|----|--------------|------|
|                     | Mean                | S. D. | N  | Mean                    | S. D. | N  | $t$          | P    |
| General Activity    | 19.00               | 6.09  | 32 | 17.39                   | 5.16  | 33 | 1.20         | NS   |
| Restraint           | 16.28               | 5.68  | 32 | 17.87                   | 4.76  | 33 | -1.36        | NS   |
| Ascendance          | 17.18               | 5.54  | 32 | 14.30                   | 5.85  | 33 | 2.18         | .05  |
| Sociability         | 19.78               | 6.02  | 32 | 15.75                   | 6.76  | 33 | 2.78         | .01  |
| Emotional Stability | 17.15               | 6.31  | 32 | 17.75                   | 6.04  | 33 | -.45         | NS   |
| Objectivity         | 17.90               | 5.18  | 32 | 18.63                   | 5.57  | 33 | -.56         | NS   |
| Friendliness        | 13.34               | 4.89  | 32 | 14.06                   | 5.14  | 33 | -.55         | NS   |
| Thoughtfulness      | 19.84               | 3.73  | 32 | 17.09                   | 4.52  | 33 | 2.52         | .05  |
| Personal Relations  | 15.43               | 5.87  | 32 | 20.00                   | 4.93  | 33 | -3.60        | .001 |

| Variable            | Data-Processing Students |       |    | Experienced Data-Processing |       |    | Significance |     |
|---------------------|--------------------------|-------|----|-----------------------------|-------|----|--------------|-----|
|                     | Mean                     | S. D. | N  | Mean                        | S. D. | N  | $t$          | P   |
| General Activity    | 20.17                    | 5.14  | 34 | 18.34                       | 5.75  | 41 | 1.46         | NS  |
| Restraint           | 16.97                    | 5.26  | 34 | 18.02                       | 4.49  | 41 | -.96         | NS  |
| Ascendance          | 15.47                    | 5.22  | 34 | 15.46                       | 5.49  | 41 | .00          | NS  |
| Sociability         | 19.41                    | 5.48  | 34 | 16.34                       | 6.41  | 41 | 2.26         | .05 |
| Emotional Stability | 18.79                    | 4.86  | 34 | 18.87                       | 5.24  | 41 | -.06         | NS  |
| Objectivity         | 18.47                    | 4.63  | 34 | 18.80                       | 5.46  | 41 | -.27         | NS  |
| Friendliness        | 15.23                    | 5.12  | 34 | 14.85                       | 5.94  | 41 | .31          | NS  |
| Thoughtfulness      | 19.47                    | 4.29  | 34 | 20.70                       | 4.48  | 41 | -1.21        | NS  |
| Personal Relations  | 17.73                    | 4.57  | 34 | 17.73                       | 5.40  | 41 | .00          | NS  |

TABLE XI, Continued

| Variable            | Management Students |       |    | Experienced Management |       |    | Significance |     |
|---------------------|---------------------|-------|----|------------------------|-------|----|--------------|-----|
|                     | Mean                | S. D. | N  | Mean                   | S. D. | N  | t            | P   |
| General Activity    | 21.34               | 4.99  | 32 | 22.36                  | 4.17  | 36 | -.77         | NS  |
| Restraint           | 17.34               | 4.29  | 32 | 20.13                  | 4.51  | 36 | -2.44        | .05 |
| Ascendance          | 20.62               | 4.13  | 32 | 19.80                  | 5.75  | 36 | .63          | NS  |
| Sociability         | 23.50               | 4.56  | 32 | 19.52                  | 6.00  | 36 | 2.80         | .01 |
| Emotional Stability | 19.12               | 5.17  | 32 | 20.88                  | 3.88  | 36 | -1.35        | NS  |
| Objectivity         | 19.71               | 5.68  | 32 | 19.47                  | 4.56  | 36 | .19          | NS  |
| Friendliness        | 14.84               | 5.19  | 32 | 14.69                  | 5.77  | 36 | .11          | NS  |
| Thoughtfulness      | 19.18               | 4.56  | 32 | 20.36                  | 3.77  | 36 | -1.09        | NS  |
| Personal Relations  | 18.15               | 5.28  | 32 | 19.52                  | 4.72  | 36 | -1.10        | NS  |

| Variable            | Office Practice Students |       |    | Office Practice |       |    | Significance |      |
|---------------------|--------------------------|-------|----|-----------------|-------|----|--------------|------|
|                     | Mean                     | S. D. | N  | Mean            | S. D. | N  | t            | P    |
| General Activity    | 17.10                    | 5.25  | 50 | 18.84           | 4.85  | 45 | -1.57        | NS   |
| Restraint           | 15.64                    | 4.17  | 50 | 17.86           | 4.19  | 45 | -2.30        | .05  |
| Ascendance          | 11.16                    | 4.38  | 50 | 13.08           | 5.44  | 45 | -1.76        | NS   |
| Sociability         | 18.60                    | 4.66  | 50 | 19.20           | 5.96  | 45 | -.50         | NS   |
| Emotional Stability | 15.00                    | 4.68  | 50 | 16.68           | 5.92  | 45 | -1.53        | NS   |
| Objectivity         | 14.50                    | 4.87  | 50 | 16.80           | 5.32  | 45 | -2.13        | .05  |
| Friendliness        | 16.10                    | 4.61  | 50 | 15.62           | 4.73  | 45 | .44          | NS   |
| Thoughtfulness      | 18.24                    | 4.84  | 50 | 19.80           | 4.16  | 45 | -1.72        | NS   |
| Personal Relations  | 15.12                    | 4.09  | 50 | 18.54           | 5.39  | 45 | -3.30        | .001 |

Relations than experienced people. These areas showed the more significant differences within the business groups. In three groups, data-processing, accounting, and management, the students showed significantly more Sociability than the experienced people. In two of the groups, management and office practice, the experienced groups showed significantly higher scores in Restraint than the students. Experienced accountants and office practice women showed higher scores in Personal Relations than the students, at the .001 level of significance.

A further comparison within the experienced business groups in Table XII compares high-interest accountants with all the other high-interest business people on the GZTS traits. The accountants were significantly lower in Thoughtfulness than all of the other groups, the data-processing group, at the .001 level, the management group, at the .01 level, and the office practice women, at the .01 level. The accountants were less Ascendant than the office practice women, at the .05 level of significance. Accountants were lower than the management group in General Activity, at the .001 level, Restraint, at the .05 level, Sociability, at the .01 level, and Emotional Stability, at the .05 level. The accountants were most like the data-processing group in their personality characteristics, differing only in Thoughtfulness, as mentioned above.

TABLE XII

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR EXPERIENCED  
"HIGH INTEREST" ACCOUNTANTS AND OTHER "HIGH INTEREST"  
BUSINESS PEOPLE

| Variable            | Experienced Accountants |       |    | Experienced Data-Processing |       |    | Significance |      |
|---------------------|-------------------------|-------|----|-----------------------------|-------|----|--------------|------|
|                     | Mean                    | S. D. | N  | Mean                        | S. D. | N  | $t$          | P    |
| General Activity    | 17.39                   | 6.16  | 33 | 18.34                       | 5.75  | 41 | -.75         | NS   |
| Restraint           | 17.87                   | 4.76  | 33 | 18.02                       | 4.49  | 41 | -.13         | NS   |
| Ascendance          | 14.30                   | 5.85  | 33 | 15.46                       | 5.49  | 41 | -.93         | NS   |
| Sociability         | 15.75                   | 6.76  | 33 | 16.34                       | 6.41  | 41 | -.42         | NS   |
| Emotional Stability | 17.75                   | 6.04  | 33 | 18.87                       | 5.24  | 41 | -.89         | NS   |
| Objectivity         | 18.63                   | 5.57  | 33 | 18.80                       | 5.46  | 41 | -.13         | NS   |
| Friendliness        | 14.06                   | 5.14  | 33 | 14.85                       | 5.94  | 41 | -.64         | NS   |
| Thoughtfulness      | 17.09                   | 4.52  | 33 | 20.70                       | 4.84  | 41 | -3.51        | .001 |
| Personal Relations  | 20.00                   | 4.93  | 33 | 17.73                       | 5.40  | 41 | 1.90         | NS   |

  

| Variable            | Experienced Accountants |       |    | Experienced Management |       |    | Significance |      |
|---------------------|-------------------------|-------|----|------------------------|-------|----|--------------|------|
|                     | Mean                    | S. D. | N  | Mean                   | S. D. | N  | $t$          | P    |
| General Activity    | 17.39                   | 6.16  | 33 | 22.36                  | 4.17  | 36 | -3.82        | .001 |
| Restraint           | 17.87                   | 4.76  | 33 | 20.13                  | 4.51  | 36 | -1.99        | .05  |
| Ascendance          | 14.30                   | 5.85  | 33 | 19.80                  | 5.75  | 36 | -4.30        | .001 |
| Sociability         | 15.75                   | 6.76  | 33 | 19.52                  | 5.00  | 36 | -2.68        | .01  |
| Emotional Stability | 17.75                   | 6.04  | 33 | 20.88                  | 3.88  | 36 | -2.42        | .05  |
| Objectivity         | 18.63                   | 5.57  | 33 | 19.47                  | 4.56  | 36 | -.66         | NS   |
| Thoughtfulness      | 17.09                   | 4.52  | 33 | 20.36                  | 3.77  | 36 | -3.08        | .01  |
| Personal Relations  | 20.00                   | 4.93  | 33 | 19.52                  | 4.72  | 36 | .38          | NS   |
| Friendliness        | 14.06                   | 5.14  | 33 | 14.60                  | 5.77  | 36 | -.50         | NS   |

TABLE XII, Continued

| Variable            | Experienced Accountants |       | Experienced Office Practice |       | Significance |
|---------------------|-------------------------|-------|-----------------------------|-------|--------------|
|                     | Mean                    | S. D. | Mean                        | S. D. |              |
| General Activity    | 17.39                   | 6.16  | 18.84                       | 4.85  | -1.17 NS     |
| Restraint           | 17.87                   | 4.76  | 17.86                       | 4.19  | .01 NS       |
| Ascendance          | 14.30                   | 5.85  | 19.20                       | 5.96  | -2.57 .05    |
| Emotional Stability | 17.75                   | 6.04  | 16.68                       | 5.92  | .86 NS       |
| Objectivity         | 18.63                   | 5.57  | 16.80                       | 5.34  | 1.53 NS      |
| Friendliness        | 14.06                   | 5.14  | 15.62                       | 4.73  | -1.29 NS     |
| Thoughtfulness      | 17.09                   | 4.52  | 19.80                       | 4.16  | -2.68 .01    |
| Personal Relations  | 20.00                   | 4.93  | 18.57                       | 5.39  | 1.21 NS      |



A comparison of the high-interest data-processing employees with the other high-interest business people on the GZTS traits revealed a similar situation to that of the accountants because these groups were most alike, as mentioned above. The only difference between accountants and data-processing people was in the Thoughtfulness area, where the data-processing people are higher, at the .001 level. Table XIII shows the data-processing people lower than the management people in four characteristics, General Activity, at the .01 level, Restraint, at the .05 level, Ascendance, at the .001 level, and Sociability, at the .05 level. Experienced high-interest data-processing people are more Ascendant than office practice women, at the .05 level, and less Sociable than the office practice women, at the .05 level. As a group, the data-processing men showed less significant levels of differences from the other three groups than in any of the group comparisons.

The experienced management high-interest men showed more significant levels of differences from the other three experienced high-interest groups in personality characteristics than any of the compared business groups. Managers were significantly higher than all the other experienced high-interest groups in General Activity, Restraint, and Ascendance. They were significantly higher in Sociability than the experienced accountants and data-processing people

TABLE XIII

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR EXPERIENCED "HIGH INTEREST" DATA-PROCESSING AND OTHER "HIGH INTEREST" BUSINESS PEOPLE

| Variable            | Experienced Data-Processing |       |      | Experienced Accountants |       |      | Significance |      |
|---------------------|-----------------------------|-------|------|-------------------------|-------|------|--------------|------|
|                     | Mean                        | S. D. | N    | Mean                    | S. D. | N    | $t$          | P    |
|                     | General Activity            | 18.34 | 5.75 | 41                      | 17.39 | 6.16 | 33           | .75  |
| Restraint           | 18.02                       | 4.49  | 41   | 17.87                   | 4.76  | 33   | .13          | NS   |
| Ascendance          | 15.46                       | 5.49  | 41   | 14.30                   | 5.85  | 33   | .93          | NS   |
| Sociability         | 16.34                       | 6.41  | 41   | 15.75                   | 6.76  | 33   | .42          | NS   |
| Emotional Stability | 18.87                       | 5.24  | 41   | 17.75                   | 6.04  | 33   | .89          | NS   |
| Objectivity         | 18.80                       | 5.46  | 41   | 18.63                   | 5.57  | 33   | .13          | NS   |
| Friendliness        | 14.85                       | 5.94  | 41   | 14.06                   | 5.14  | 33   | .64          | NS   |
| Thoughtfulness      | 20.70                       | 4.48  | 41   | 17.09                   | 4.52  | 33   | 3.51         | .001 |
| Personal Relations  | 17.73                       | 5.40  | 41   | 20.00                   | 4.93  | 33   | -1.90        | NS   |

| Variable            | Experienced Data-Processing |       |      | Experienced Management |       |      | Significance |       |
|---------------------|-----------------------------|-------|------|------------------------|-------|------|--------------|-------|
|                     | Mean                        | S. D. | N    | Mean                   | S. D. | N    | $t$          | P     |
|                     | General Activity            | 18.34 | 5.75 | 41                     | 22.36 | 4.17 | 36           | -3.26 |
| Restraint           | 18.02                       | 4.49  | 41   | 20.13                  | 4.51  | 36   | -1.96        | .05   |
| Ascendance          | 15.46                       | 5.49  | 41   | 19.80                  | 5.75  | 36   | -3.58        | .001  |
| Sociability         | 16.34                       | 6.41  | 41   | 19.52                  | 6.00  | 36   | -2.39        | .05   |
| Emotional Stability | 18.87                       | 5.24  | 41   | 20.88                  | 3.88  | 36   | -1.64        | NS    |
| Objectivity         | 18.80                       | 5.46  | 41   | 19.47                  | 4.56  | 36   | -.55         | NS    |
| Friendliness        | 14.85                       | 5.94  | 41   | 14.69                  | 5.77  | 36   | .13          | NS    |
| Thoughtfulness      | 20.70                       | 4.48  | 41   | 20.36                  | 3.77  | 36   | .34          | NS    |
| Personal Relations  | 17.73                       | 5.40  | 41   | 19.52                  | 4.72  | 36   | -1.54        | NS    |

TABLE XIII, Continued

| Variable            | Experienced Data-Processing |       |      | Experienced Office Practice |       |      | Significance<br>t | P   |
|---------------------|-----------------------------|-------|------|-----------------------------|-------|------|-------------------|-----|
|                     | Mean                        | S. D. | N    | Mean                        | S. D. | N    |                   |     |
|                     | General Activity            | 18.34 | 5.75 | 41                          | 18.84 | 4.85 |                   |     |
| Restraint           | 18.02                       | 4.49  | 41   | 17.86                       | 4.19  | 45   | .15               | NS  |
| Ascendance          | 15.46                       | 5.49  | 41   | 13.08                       | 5.44  | 45   | 2.07              | .05 |
| Sociability         | 16.34                       | 6.41  | 41   | 19.20                       | 5.96  | 45   | -2.26             | .05 |
| Emotional Stability | 18.87                       | 5.24  | 41   | 16.68                       | 5.92  | 45   | 1.89              | NS  |
| Objectivity         | 18.80                       | 5.46  | 41   | 16.80                       | 5.32  | 45   | 1.77              | NS  |
| Friendliness        | 14.85                       | 5.94  | 41   | 15.62                       | 4.73  | 45   | -.67              | NS  |
| Thoughtfulness      | 20.70                       | 4.48  | 41   | 19.80                       | 4.16  | 45   | .95               | NS  |
| Personal Relations  | 17.73                       | 5.40  | 41   | 18.57                       | 5.39  | 45   | -.76              | NS  |

but not different from the office practice women as shown in Table XIV. Managers were significantly higher in Emotional Stability than the accountants and office practice women, but showed no significant difference from the data-processing men. On Objectivity, the managers showed that they were significantly higher than office practice women. In Friendliness and Personal Relations, managers were not significantly different from any of the three other groups. They were significantly more Thoughtful than the accountants, but they were least like accountants in their total personality characteristics as measured by the GZTS.

The experienced high-interest office practice women compared with the other three experienced high-interest groups of men were only higher in Sociability in their differences, but only significantly higher than two of the groups--accountants and data-processing people, at the .05 level. The women were lower in Thoughtfulness than the accountants, at the .01 level, and lower than the data-processing men in Ascendance, at the .05 level, and managers, at the .001 level. Table XV shows that office practice women differed most from managers in General Activity, at the .01 level, in Restraint, at the .05 level, in Ascendance, at the .001 level, in Emotional Stability, at the .001 level, and in Objectivity, at the .05 level, five personality characteristics in all.

TABLE XIV

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR EXPERIENCED "HIGH INTEREST" MANAGERS AND OTHER "HIGH INTEREST" BUSINESS PEOPLE

| Variable            | Experienced Managers |       |    | Experienced Accountants |       |    | Significance |      |
|---------------------|----------------------|-------|----|-------------------------|-------|----|--------------|------|
|                     | Mean                 | S. D. | N  | Mean                    | S. D. | N  | $t$          | P    |
| General Activity    | 22.36                | 4.17  | 36 | 17.39                   | 6.16  | 33 | 3.82         | .001 |
| Restraint           | 20.13                | 4.51  | 36 | 17.87                   | 4.87  | 33 | 1.99         | .05  |
| Ascendance          | 19.80                | 5.75  | 36 | 14.30                   | 5.85  | 33 | 4.30         | .001 |
| Sociability         | 19.52                | 6.00  | 36 | 15.75                   | 6.76  | 33 | 2.68         | .01  |
| Emotional Stability | 20.88                | 3.88  | 36 | 17.75                   | 6.04  | 33 | 2.42         | .05  |
| Objectivity         | 19.47                | 4.56  | 36 | 18.63                   | 5.57  | 33 | .66          | NS   |
| Friendliness        | 14.69                | 5.77  | 36 | 14.06                   | 5.14  | 33 | .50          | NS   |
| Thoughtfulness      | 20.36                | 3.77  | 36 | 17.09                   | 4.52  | 33 | 3.08         | .01  |
| Personal Relations  | 19.52                | 4.72  | 36 | 20.00                   | 4.93  | 33 | .38          | NS   |

| Variable            | Experienced Managers |       |    | Experienced Data-Processing |       |    | Significance |      |
|---------------------|----------------------|-------|----|-----------------------------|-------|----|--------------|------|
|                     | Mean                 | S. D. | N  | Mean                        | S. D. | N  | $t$          | P    |
| General Activity    | 22.36                | 4.17  | 36 | 18.34                       | 5.75  | 41 | 3.26         | .01  |
| Restraint           | 20.13                | 4.51  | 36 | 18.02                       | 4.49  | 41 | 1.96         | .05  |
| Ascendance          | 19.80                | 5.75  | 36 | 15.46                       | 5.49  | 41 | 3.58         | .001 |
| Sociability         | 19.52                | 6.00  | 36 | 16.34                       | 6.41  | 41 | 2.39         | .05  |
| Emotional Stability | 20.88                | 3.88  | 36 | 18.87                       | 5.24  | 41 | 1.64         | NS   |
| Objectivity         | 19.47                | 4.56  | 36 | 18.80                       | 5.46  | 41 | .55          | NS   |
| Friendliness        | 14.69                | 5.77  | 36 | 14.85                       | 5.94  | 41 | -.13         | NS   |
| Thoughtfulness      | 20.36                | 3.77  | 36 | 20.70                       | 4.48  | 41 | -.34         | NS   |
| Personal Relations  | 19.52                | 4.72  | 36 | 17.73                       | 5.40  | 41 | 1.54         | NS   |

TABLE XIV, Continued

| Variable            | Experienced Managers |       |      | Experienced Office Practice |       |      | Significance |      |
|---------------------|----------------------|-------|------|-----------------------------|-------|------|--------------|------|
|                     | Mean                 | S. D. | N    | Mean                        | S. D. | N    | t            | P    |
|                     | General Activity     | 22.36 | 4.17 | 36                          | 18.84 | 4.85 | 45           | 2.91 |
| Restraint           | 20.13                | 4.51  | 36   | 17.86                       | 4.19  | 45   | 2.15         | .05  |
| Ascendance          | 19.80                | 5.75  | 36   | 13.08                       | 5.44  | 45   | 5.65         | .001 |
| Sociability         | 19.52                | 6.00  | 36   | 19.20                       | 5.96  | 45   | .25          | NS   |
| Emotional Stability | 20.88                | 3.88  | 36   | 16.68                       | 5.92  | 45   | 3.50         | .001 |
| Objectivity         | 19.47                | 4.56  | 36   | 16.80                       | 5.32  | 45   | 2.28         | .05  |
| Friendliness        | 14.69                | 5.77  | 36   | 15.62                       | 4.73  | 45   | -.79         | NS   |
| Thoughtfulness      | 20.36                | 3.77  | 36   | 19.80                       | 4.16  | 45   | .57          | NS   |
| Personal Relations  | 19.52                | 4.72  | 36   | 18.57                       | 5.39  | 45   | .83          | NS   |

TABLE XV

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR EXPERIENCED  
 "HIGH INTEREST" OFFICE PRACTICE WOMEN AND OTHER "HIGH  
 INTEREST" BUSINESS PEOPLE

| Variable            | Experienced Office Practice |       |    | Experienced Accountants |       |    | Significance |     |
|---------------------|-----------------------------|-------|----|-------------------------|-------|----|--------------|-----|
|                     | Mean                        | S. D. | N  | Mean                    | S. D. | N  | $t$          | P   |
| General Activity    | 18.84                       | 4.85  | 45 | 17.39                   | 6.16  | 33 | 1.17         | NS  |
| Restraint           | 17.86                       | 4.19  | 45 | 17.87                   | 4.76  | 33 | -.07         | NS  |
| Ascendance          | 13.08                       | 5.44  | 45 | 14.30                   | 5.85  | 33 | -.99         | NS  |
| Sociability         | 19.20                       | 5.96  | 45 | 15.75                   | 6.76  | 33 | 2.57         | .05 |
| Emotional Stability | 16.68                       | 5.92  | 45 | 17.75                   | 5.04  | 33 | -.86         | NS  |
| Objectivity         | 16.80                       | 5.32  | 45 | 18.63                   | 5.57  | 33 | -1.53        | NS  |
| Friendliness        | 15.62                       | 4.73  | 45 | 14.06                   | 5.14  | 33 | 1.29         | NS  |
| Thoughtfulness      | 19.80                       | 4.16  | 45 | 17.09                   | 4.52  | 33 | -2.68        | .01 |
| Personal Relations  | 18.57                       | 5.39  | 45 | 20.00                   | 4.93  | 33 | -1.21        | NS  |

| Variable            | Experienced Office Practice |       |    | Experienced Data-Processing |       |    | Significance |     |
|---------------------|-----------------------------|-------|----|-----------------------------|-------|----|--------------|-----|
|                     | Mean                        | S. D. | N  | Mean                        | S. D. | N  | $t$          | P   |
| General Activity    | 18.84                       | 4.85  | 45 | 18.34                       | 5.75  | 41 | .43          | NS  |
| Restraint           | 17.86                       | 4.19  | 45 | 18.02                       | 4.49  | 41 | -.15         | NS  |
| Ascendance          | 18.08                       | 5.44  | 45 | 15.46                       | 5.49  | 41 | -2.07        | .05 |
| Sociability         | 19.20                       | 5.96  | 45 | 16.34                       | 6.41  | 41 | 2.26         | .05 |
| Emotional Stability | 16.68                       | 5.92  | 45 | 18.87                       | 5.24  | 41 | 1.89         | NS  |
| Objectivity         | 16.80                       | 5.32  | 45 | 18.80                       | 5.46  | 41 | -1.77        | NS  |
| Friendliness        | 15.62                       | 4.73  | 45 | 14.85                       | 5.94  | 41 | .67          | NS  |
| Thoughtfulness      | 19.80                       | 4.16  | 45 | 20.70                       | 4.48  | 41 | -.95         | NS  |
| Personal Relations  | 18.57                       | 5.39  | 45 | 17.73                       | 5.40  | 41 | .76          | NS  |

TABLE XV, Continued

| Variable            | Experienced Office Practice |       |    | Experienced Management |       |    | Significance |      |
|---------------------|-----------------------------|-------|----|------------------------|-------|----|--------------|------|
|                     | Mean                        | S. D. | N  | Mean                   | S. D. | N  | t            | P    |
| General Activity    | 18.84                       | 4.85  | 45 | 22.36                  | 4.17  | 36 | -2.91        | .01  |
| Restraint           | 17.86                       | 4.19  | 45 | 20.13                  | 4.51  | 36 | -2.15        | .05  |
| Ascendance          | 13.08                       | 5.44  | 45 | 19.80                  | 5.75  | 36 | -5.65        | .001 |
| Sociability         | 19.20                       | 5.96  | 45 | 19.52                  | 6.00  | 36 | -.25         | NS   |
| Emotional Stability | 16.68                       | 5.92  | 45 | 20.88                  | 3.88  | 36 | -3.50        | .001 |
| Objectivity         | 16.80                       | 5.32  | 45 | 19.47                  | 4.56  | 36 | -2.28        | .05  |
| Friendliness        | 15.62                       | 4.73  | 45 | 14.69                  | 5.77  | 36 | .79          | NS   |
| Thoughtfulness      | 19.80                       | 4.16  | 45 | 20.36                  | 3.77  | 36 | -.57         | NS   |
| Personal Relations  | 18.57                       | 5.39  | 45 | 19.52                  | 4.72  | 36 | -.83         | NS   |



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## CHAPTER V

### SUMMARY, DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

There are four sections in this chapter. The first section presents a summary of the problem, the procedures employed, and the findings. A discussion of the findings is presented in the second section. The third section gives some of the implications for counseling staffs in assisting students in choice of major area of study. The final section is concerned with presentation of several recommendations.

#### Summary

The primary purpose of this investigation was to determine if there was a relationship between personality and interests in the choice of major fields of study by junior college freshmen. Students in the major areas of accounting, data-processing, management, and office practice were compared with each other and also with experienced business people in each of these areas.

The Guilford-Zimmerman Temperament Survey was administered to 858 freshmen students in the late fall, soon after mid-term, of the 1968-69 school year. The

219 students who did not indicate a major field of study on the data sheet which accompanied their answer sheet were eliminated from the study. The remaining 639 students were separated into their major areas of study: 140 accounting students, 149 data-processing students, 216 management students, and 134 office practice students. These groups were randomly reduced to fifty students in each group, and the Strong Vocational Interest Blank was administered to each student. Both of the tests were also administered to experienced business people in each of the four major areas under study, fifty in each area for a total of 200. The final total of subjects thus became 400, of which 200 were students, and 200 were experienced business people.

The mean scores within and between the groups were tested by simple analysis of variance and Fisher t tests. Levels of significance were determined for all F-Ratios and t values. The hypotheses were analyzed and the principal findings were as follows.

A. Accounting students--

1. scored significantly lower than all of the other student groups on Friendliness;
2. scored significantly higher than the norming group on Thoughtfulness, but showed no difference from the norming group on Objectivity, Friendliness, and Sociability;

3. scored significantly lower than experienced accountants in Objectivity, but significantly higher than experienced accountants in Thoughtfulness and Sociability. The two groups showed no difference on Friendliness;

4. showed no difference on their interest in and liking for accounting from the experienced accountants on the SVIB;

5. showed a 64 percent "high interest" or liking for accounting within their group, compared to a 66 percent "high interest" within the experienced accountants;

6. were less like experienced accountants on GZTS factors than any of the other paired groups. Students were significantly higher than experienced accountants in Ascendance, Sociability, and Thoughtfulness, and significantly lower in Personal Relations.

B. Data-processing students--

1. scored significantly higher than office practice majors in General Activity, but showed no difference from the accounting and management students;

2. scored significantly higher in Personal Relations than the accounting or office practice majors, but were not different from the management students;

3. were significantly higher than the norming group on General Activity, but the same as the norming group on Restraint, Personal Relations, and Ascendance;

4. showed no differences from experienced

data-processing people in General Activity, Restraint, Personal Relations, or Ascendance;

5. showed no differences from the experienced data-processing people in their interest in and liking for data-processing on the SVIB;

6. showed that only 68 percent of their group had a "high interest" in and liking for data-processing, compared with an 82 percent "high interest" within the experienced data-processing group;

7. were more like the experienced data-processing people than any of the other paired student and business groups. Their only difference was in Sociability, where students scored significantly higher.

C. Management students--

1. scored significantly higher than the other student groups on Ascendance;

2. scored significantly higher in Personal Relations than the accounting and office practice students, but showed no difference from the data-processing students;

3. were like experienced managers in General Activity, Personal Relations, and Thoughtfulness, but were significantly lower in Restraint;

4. showed no significant difference from the norming group on Personal Relations, Restraint, and Thoughtfulness, but were significantly higher in Ascendance;

5. showed that only 64 percent within their group had a "high interest" for management in comparison with 72 percent "high interest" within the experienced manager group, on the SVIB;

6. were not significantly different from experienced managers in their interest in and liking for management, on the SVIB;

7. were significantly higher in Sociability, and significantly lower in Restraint than experienced managers.

D. Office practice students--

1. were significantly lower on Objectivity and General Activity than data-processing and management students, but not different from accounting students;

2. were significantly lower in Objectivity than the norming group, but the same as the norming group in Friendliness, Emotional Stability, and General Activity;

3. were significantly lower in Objectivity and General Activity than experienced office practice women, but not different in Friendliness and Emotional Stability;

4. were like experienced women in their interest in and liking for office practice, on the SVIB;

5. showed a 100 percent "high interest" within their group for office practice, compared to 90 percent "high interest" within the experienced office practice women;

6. were significantly lower in Restraint and Personal Relations than the experienced women.

E. In general--

1. only two significant differences were found between the student groups on the GZTS scores--in Ascendance and Objectivity. Of the remaining seven GZTS characteristics, many of the differences were in the predicted direction, but did not reach significant levels;

2. comparing all students and all business people on all GZTS factors, the students were significantly different from experienced business people in five personality traits--General Activity, Restraint, Ascendance, Sociability, Emotional Stability, Objectivity, and Personal Relations;

3. comparing all "high interest" students and all "high interest" business people, seven of the nine GZTS scores differed--General Activity, Restraint, Ascendance, Sociability, Emotional Stability, Objectivity, and Personal Relations;

4. a range of from 64 to 100 percent "high interest" on the SVIB within the student groups showed that about one-third of the students were not in a major area of study in which they were interested;

5. comparing "high interest" groups within their specific business areas on the SVIB showed the students to be more like than different from experienced people;

6. three "high interest" student groups were significantly higher on Sociability than their experienced group--accounting, data-processing, and management;

7. experienced "high interest" managers and office practice women were significantly more Restrained than their corresponding student groups;

8. experienced "high interest" accountants and office practice women were significantly higher in Personal Relations than students in their same areas.

#### Discussion of Findings

In a review of the findings, these appear to be the more pertinent aspects in this study.

1. The specialized occupations appear to attract persons who resemble each other in some of their personality characteristics; so these factors appear to be determinants of the occupations entered, as has been evidenced in other studies. For example, the data-processing students showed no differences in their personality traits from experienced data-processing people. This might partially be accounted for by the similarity of age between the two groups, or by the similarity of vocational, technical training which they have had.

2. Students were found to be higher in Sociability, lower in Restraint, and lower in Personal Relations than experienced business people within their same occupational



areas. This might be interpreted to indicate that contact with the business world may cause people to become more restrained and less sociable, and that business experience may increase personal relations ability. It might also indicate that young people who were high in Sociability, low in Restraint, and Personal Relations did not enter these business areas.

3. Data-processing and accounting students were found to be more alike than different in their personality traits, indicating that the likenesses in the work details in these occupations may appeal to both of these groups.

4. Accounting majors were found to have the lowest scores of all the student groups on Friendliness, indicating their probable preference to work alone rather than in situations where interaction with other people is necessary.

5. Accounting students were found to be least like experienced accountants in personality factors. Resemblances and differences between students and experienced business people on personality factors might be explained by the differences between technical, vocational training that some of the students are experiencing and the kinds of college training which the experienced business people have had.

6. Based on this study, and as evidenced in other studies, the approximately one-third of the students found not to have a "high interest" in their major area of study

would lead to the prediction that this group may contribute to the student dropouts in the ensuing year, or that they may change their majors. It may also indicate that many of the students have selected major fields for reasons other than interest or liking.

7. The fact that the student groups showed no significant differences on their preference for their occupational areas compared with experienced business people would indicate the probability that there is a set of likes and dislikes which does differentiate them from persons following other professions. Even though interests are known to change with age, the students in this study appear to be relatively stabilized in their occupational interests.

8. This study indicates that both the Guilford-Zimmerman Temperament Survey and the Strong Vocational Interest Blank seem to be discriminating measures of temperament factors and interests and appear to be of value in determining relationships to major areas of study.

#### Implications

The results of this study imply that more research is needed if personality factors are to be used to help students more realistically select their major area of study in college. With about one-third of the business students majoring in fields of study in which they show low interest or liking, there is an indication that more

and better counseling is needed. Since personality difficulties account for probably more job failures than lack of ability to do the job, educators must be concerned with accurate personality evaluation.

#### Recommendations

The results of this investigation indicate a need for further research in the areas suggested below.

1. There should be extensive study of the use of objective techniques in identifying personality characteristics of students and their choice of major field of study in other junior college populations. How interest, motivation, and personality factors are related should also be studied.

2. A longitudinal study should be conducted four or five years from the date of this study to determine whether the students majoring in specific areas actually entered these business areas or if they have changed to another field. Further comparisons could be made on their personality structures at that time to determine what if any changes have occurred, and if they are exhibiting success in their chosen field with the personality structure with which they entered.

3. Longitudinal studies to identify early determinants of choice of field, personality changes during college as a function of curriculum, and studies of people who switch from one field to another, should also be made.

APPENDIX I

STUDENT DATA SHEET

Name \_\_\_\_\_ Age \_\_\_\_\_ Sex \_\_\_\_\_

Class in which test was administered \_\_\_\_\_

Number of hours completed to date in college \_\_\_\_\_

Number of hours attempting this semester \_\_\_\_\_

What is your major area of study?

\_\_\_\_\_ Accounting

\_\_\_\_\_ Data-Processing

\_\_\_\_\_ Management

\_\_\_\_\_ Office Practice

\_\_\_\_\_ Other

What? \_\_\_\_\_

Do you plan to enter this occupation after graduation? \_\_\_\_\_

If not, what are your plans? \_\_\_\_\_

APPENDIX II

DATA SHEET FOR EXPERIENCED BUSINESS PEOPLE

Name \_\_\_\_\_

Firm where employed \_\_\_\_\_

What do you do? \_\_\_\_\_

Occupational Group: (Check one)

\_\_\_\_\_ Accounting

\_\_\_\_\_ Data-Processing

\_\_\_\_\_ Management

\_\_\_\_\_ Office Practice

How many years have you been in this job? \_\_\_\_\_

How did you choose this kind of employment? \_\_\_\_\_

Would you like to have the results of these tests  
interpreted to you? \_\_\_\_\_

To what address do you wish them mailed? \_\_\_\_\_

APPENDIX III

TABLE XVI

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR ACCOUNTING AND DATA-PROCESSING STUDENTS

| Variable            | Accounting Students |       |      | Data-Processing Students |       |      | Significance |      |
|---------------------|---------------------|-------|------|--------------------------|-------|------|--------------|------|
|                     | Mean                | S. D. | N    | Mean                     | S. D. | N    | $t$          | P    |
|                     | General Activity    | 19.06 | 5.95 | 50                       | 19.42 | 5.43 | 50           | -.32 |
| Restraint           | 16.44               | 5.20  | 50   | 17.32                    | 4.92  | 50   | -.94         | NS   |
| Ascendance          | 16.74               | 5.96  | 50   | 15.74                    | 5.19  | 50   | .99          | NS   |
| Sociability         | 19.30               | 6.60  | 50   | 19.64                    | 5.39  | 50   | -.30         | NS   |
| Emotional Stability | 16.70               | 6.57  | 50   | 18.78                    | 5.14  | 50   | -1.85        | NS   |
| Objectivity         | 16.54               | 5.76  | 50   | 18.68                    | 4.81  | 50   | -2.01        | .05  |
| Friendliness        | 13.02               | 4.44  | 50   | 15.28                    | 5.40  | 50   | -2.26        | .05  |
| Thoughtfulness      | 20.06               | 3.66  | 50   | 18.96                    | 4.63  | 50   | 1.19         | NS   |
| Personal Relations  | 14.24               | 5.80  | 50   | 17.42                    | 5.09  | 50   | -3.09        | .01  |

APPENDIX IV

TABLE XVII

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR ACCOUNTING AND MANAGEMENT STUDENTS

| Variable            | Accounting Students |       |    | Management Students |       |    | Significance |      |
|---------------------|---------------------|-------|----|---------------------|-------|----|--------------|------|
|                     | Mean                | S. D. | N  | Mean                | S. D. | N  | $t$          | P    |
| General Activity    | 19.06               | 5.95  | 50 | 21.38               | 5.01  | 50 | -2.11        | .05  |
| Restraint           | 16.44               | 5.20  | 50 | 17.28               | 4.13  | 50 | -.89         | NS   |
| Ascendance          | 16.74               | 5.96  | 50 | 19.60               | 4.10  | 50 | -2.85        | .01  |
| Sociability         | 19.30               | 6.60  | 50 | 21.84               | 5.57  | 50 | -2.24        | .05  |
| Emotional Stability | 16.70               | 6.57  | 50 | 18.58               | 5.57  | 50 | -1.68        | NS   |
| Objectivity         | 16.54               | 5.76  | 50 | 19.38               | 5.53  | 50 | -2.67        | .01  |
| Friendliness        | 13.02               | 4.44  | 50 | 15.14               | 5.22  | 50 | -2.12        | .05  |
| Thoughtfulness      | 20.06               | 3.66  | 50 | 19.50               | 4.90  | 50 | .61          | NS   |
| Personal Relations  | 14.24               | 5.80  | 50 | 18.10               | 5.22  | 50 | -3.75        | .001 |

APPENDIX V

TABLE XVIII

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR ACCOUNTING AND OFFICE PRACTICE STUDENTS

| Variable            | Accounting Students |       |    | Office Practice Students |       |    | Significance |      |
|---------------------|---------------------|-------|----|--------------------------|-------|----|--------------|------|
|                     | Mean                | S. D. | N  | Mean                     | S. D. | N  | $t$          | P    |
| General Activity    | 19.06               | 5.95  | 50 | 17.10                    | 5.25  | 50 | 1.78         | NS   |
| Restraint           | 16.44               | 5.20  | 50 | 15.64                    | 4.17  | 50 | .85          | NS   |
| Ascendance          | 16.74               | 5.96  | 50 | 11.16                    | 4.38  | 50 | 5.56         | .001 |
| Sociability         | 19.30               | 6.60  | 50 | 18.60                    | 4.66  | 50 | .61          | NS   |
| Emotional Stability | 16.70               | 6.57  | 50 | 15.00                    | 4.68  | 50 | 1.51         | NS   |
| Objectivity         | 16.54               | 5.76  | 50 | 14.50                    | 4.87  | 50 | 1.91         | NS   |
| Friendliness        | 13.02               | 4.44  | 50 | 16.10                    | 4.61  | 50 | -3.08        | .01  |
| Thoughtfulness      | 20.06               | 3.66  | 50 | 18.24                    | 4.84  | 50 | 1.98         | .05  |
| Personal Relations  | 14.24               | 5.80  | 50 | 15.12                    | 4.09  | 50 | -.85         | NS   |



APPENDIX VI

TABLE XIX

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR  
DATA-PROCESSING AND MANAGEMENT STUDENTS

| Variable            | Data-Processing Students |       |    | Management Students |       |    | Significance |      |
|---------------------|--------------------------|-------|----|---------------------|-------|----|--------------|------|
|                     | Mean                     | S. D. | N  | Mean                | S. D. | N  | $t$          | P    |
| General Activity    | 19.42                    | 5.43  | 50 | 21.38               | 5.01  | 50 | -1.78        | NS   |
| Restraint           | 17.32                    | 4.92  | 50 | 17.28               | 4.13  | 50 | .04          | NS   |
| Ascendance          | 15.74                    | 5.19  | 50 | 19.60               | 4.10  | 50 | -3.84        | .001 |
| Sociability         | 19.64                    | 5.39  | 50 | 21.84               | 5.57  | 50 | -1.94        | NS   |
| Emotional Stability | 18.78                    | 5.14  | 50 | 18.58               | 5.57  | 50 | .17          | NS   |
| Objectivity         | 18.68                    | 4.81  | 50 | 19.38               | 5.53  | 50 | -.65         | NS   |
| Friendliness        | 15.28                    | 5.40  | 50 | 15.14               | 5.22  | 50 | .14          | NS   |
| Thoughtfulness      | 18.96                    | 4.63  | 50 | 19.50               | 4.90  | 50 | -.58         | NS   |
| Personal Relations  | 17.42                    | 5.09  | 50 | 18.10               | 5.22  | 50 | -.66         | NS   |

## APPENDIX VII

TABLE XX

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR  
DATA-PROCESSING AND OFFICE PRACTICE STUDENTS

| Variable            | Data-Processing<br>Students |       |    | Office Practice<br>Students |       |    | Significance |      |
|---------------------|-----------------------------|-------|----|-----------------------------|-------|----|--------------|------|
|                     | Mean                        | S. D. | N  | Mean                        | S. D. | N  | $t$          | P    |
| General Activity    | 19.42                       | 5.43  | 50 | 17.10                       | 5.25  | 50 | 2.11         | .05  |
| Restraint           | 17.32                       | 4.92  | 50 | 15.64                       | 4.17  | 50 | 1.79         | NS   |
| Ascendance          | 15.74                       | 5.19  | 50 | 11.16                       | 4.38  | 50 | 4.56         | .001 |
| Sociability         | 19.64                       | 5.39  | 50 | 18.60                       | 4.66  | 50 | .91          | NS   |
| Emotional Stability | 18.78                       | 5.14  | 50 | 15.00                       | 4.68  | 50 | 3.37         | .001 |
| Objectivity         | 18.68                       | 4.81  | 50 | 14.50                       | 4.87  | 50 | 3.93         | .001 |
| Friendliness        | 15.28                       | 5.40  | 50 | 16.10                       | 4.61  | 50 | -.82         | NS   |
| Thoughtfulness      | 18.96                       | 4.63  | 50 | 18.24                       | 4.84  | 50 | .78          | NS   |
| Personal Relations  | 17.42                       | 5.09  | 50 | 15.12                       | 4.09  | 50 | 2.23         | .05  |

## APPENDIX VIII

TABLE XXI

THE  $t$  TEST VALUES FOR ALL GUILFORD-ZIMMERMAN TRAIT SCALES FOR  
MANAGEMENT AND OFFICE PRACTICE STUDENTS

| Variable            | Management Students |       |    | Office Practice Students |       |    | Significance |      |
|---------------------|---------------------|-------|----|--------------------------|-------|----|--------------|------|
|                     | Mean                | S. D. | N  | Mean                     | S. D. | N  | $t$          | P    |
| General Activity    | 21.38               | 5.01  | 50 | 17.10                    | 5.25  | 50 | 3.90         | .001 |
| Restraint           | 17.28               | 4.13  | 50 | 15.64                    | 4.17  | 50 | 1.75         | NS   |
| Ascendance          | 19.60               | 4.10  | 50 | 11.16                    | 4.38  | 50 | 8.41         | .001 |
| Sociability         | 21.84               | 5.57  | 50 | 18.60                    | 4.66  | 50 | 2.86         | .01  |
| Emotional Stability | 18.58               | 5.57  | 50 | 15.00                    | 4.68  | 50 | 3.20         | .01  |
| Objectivity         | 19.38               | 5.53  | 50 | 14.50                    | 4.87  | 50 | 4.58         | .001 |
| Friendliness        | 15.14               | 5.22  | 50 | 16.10                    | 4.61  | 50 | -.96         | NS   |
| Thoughtfulness      | 19.50               | 4.90  | 50 | 18.24                    | 4.84  | 50 | 1.37         | NS   |
| Personal Relations  | 18.10               | 5.22  | 50 | 15.12                    | 4.09  | 50 | 2.89         | .01  |

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