To the Graduate Council:

I am submitting herewith a dissertation written by Leldon Wade Nichols entitled "Job Satisfaction of College and University Presidents and Academic Deans." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Educational Administration and Supervision.

Gerald C. Ubben, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:

Vice Chancellor
Graduate Studies and Research

JOB SATISFACTION OF COLLEGE AND UNIVERSITY PRESIDENTS AND ACADEMIC DEANS

A Dissertation

Presented for the

Doctor of Education

Degree

The University of Tennessee, Knoxville

Leldon Wade Nichols

August 1977

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ABSTRACT

The purpose of this study was to survey college and university presidents and academic deans (a) to see if significant differences exist between administrators in the two positions in perceived need satisfaction; (b) to analyze the perceived need satisfaction of the total sample (presidents and deans combined) as demographic group responses to 13 administrative characteristics. Job satisfaction was defined as the condition which exists when psychological and social needs are satisfied; generally a positive attitude toward one's professional position.

Null hypotheses were stated for the following independent variables: (1) position, (2) length of tenure, (3) age, (4) educational preparation, (5) religious preference, (6) race, (7) institutional type, (8) full-time enrollment, and (9) control of the institution.

The population of this study consisted of the chief executive officers and the chief academic officers of the 671 institutions of higher education as identified in the Proceedings (1976) of the Southern Association of Colleges and Schools. One hundred and fifty (150) of the accredited institutions from the population were randomly identified by stratification of the institutions according to degree level. The chief executive officers and the chief academic officers from the 150 randomly selected institutions became the

research sample. This sample size of 300 administrators (150 presidents and 150 deans) represented 23 percent of the total population of 1,342 administrators.

The quantitative data for this study were collected by a revision of Lyman W. Porter's 13-item need satisfaction questionnaire, which he developed for studying perceived need satisfaction of managers.

One-way analyses of variance statistical techniques were used to analyze the nine null hypotheses which were stated in reference to the 13 individual job characteristic statements on the questionnaire. Seven of the nine null hypotheses were statistically rejected by the one-way analyses of variance at the .05 confidence level.

Based on the findings of the research, the following conclusive statements were inferred to the population of the study:

1. Academic deans tend to perceive the job characteristics which are related to the higher level needs (autonomy and self-actualization) as more deficient than do the presidents.

2. Administrators with 42 months or less tenure tend to have higher need deficiencies in the higher order need areas of autonomy and self-actualization, than administrators with more than 42 months tenure.

3. Age was not found to be a factor in differentiating

perceived need deficiencies of college and university administrators.

4. College and university administrators with earned doctor's degrees tend to perceive more need deficiency than do their colleagues with master's degrees.

5. Non-Protestants have a higher need deficiency than Protestants with respect to the opportunity perceived for personal growth and development in their administrative positions.

6. Administrators of the minority races tend to have higher perceived deficiencies of needs related to prestige than do the Caucasian administrators.

7. Administrators in four-year institutions or above tend to have a higher average of need deficiency in their job characteristics than do administrators from two-year institutions.

8. Administrators employed in institutions with less than 3,000 students do not perceive their job characteristics differently than administrators in institutions with full-time enrollments over 3,000.

9. Administrators from private colleges and universities perceive less opportunities in their positions to develop close friendships than do administrators in public institutions.

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CHAPTER I

INTRODUCTION

The administrative structure of colleges and universities is comparable in many ways to the formal organizational structure found in industry and business. For example, the positions of corporate chief executives, middle managers, and supervisors generally parallel the administrative positions in higher education of the presidents, deans, and department heads. Even though colleges and universities do not have a profit base or motive, the general organizational structure has been compared with corporations, government bureaus, and large foundations (Perkins, 1974).

Although substantial research has been done on job satisfaction or workers in business and industry, there are several limitations in attempting to generalize these findings to higher education. Therefore, this dissertation is a report of the study which examined in higher education variables which were found to be predictive of job satisfaction in business and industry.

The research of Lyman W. Porter (1961, 1962) has given impetus to this investigation. Porter equated job satisfaction to perceived need-fulfillment. He has found significant differences between levels of management and perceived need satisfaction. The study of this report used a revision of Porter's questionnaire as a control factor for

comparing the results with other studies which have used the same instrument.

In an interpretive statement of Porter's studies of managerial levels and need-satisfaction, Argyris reasoned that "the probability to experience a sense of self-esteem, autonomy, and self-actualization tends to increase as one goes up the line and tends to decrease as one goes down the line" (1964, p. 47). He concluded that a differential opportunity does exist within levels of management to satisfy different types of needs.

Brown used Porter's instrument and methodology in a study of secondary school administrators to research the hypothesis that "high-level administrators receive greater satisfaction for their positions than lower level administrators" (1973, p. 6). This hypothesis has not been adequately studied with respect to administrators in higher education.

Tenure of administrators in higher education is the second independent variable in this study of perceived job satisfaction of college presidents and deans. Vroom (1964) concluded from his research that rate of personnel turnover and job satisfaction are negatively correlated. Hemphill et al. (1966) concluded from the New York Regents' Study of College and University Presidents that longer administrative experience was a characteristic of the more-satisfied presidents.

In addition to position level and length of tenure, the

following independent variables, which have been found to be significant in related studies, are included in this investigation in an effort to determine the significance of their influence on perceived need-fulfillment of college and university administrators:

Age. Considerable discrepancies have been reported in the literature as to the relationship between age and job satisfaction. Blunt (1972) found a significant difference between age groups and job security. Saleh and Otis (1964) have affirmed that job satisfaction increases with age.

Educational preparation. Marconi states: "A review of the literature that controls educational differences shows that those researchers who find relationships between occupational level and job satisfaction also discover relationships between work satisfaction and education level" (1973, p. 22). The New York Regents' Study of Presidents found significant differences between the "more-satisfied" and "less-satisfied" presidents with respect to their undergraduate and graduate educational preparation (Hemphill and Walberg, 1966, p. 61).

Religion. Gross and Napior (1967) found Jewish principals to be significantly more satisfied in their work than principals with other religious preferences. Hoppock (1935) found a significant relationship between job satisfaction and religion.

Race. Parnes (1966) and Sheppard (1971) found younger blacks to be more dissatisfied with their work than white workers; black workers in their late 40's and 50's were more satisfied than white workers (Marconi, 1972).

Size of organization. In this study, institutional size is determined by the student population or the full-time enrollment (FTE). Porter found "at lower levels of management small company managers were more satisfied than large company managers, but at higher levels of management large company managers were more satisfied than small company managers" (Porter, 1963, p. 386).

Control of institution. This variable has reference to the privately operated colleges and universities as contrasted to the state-controlled institutions of higher education. Paine et al. (1966) found that government managers had much less need satisfaction than private industry managers.

Type of institution. This variable was the control factor for stratifying the sample used in the study. The data are reported on this variable as a difference between junior college administrators (two-year institutions) and senior college administrators (four years plus) in relation to their perceived need deficiencies.

The Problem

Although there have been numerous studies in job

satisfaction of workers in business and industry, little was known of job satisfaction of college administrators. Lyman W. Porter's research in perceived need deficiencies as related to level of employment in organizational hierarchy had concluded that significant relationships between job satisfaction and job level do exist in business and industry. Using Porter's model, Frank Brown (1970) and Trusty and Sergiovanni (1966) had found a similar relationship in secondary education. While parallel circumstances seemed to exist at managerial levels in higher education, only limited research had been conducted. At the time of this study the differential relationship of the office of president to the office of academic dean, which may or may not be the same as the relationship between the head of the corporation and a middle manager, was not known.

Purpose of the Study

The purpose of this study was to survey college and university presidents and deans (a) to see if significant differences exist between perceived need satisfaction of college and university presidents and college and university academic deans; (b) to analyze the perceived need satisfaction of the total sample (presidents and deans combined) as demographic group responses to 13 administrative characteristics.

Importance of the Study

This study helps to show the comparative relationships between two administrative levels: (1) the chief executive office, president; and (2) chief academic office, academic dean. Furthermore, it contributes to the vocational, career information for prospective administrators who aspire to various positions and levels of administration in higher education. This study also afforded an opportunity to compare need fulfillment of administrators functioning within different systems of higher education. For example, it allowed the opportunity to compare the dual systems of public and private institutions and the dual types of two-year and four-year institutions. This study is important as an initial investigation in exploring factors which might be contributing to the short tenure of college and university administrators today. Finally, this study has compared the findings with the results of similar studies in education, government, business, and industry.

Assumptions of the Study

1. It was assumed that the levels of occupation in higher education are comparable to those in business and industry, especially the respective relationships of corporate chief executive to middle manager and college and university president to academic dean.

2. This study assumed that administrators of higher

education would be candid in their responses to the questionnaire.

3. This study assumes that job satisfaction is determined by fulfillment of sociological and psychological needs.

4. This study assumed that needs can be arranged into at least two levels of hierarchal potency (lower and higher order).

Hypotheses

The following hypotheses are stated in relation to the 13 items of the questionnaire which are characteristics or qualities connected with administrative positions.

H_o 1. There is no difference in perceived need deficiencies between college and university presidents and college and university deans on any of the 13 characteristics.

H_o 2. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to length of tenure on any of the 13 administrative characteristics.

H_o 3. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to age on any of the 13 administrative characteristics.

H_o 4. There is no difference in perceived need deficiencies between college and university administrators who

are grouped according to educational preparation on any of the 13 administrative characteristics.

H_o 5. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to religious preference on any of the 13 administrative characteristics.

H_o 6. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to race on any of the 13 administrative characteristics.

H_o 7. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to institutional type on any of the 13 administrative characteristics.

H_o 8. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to full-time enrollment of their institutions on any of the 13 administrative characteristics.

H_o 9. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to the control of their institutions on any of the 13 administrative characteristics.

Definition of the Terms

1. Perceived need deficiency. A self-report of need deprivation based on respondents rating item (b) of the

questionnaire, "How much should there be?" higher than item (a), "How much is there now?"

2. Differential job level. Different authority levels of the formal structure in higher education.

3. Job satisfaction. The condition which exists when psychological and social needs are satisfied; generally, a positive attitude toward one's professional position.

4. Need hierarchy. Abraham Maslow's theoretical arrangement of human needs in their order of potency.

5. Perceived need satisfaction. A self-report of need fulfillment based on respondents rating item (a) of the questionnaire, "How much is there now?" equal to or higher than item (b), "How much should there be?"

6. Higher order needs. Needs which are identified in Porter's methodology as categories of (a) Esteem, (b) Autonomy, and (c) Self-actualization.

7. Lower order needs. Those needs identified in Porter's methodology as categories (a) Security and (b) Social.

The Organization of the Study

In this chapter a general introduction to the study has been given.

In Chapter II a review of the selected literature which is pertinent to the purpose of this study is presented.

In Chapter III a detailed discussion of the procedures and methods of the research study will be explained. In that chapter definitions and details relative to the population, the sample, the data, and the instrumentation will be discussed. Also in that chapter the details of the statistical designs employed for this study are given.

In Chapter IV an analysis of the collected data will be presented.

In Chapter V the findings and conclusions of the study will be given. Also the research findings will be discussed in relation to the reviewed literature. Following statements of implications and applications of the results, Chapter V concludes with recommendations for additional research relative to the scope of this study.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter presents a review of selected literature of job satisfaction and need fulfillment. The studies were selected on the basis of either their similarity to the methodology of this study or their relevant findings to the independent variables of this study.

This chapter also presents empirical support for the validity and reliability of the Porter questionnaire, which has been modified and used in this study of perceived deficiencies in personal need fulfillment of college and university administrators.

The oldest major study of job satisfaction found was that by Robert Hoppock (1935). Part of his research included a survey of 500 teachers. The 100 most satisfied were compared to the 100 least satisfied, and significant relationships were found between job satisfaction and personal characteristics of emotional adjustment, religion, feelings of success, interest in work, and fatigue.

In Marconi's naval research, 21 studies of job satisfaction were analyzed and compared to determine the usefulness of the studies for naval manpower policy (1973). She found the methodology, terminology, and results to be too divergent for formation of useful statements about job satisfaction in general (Marconi, 1973, p. 28).

In reviewing the literature on managerial motivation, ElSalmi and Cummings (1967) point out that prior to 1959 the focus of studies in job satisfaction had been largely limited to blue collar workers (1967, p. 127). Haire (1959), Porter (1961, 1964), and Vroom (1965) were cited by ElSalmi and Cummings as authorities who have noted the dearth of studies in the area of motivation and satisfaction of managers. According to ElSalmi and Cummings, studies in managerial motivation have increased considerably since 1959 (ElSalmi and Cummings, 1967, p. 128).

Porter (1961) asserted that previous studies of managerial jobs had tended to focus on the technical aspects of the jobs. Three examples of these technical aspects given by Porter are (a) list of duties, (b) responsibility, and (c) functions or activities performed (Porter, 1961, p. 1).

According to Porter (1961), Triandis was one of the first to study industrial managers' perceptions of jobs and people. He used two 38-scale semantic differentials on which 156 subjects rated jobs and people as they perceived them (Triandis, 1959). Porter stated: "An understanding of the nature of job perceptions held by individuals in management positions would seem to be appropriate for the study of organizational problems" (Porter, 1961, p. 1).

ElSalmi and Cummings identified two streams of thought which emerged after 1959. These are "(a) the need hierarchy concept as a base for empirical research, and (b) motivation

hygiene concept as a framework for both supporting and conflicting research" (ElSalmi and Cummings, 1967, p. 128).

I. THE PORTER STUDIES

Using Maslow's need hierarchy (Maslow, 1943, 1945) as a theoretical model, Lyman W. Porter developed a questionnaire to study perceived need satisfactions of managers (1961). Porter believed that the grouping of needs or motives according to a hierarchy of prepotency is one of the most useful systems for studying managerial motivation. In developing the categories for his questionnaire, Porter made two deviations from Maslow's categorical system. First, he left out physiological needs category on the assumption that these needs would be adequately met for any managers who may be surveyed in his studies. Secondly, he added an "autonomy" category between Maslow's levels of esteem and self-actualization. Table 1 shows the original items from Porter's study.

In Porter's original study (1961), 64 bottom-managers and 75 middle-managers, individuals in three industrial organizations, completed questionnaires. Three separate responses for each item were indicated on three respective seven-point scales. An example of a typical item on this questionnaire is:

> The feeling of self-esteem a person gets from being in my management position:

TABLE 1

CATEGORIES AND ITEMS FROM
PORTER'S ORIGINAL STUDY

I. Security needs

a. The feeling of security in my management position.

II. Social needs

a. The opportunity, in my management position, to give help to other people
b. The opportunity to develop close friendships in my management position

III. Esteem needs

a. The feeling of self-esteem a person gets from being in my management position
b. The prestige of my management position inside the company (that is, the regard received from others in the company)
c. The prestige of my position outside the company (that is, the regard received from others not in the company)

IV. Autonomy needs

a. The authority connected with my management position
b. The opportunity for independent thought and action in my management position.
c. The opportunity, in my management position, for participation in the setting of goals
d. The opportunity, in my management position, for participation in the determination of methods and procedures

V. Self-Actualization needs

a. The opportunity for personal growth and development in my management position
b. The feeling of self-fulfillment a person gets from being in my management position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities)
c. The feeling of worthwhile accomplishment in my management position

A. How much is there now?
(min) 1 2 3 4 5 6 7 (max)

B. How much should there be?
(min) 1 2 3 4 5 6 7 (max)

C. How important is this to me?
(min) 1 2 3 4 5 6 7 (max)

Instructions for the questionnaire stated that "low numbers represent low or minimum amounts and high numbers represent high or maximum amounts" (Porter, 1961, p. 3). A perceived deficiency was indicated when Part B was circled higher than Part A. Part C was discontinued by Porter in his later studies; it was not used often by others who replicated Porter's research, and has been omitted from this study.

Porter used a standard statistical design to test the significance of differences between percentages. His conclusions were:

1. Vertical locations of management positions tended to be an important variable in determining psychological need-fulfillment.

2. Esteem, security, and autonomy needs were significantly more often satisfied in middle than in bottom management.

3. Higher order needs were least satisfied in both management positions.

4. Self-actualization and security were seen as the most important areas of need satisfaction.

5. The highest order need of self-actualization was the most critical need area in terms of both perceived deficiency and perceived importance.

Porter (1962) administered the same questionnaire to representatives of all levels of management in an effort to study the perceived deficiency in need fulfillment as a function of job level. Using age as a control variable, he employed a statistical sign test to determine the significance of differences. In this study, Porter concluded:

1. Vertical level of position significantly relates to perceived satisfaction of the three highest order needs - self-actualization, autonomy, and esteem.

2. There were no significant differences in satisfaction in relation to management level for the two lower order types of needs, security and social.

3. Among all need levels, self-actualization and autonomy needs were consistently perceived as the least fulfilled at all management levels. The five management levels identified by Porter in this study were president, vice-president, upper middle, lower middle, and lower (Porter, 1962).

Porter (1963) used the sample from the previous study (1962) to research perceived deficiencies in need-fulfillment as a function of company size. Data supplied on the first study made it possible to examine perceived need-fulfillment of managers on several independent variables. For this analysis, Porter used the chi square statistic to determine

the significance of difference. Using job level as a control variable, he found that "as a whole, the results for perceived need deficiency do not show small companies producing more favorable attitudes across all levels of management: (1963, p. 395). However, he did find that "at lower levels of management small company managers were more satisfied than large company managers, but at higher levels of management large company managers were more satisfied than small company managers" (1963, p. 386).

Porter and Mitchell (1967) compared need satisfactions in military and business hierarchies. Seven hundred and three (703) commissioned officers and 594 non-commissioned personnel of an overseas airforce command completed Porter's 13-item questionnaire. The military ranks of (a) brigadier generals and colonels, (b) lieutenant colonels and majors, and (c) majors and lieutenants were paired with their equivalent civilian job levels from previous studies (1962) which were (a) vice-presidents, (b) upper-middle managers, and (c) lower-middle managers. Porter and Mitchell used a signed-rank test of differences of mean values between the pairs of rank. The empirical results were that "military officers were less fulfilled and less satisfied than their civilian counterparts. However, fulfillment and satisfaction increased in relation to military rank in the same way as for civilian managers" (1967, p. 139).

II. USE OF PORTER'S QUESTIONNAIRE AND METHODOLOGY IN OTHER MANAGEMENT STUDIES

Herrick (1968) used the Porter questionnaire to compare the perceptions of need fulfillment and their importance to government executives. Seven hundred and sixty-two (762) executives returned the completed questionnaire from the random sample of 1,468 government employees. Level of position holder, size of the organization, age of the executive, and tenure or service of the executive were among the 35 hypothesized statements. The chi square and T test were used by Herrick to test significance of the data. The results were:

1. Higher graded executives perceived autonomy and esteem needs as significantly more important than lower level (graded) executives.

2. Executives in small organizations perceived significantly greater deficiency in fulfillment of autonomy needs.

3. There was a tendency for perceived deficiencies of autonomy and self-actualization needs to be scored at higher values (Herrick, 1968).

Blunt (1972) studied the relationship of age to need satisfaction among middle managers in South Africa. Among other reports, 263 English-speaking middle managers randomly drawn from 13 firms completed a slightly revised Porter questionnaire. A one-way analysis of variance revealed significant discrepancies at the .01 level of confidence,

between the age groupings in the security need area. There were no significant differences in the other need categories. Furthermore, Blunt concluded that he found no evidence to support the findings of Saleh and Otis (1964) who affirmed that job satisfaction increased with age.

Herrick (1973) combined the findings of the previous study (Herrick, 1968) with a similar study at the state level to investigate work motives of female executives. Herrick reports that "considered as a whole, the data from the two studies differ consistently only in the discrepancy in fulfillment of self-actualization needs. This does not seem to mark any major differences between male and female executives" (1973, p. 385). Thus it was concluded that need perceptions of females are like those of their male counterparts. The Mann-Whitney U test was employed by Herrick to test the significance of differences between the perceptions of the two sex groups. Apparently, Herrick used the T test in the earlier study (1968) but substituted the Mann-Whitney U test for this study due to the smaller frequencies in the research groups. Herrick reports that a significant difference in the satisfaction of self-actualization needs was found and "a difference approaching significance in security needs and no difference in the other three levels" (1973, p. 383).

Paine et al. (1966) compared the need satisfactions of government managers working in different job settings. Porter's 13-item questionnaire was mailed to 71 field managers

and 102 central office managers. Using the 33 responses from the former and the 62 responses from the latter, the data were analyzed by means of the Mann-Whitney U test.

The two research questions of Paine et al. were:

1. Is there a significant difference in perceived need satisfaction between government managers in different working positions?

2. What differences are indicated between government managers and managers from private industry?

The reported results which answered the first question were: "Field managers felt significantly more satisfied than central office managers with respect to their needs for self-esteem, independent thought and action, growth and development, and sense of self-fulfillment" (Paine et al., 1966, p. 248).

For the second question, it was found that government managers had much less need satisfaction than private industry managers. Statistical significance tests of this part of the study could not be used because variability data from the private managers was not available from an earlier study by Porter (1962).

Cummings and ElSalmi (1968) provide a helpful review of other researchers who adopted Porter's methodology in their studies of need satisfactions of managers. They have noted that the studies of Edel (1966), Miller (1966), Eran (1966) et al. "generally tend to confirm Porter's original findings" (Cummings and ElSalmi, 1968, p. 132).

III. JOB SATISFACTION STUDIES IN EDUCATION

For his doctoral dissertation, Sergiovanni (1966) investigated factors which affect job satisfaction and job dissatisfaction of teachers. The stated purpose of his study was to test the Herzberg findings (Herzberg et al., 1959) with teachers. A random selection of 40 teachers from Monroe County, New York, were interviewed. Sergiovanni's methodology of interpretation of the interviews followed closely that used by Herzberg et al. (1959). The chi square test of significance was employed to analyze the data.

Sergiovanni concluded that the results of his study tended "to support the universality of Herzberg's findings" (1966, p. 1,236-a).

The New York Regents Advisory Committee on Educational Leadership sponsored a comprehensive study of college and university presidents in the State of New York (Hemphill, 1966). The purpose of the study was to examine factors which affect the role of presidents in higher education. A series of questions related to college and university presidential roles were examined. One of these questions was: "What satisfactions do presidents derive from their work?" (1966, p. 19).

One hundred and eighty (180) presidents of institutions of higher education in the State of New York completed a questionnaire consisting of 92 multiple-choice items. Four

of these items were related to satisfactions of the position. Nine sub-groups were established for analysis of the data. The presidents were divided into two groups, (a) more-satisfied presidents and (b) less-satisfied presidents. Analyses were reported in percentages of each group on each characteristic. One conclusion of the New York Regents study was that the more-satisfied presidents characteristically had longer administrative experience.

Hussein (1968) studied the effects of school size on teacher satisfaction and participation. A representative sample of teachers from a stratified random sample of ten Michigan schools responded to a questionnaire based on a model that theoretically would explain the ultimate impact of school size on teacher satisfaction and participation. Statistical computations of correlations between the variables of (a) organizational, (b) psychological, and (c) dependent teacher's satisfaction and teacher's participation revealed a statistically significant negative correlation between school size and teacher satisfaction and participation. The second major finding was that the data supported the theoretical model proposed to explain the effects of school size. In this regard, Hussein states:

> School size causes certain unfavorable organizational changes, which in turn tends to affect another group of psychologically-based variables, and both cause the ultimate impact of school size upon teacher's satisfaction and participation (1968, p. 2,480-a).

Dahl (1970) studied role perceptions and job satisfaction among lower and middle level junior college administrators. Twenty-four (24) administrators, 12 from each position level, from eight junior colleges in Southern California were interviewed. Based on the interview, the researcher rated each administrator on a seven-point job satisfaction scale. Three of the stated findings were:

1. Job satisfaction was very high among junior college administrators at both levels.

2. Ratings of job satisfaction were not related to age.

3. Most administrators felt that they had not been adequately prepared for their initial step into administration.

Dahl points out that "the professional literature has had little to say in the area of job satisfaction of college administrators (1970, p. 63). Advocating future study, he states: "A doctoral study might utilize a Maslow-type conceptualization of types of needs, as did Porter, who studied the vertical administrative structure in industry" (1970, p. 63). He further states: "Job satisfaction among professionals in higher education is virtually an untapped subject area for research" (1970, p. 63).

Smart and Morstain (1975) employed the Job Descriptive Index (JDI) to assess job satisfaction among college administrators. An alternate purpose of this study was to determine the usefulness of the JDI in an academic environment. Prevously used in business by Smith et al. (1969), the JDI was

distributed to 1,048 members of the Association for Institutional Research. It was concluded from the analysis of the 68 percent returned questionnaires that "when college administrators in the field of institutional research were classified by the degree of congruency between their preferred and perceived job responsibilities, congruent administrators earned significantly higher scores on the work environment scale of the JDI than their Moderate or Discongruent colleagues" (1975, p. 7).

Supporting the need for additional research, the authors state: "Research on job satisfaction and its correlates has been restricted almost exclusively to employees in non-educational organizations" (1975, p. 4). They further note: "Recent changes in managerial practices and techniques suggest that standardized research instruments designed to assess varying attributes of job satisfaction in non-educational settings, such as the JDI, might have unexplored potential when administered to members of college and university administrative staffs" (Smith and Morstain, 1975, p. 7).

IV. USE OF PORTER'S INSTRUMENTATION IN EDUCATIONAL STUDIES

Porter's questionnaire was used by Trusty and Sergiovanni (1966) to study perceived need deficiencies of teachers and administrators. Four null hypotheses were stated in relation to differences in perceived needs of educators and demographic

variables of age, experience, sex, and professional role (level). Two hundred and twenty-three (223) out of 300 teachers and administrators from a single school district completed and returned the questionnaire. Analysis of the variance was the statistical design used to test the data. The findings led to a rejection of the null-hypotheses related to age, sex, and professional role. The hypothesis related to years of experience was confirmed.

Haller (1966) questioned the reliability and validity of the Trusty-Sergiovanni (1966) study. First, he questioned the relationship of the instrument to Maslow's need-hierarchy theory. He questioned the use of "null-language" in stating the hypotheses. He further challenged the instrumentation used by Trusty and Sergiovanni by stating: "The authors completely neglect to report any evidence of validity or reliability" (Haller, 1966, p. 269).

Trusty and Sergiovanni (1966) replied to Haller's criticism on most points. Particularly to answer Haller's contention that a multi-dimensional needs-satisfaction questionnaire does not measure job satisfaction, the researchers stated:

> The need deficiency study is indeed a job satisfaction study. This should not come as a surprise to readers, for it is generally accepted that job satisfaction is related to need-fulfillment. Applewhite (1965) for example, in his review of Porter's work with the Maslow hierarchy, considers the Porter need categories as the basis for job satisfaction wants. The conceptual consistency of the need-deficiency study is demonstrated by the

> use of the need hierarchy dimensions as critical components of job satisfaction" (1966, p. 277).

Brown (1970) used Porter's instrumentation to study need satisfaction of public school administrators in California. The major research question concerned the relationship of level of administration to need satisfaction. Questions concerning other characteristics which might determine job satisfaction were also stated. The data were statistically interpreted by a randomized factorial design employing analysis of variance techniques.

Brown found no relation between administrators' need satisfaction and (a) age, (b) sex, and (c) organizational size. Significant relationships were found between administrators' satisfaction and (a) job level, (b) level of education, and (c) minority student composition of the schools (1970, p. 6,295-a).

Building on the research from his dissertation, Brown (1973) presented a paper at the annual meeting of the American Educational Research Association. The paper was entitled "The Job Satisfaction of Administrators Within a Multi-Ethnic Setting." The results of his original study were enlarged upon in this paper, and it was stated that "minority student composition did not affect central office administrators' job satisfaction . . . nevertheless, at the principalship level, principals of schools with a 20 percent or more minority student enrollment enjoyed their positions less than those with fewer minority students: (Brown, 1973, p. 7).

Carroll (1974) administered a modification of "the popular and respected need satisfaction questionnaire developed by Lyman W. Porter" (1974, p. 56). The purpose of the study was to examine role conflict of university department chairmen. Including the Porter instrument, 148 department chairmen completed and returned a four-part questionnaire. The second part was a series of 12 questions designed to index the perceptions of role conflict by the administrators. Four role conflict types were identified. These were (a) intersender conflict, (b) intrasender conflict, (c) interrole conflict, (d) person-role conflict.

Carroll used correlational statistics to investigate the relationship between administrators' perceived role conflict and their perceived need deficiency. It was found that a significant correlation between all four role conflict types and need deficiency does exist (1974, p. 59).

V. THE INSTRUMENTATION AND RATIONALE

With the exception of Trusty and SErgiovanni's defense, nothing was stated in any of the literature identified to this point about the validity or reliability of Porter's instrument. However, empirical support for the instrument does exist and is reported here.

Imparato (1972) examined the relationship between Porter's questionnaire and the Job Descriptive Index (JDI) developed by Smith et al. Both questionnaires were

administered to 381 employees of a Veteran's Administration Hospital in Brooklyn. The participants volunteered to cooperate in the research. In explaining the results, Imparato states: "The multiple correlation between the five scales of the JDI and the PNSQ (Porter Need Satisfaction Questionnaire) total was .69" (1972, p. 401).

In concluding the study, Imparato says:

> The residual question, then, concerns the point at which the two tests can be accepted as operations of a single, although multi-dimensional, construct. The correlation of .69 may be as high as one could expect given the effects of unreliability and the possibility of a truncated range on both scales (1972, p. 402).

In reporting on the reliability and validity of the JDI, Smith (1967) pointed out that "there is no single general criterion measure which can be used to validate a measure of job satisfaction. What is needed is evidence that the scales relate to other independent meaningful indicies of satisfaction in the situation" (1967, p. 349). The major approach used to validate the JDI was correlational studies of the JDI scales to other measures of job satisfaction. Smith reports that the scales correlate highly with other measures of satisfaction with an average correlation of .70.

Using Smith's rationale, it could be argued that Imparato's correlation between the JDI and Porter's instrument of .69 indicates empirical validity for the latter.

Waters and Roach (1973) drew the following conclusion from their factor analysis of Porter's questionnaire items:

> It does appear that Porter-type items can be used to differentiate higher order and lower order need satisfaction, and that over-all job satisfaction is primarily a function of satisfaction of higher order needs (1973, p. 189).

It was found by Waters and Roach that all items in the Esteem, Autonomy, and Self-actualization categories loaded above criterion level on the factor analysis. Only one item in the lower need categories (Security and Social) loaded on the factor. The second subgeneral (factor B) was interpreted as lower order need fulfillment. Three items in Social and Security categories loaded on this factor; none of the items in the higher order categories loaded on the factor.

In comparing their findings to Payne (1970) and Roberts et al. (1971), Waters and Roach concluded that the three studies agreed that "the items do not cluster as classified according to the Maslow system" (1973, p. 189).

The reliability of the instrument has been studied by Dore and Meacham (1973). Before using the questionnaire in a study of job satisfaction of managers, they conducted a small reliability study to determine the test-retest reliability. On two occasions, the questionnaire was administered to 30 subjects. A three-week interval elapsed between the two administrations of the questionnaire. The test group consisted of managers and graduate students of business administration. It was determined that the test-retest reliability coefficient was .83 (Pearson r).

Reliability of the instrument is further supported by

the relative consistency of findings from repeated utilization of the instrument.

In his permission letter (Appendix E) Porter briefly comments on the reliability and validity of his questionnaire.

The instrument yields scores in five need categories, which can be grouped and interpreted as lower order and higher order needs. Furthermore the instrument is short, easily administered, and easily scored. Additional data analyses need to be completed before statements of certainty can be made in support of the instrument's validity and reliability.

Concerning the theoretical methodology on which the instrument was based, Wolf (1967) sets forth a theoretical "reformulation" of job satisfaction and job motivation. He states: "Job motivation can be considered as a subclassification of general motivations; as such, it follows the principles of the need hierarchy (Maslow, 1954)" (Wolf, 1967, p. 91).

Wolf's theory proposes to account for all the discrepant research results related to Herzberg's (1959) two-factor theory and Maslow's (1954) need hierarchy theory. The individual's perception of job characteristics and behaviors is emphasized by Wolf as the key to synthesis of the two theories. The author's abstract of his integrative theory states:

It is theorized that Herzberg's content and context elements are related to both satisfaction and dissatisfaction in terms of the level of gratification of the various needs within Maslow's hierarchy. It is further theorized that job motivation results from an individual's perception of the relationship between specific job-related behaviors and desired need-gratifying consequences. Context elements are interpreted as being unlikely to be perceived as leading to increased gratification of active needs through job-related behaviors, while content items are likely to be so perceived.

VI. SUMMARY

It is estimated that more than 3,000 articles investigating job satisfaction have been published since the appearance of Hoppock's work of 1935 (Imparato, 1972).

No pretense is made by the writer to give the reader more than a general representation of the literature on job satisfaction. Particular attention has been given to those studies which reported findings relative to the variables of this study.

The research indicates that job satisfaction among managers was minimal until about 1959. The studies that were done focused on the techniques of the job itself. Phenomenological or psychological aspects of individual perception of jobs were introduced in 1959 by Triandis (1959). The famous Cornell Studies (JDI) initiated in 1959, examined personal and psychological aspects of worker values, frame of reference, and attitudes (Smith, 1967).

The more psychological approach to the study of job

satisfaction and need fulfillment was advanced by Lyman W. Porter of the University of California. His studies were particularly designed to examine and measure perceived need deficiencies of managers. He used the Maslow need hierarchy as a theoretical model in developing the instrumentation for researching perceived need deficiency and satisfaction.

Seven replications of Porter's original study have been reported in this document. Three studies were surveyed which used a modification of Porter's questionnaire in studying perceived need fulfillment of educational personnel. Only one (Carroll, 1974) of these three studies was in higher education.

Table 2 shows a summary of all the studies surveyed which used Porter's questionnaire.

From the literature search and review, it is apparent that the area of perceived need fulfillment of college and university administrators has not been adequately explored. While some generalizations to positions in higher education can be made from the studies in industry, business, and government, there is a need for this empirical study of job satisfaction of administrators in higher education.

TABLE 2

SUMMARY OF STUDIES WHICH USED PORTER'S QUESTIONNAIRE

NAME AND DATE	RESEARCH SAMPLE	STATISTICAL DESIGN
Porter (1961)	64 bottom-level managers	Significance of difference between percentages
Porter (1962)	1,958 managers	Sign test
Porter (1963)	Same as 1962	Chi square
Porter and Mitchell (1967)	703 commissioned officers 594 non-commissioned officers	Signed-rank (pair of ranks)
Paire et al. (1966)	95 government managers	Mann-Whitney U test
Herrick (1968)	762 government executives	Chi square and T test
Blunt (1972)	263 English-speaking middle managers in South America	One-way ANOVA
Herrick (1972)	Combined 1968 sample with 173 state employees	Mann-Whitney U test
Trusty-Sergiovanni (1966)	233 teachers and administrators from a public school district	ANOVA
Brown (1970)	1,000 public school administrators in California	ANOVA
Carroll (1974)	148 university department chairmen	Correlation

CHAPTER III

METHODOLOGY OF THE STUDY

In this chapter the procedures and methods of the research study are given including definitions and details relative to the population, the sample, the data, and the instrumentation.

Population

The population of this study consists of the chief executive officers and the chief academic officers of the 671 member institutions of the Southern Association of Colleges and Schools. The population was identified in the Proceedings (March, 1976) of the Southern Association of Colleges and Schools. This publication gives the following information about each member institution:

1. An alphabetical listing of institution by State with address and name of chief executive officer.

2. The initial accreditation date and most recent reaffirmed date.

3. An indication of institutional type by degree level:

   Level I - Associate Degree
   Level II - Bachelor's Degree
   Level III - Bachelor's and Master's Degrees
   Level IV - Bachelor's, Master's, and Doctor's Degrees
   Level V - Graduate and Professional Degrees only

4. Separate listing of full-time enrollment for credit and enrollment for non-credit.

It was assumed that the chief executive officer listed in the Proceedings would normally occupy the position of president of the institution. It was also assumed that each member institution of the Southern Association would have one administrator who would receive mail addressed to the chief academic officer. The title of dean will be used often in this report to represent the administrators serving as chief academic officers. The total population of the two administrative positions of accredited institutions in the South is 1,342 (671 presidents and 671 deans).

Sample

The sample was drawn along the following procedures:

One hundred and fifty institutions of higher education from the population of 671 institutions were randomly selected. This was done by stratifying the institutions according to degree level. As indicated above, the Proceedings identified the degree level of each accredited institution listed. The degree level summary information was used to determine the stratification of institutions by types. The types by level are: Level I, Two-Year; Level II, Four-Year; Level III (Levels III and IV combined) Four-Year Plus; Level IV, Graduate or Professional.

After the stratification was determined, the researcher then used a standard procedure of random numbers in selecting the appropriate ratio of 150 institutions for the sample.

From the 150 randomly selected institutions, the Chief Executive Officers and the Chief Academic Officers then became the research sample. The sample size of 300 administrators (150 presidents and 150 deans) represents 23 percent of the total population of 1,342 administrators.

Table 3 shows the number of institutions identified by type from the total population, the number stratified for each type or level, and the total selected for the sample.

TABLE 3

STRATIFICATION TOTALS BY INSTITUTION TYPE

INSTITUTIONAL TYPE	POPULATION TOTALS	INSTITUTIONS SAMPLED	SAMPLE TOTALS*
Level I - Two-Year	299 (45%)	67 (45%)	134
Level II - Four-Year	174 (26%)	39 (26%)	78
Level III - Four-Year Plus Graduate School	180 (26%)	39 (26%)	78
Level IV - Graduate or Professional	18 (3%)	5 (3%)	10
Totals	1,342	150	300

*Presidents and Deans - two from each institution sampled.

Data Collection Procedures

Two questonnaires and cover letters were separately mailed to each institution in the sample. One letter was

personally addressed to the chief executive. The names of the chief executives, the addresses of the institutions, and zip codes were taken from the Proceedings. The second letter was addressed to the "Chief Academic Officer" of the institution since the names of the chief academic officers were not known.

The envelopes and letterheads were from the Department of Educational Administration and Supervision of the University of Tennessee at Knoxville. Each envelope mailed contained a letter (Appendix A) briefly explaining the study, the questionnaire (Appendix B), business reply envelope, and a post card (Appendix C).

The recipients of the mail-out were informed in the letter of the availability of a free summary which could be obtained by returning the post card separately.

The 300 questionnaires were mailed out the first week in January, 1977. Within two weeks from that date, 153 questionnaires were returned to the University's Bureau of Educational Research. In the next ten days, another 29 questionnaires were received.

Four weeks after the original mailing, 60 percent of the questionnaires had been received. At that time, a follow-up letter was mailed (Appendix D). The follow-up letter contained the same enclosures as the original mail-out.

The recipients of the follow-up letter were determined by a combination of identifying those who had returned the

post cards and the institutions whose zip codes on the business reply envelope could be identified with certainty. Since the researcher had stated anonymity for the participants, no codes were placed on the questionnaire to identify those who had returned the questionnaire.

The follow-up consisted of 152 letters - 52 to chief executive officers and 50 to chief academic officers. About 50 administrators responded to the follow-up. The last returns were collected on April 25, 1977.

The total questionnaires returned was 230 of which 224 were usable for the study. The usable questionnaires represent 74.6 percent of the sample of 300. Two questionnaires were returned with notes from secretaries indicating that the chief executive was no longer with the institution. Four questionnaires were returned with only one side of the instrument completed. Five questionnaires were returned from presidents and 13 from deans with partial information omitted; these were used in the study and will account for slight variations in group sizes. Of the 224 questionnaires returned, 108 were from presidents (48 percent) and 116 were from deans (52 percent).

One hundred and sixty-five (165) post cards were returned from administrators requesting a summary of the research.

Table 4 shows the number of returns and percentages according to the stratification.

TABLE 4

SUMMARY OF RETURNED QUESTIONNAIRES BY STRATIFICATION LEVELS

INSTITUTIONAL TYPE	TOTAL RETURNED	PERCENTAGE OF TOTAL RETURN
Level I - Two-Year	100	45%
Level II - Four-Year	59	26%
Level III - Four-Year Plus Graduate School	54	24%
Level IV - Graduate or Professional	9	4%
	222*	

*Two questionnaires were not marked on this variable.

The researcher estimates the total cost of the survey to be $225.00. This amount includes the printing of the questionnaire and the post cards, the purchasing of the letterheads and envelopes, and the postage.

The sample of 224 administrators in this study is 16 percent of the population's size of 1,342 administrators of institutions in the South. This percentage of the total population coupled with the 74.6 percent of the 300 in the sample, gives an adequate data base for inferential hypothesis

analysis. With an alpha of .05, the researcher does not believe that either the Type I or the Type II error was made in analyzing the data with reference to the stated hypotheses.

I. THE QUESTIONNAIRE

The quantitative portion of the questionnaire used for the study was developed by Lyman W. Porter of the University of California. Porter (1961, 1962, 1963, and 1967) used the 13-item questionnaire in a series of studies on perceived need satisfaciton of managers. Slight modifications had to be made in the wording of the items to make them appropriate for administrators in higher education. The following shows a typical item as originally worded by Porter and the modifications made for this study:

> The prestige of my management position inside the company (that is, the regard received from others in the company)

Modification of the same item:

> The prestige of my administrative position inside the institution (that is, the regard received from others inside the institution)

The instructions for completing the questionnaire were also revised to make the statements apply to administrative positions rather than management positions. The administrators who received the questionnaire were instructed to complete this portion of the questionnaire by giving two ratings for each item. The two Likert-type, seven-point scales were

identified as (a) How much of the characteristic is there now connected with your administrative position? and (b) How much of the characteristic do you think should be connected with your administrative position? The participants were asked to answer the two questions by blackening a number on the rating scale from one to seven, where low numbers represent low or minimum amounts, and the high numbers represent high or maximum amounts.

A perceived need deficiency was indicated when an administrator rated question b (How much should there be?) higher on the sacle than question a (How much is there now?).

As in the other Porter studies, it is assumed that these 13 items do independently measure perceived need deficiencies of the administrators who completed the questionnaire. The items constitute the dependent variables of the study and were coded and scored to yield interval level data.

Table 5 shows the arrangement of the 13 dependent variables according to the need categories. This arrangement is identical to that used by Porter (1961) and others who have used the questionnaire to study perceived need deficiency or satisfaction.

The second portion of the instrument consisted of nine independent variables. These variables were identified on the questionnaire as (1) position, (2) length of tenure, (3) age, (4) educational preparation (highest degree), (5) religious preference, (6) race, (7) type of institution,

TABLE 5

NEED CATEGORIES AND SPECIFIC NEED ITEMS
AS LISTED IN THE QUESTIONNAIRE

I. Security needs

a. The feeling of security in my administrative position

II. Social needs

a. The opportunity, in my administrative position, to give help to other people
b. The opportunity to develop close friendships in my administrative position

III. Esteem needs

a. The feeling of self-esteem a person gets from being in my administrative position
b. The prestige of my administrative position inside the institution (that is, the regard received from others in the institution)
c. The prestige of my administrative position outside the institution (that is, the regard received from others not in the institution)

IV. Autonomy needs

a. The authority connected with my administrative position
b. The opportunity for independent thought and action in my administrative position
c. The opportunity, in my administrative position, for participation in the setting of goals
d. The opportunity, in my administrative position, for participation in the determination of methods and procedures

V. Self-actualization needs

a. The opportunity for personal growth and development in my administrative position
b. The feeling of self-fulfillment a person gets from being in my administrative position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities)
c. The feeling of worthwhile accomplishment in my administrative position

(8) full-time enrollment, and (9) control of institution. A series of response categories were given for each variable (Appendix B).

The instructions for this portion read "Please respond by blackening the appropriate circle of each item."

The researcher marked the first variable, position, prior to sending the questionnaire to the administrators. Since the envelopes were addressed to chief executive officer or the chief academic officer, this information was known to the researcher before submitting the questionnaire.

The time needed to complete both sides of the questionnaire was estimated from four to six minutes.

II. DATA PROCESSING AND STATISTICAL DESIGN

The independent and dependent variables of the questionnaire were numbered to represent the card columns on a standard 80-column computer punch card. In Appendix F two typical data cards are shown as punched in columns 1 through 35.

One data card was punched for each usable questionnaire. The total number of data cards prepared for the computer procedures was 224. The Statistical Package for the Social Sciences (Nie et al., 1975) manual was used in computer programing for crosstabulations and one-way analyses of variance. The calculations of one-way analysis of variance procedures result in an F-ratio. The F-ratio is a ratio of the variance

between groups to the variance within groups (Meyers and Grossen, 1974). The one-way analysis of variance formula and computation are explained in Appendix G.

Although some controversies have existed concerning types of scales and the using of appropriate statistical designs (Gardner, 1975), it was concluded by the researcher that the questionnaire could be scored for interval level data analysis.

The 13 dependent variables of the questionnaire were scored in the following way to yield interval level data. If in responding to a particular characteristic an administrator scored the first question (a) "How much is there now?" as a "4" and the second question (b) "How much should there be?" as a "7," the amount of perceived need deficiency would be the difference between the two scores; and in this case, a "3." The greater the difference between the two responses, the greater is the perceived need deficiency.

A one-way analysis of variance was computed on each dependent variable of the questionnaire independently of the other 12 variables. It was assumed that the 13 statements of job characteristics would yield important information which should be analyzed independently of the other characteristics. It is believed that the research and data do meet the assumptions of the one-way analysis of variance (Meyers and Grossen, 1974). Because the research group sizes were unequal, Bartlett's test for homogeneity was

computed for each analysis of variance. In six computations, significant F's were found but were not reported as such due to the indication from the Bartlett's test that the data were not homogeneous.

Computer crosstabulations were used initially to study the distribution of the data and to assist in making decisions concerning grouping of the data for statistical analyses. Appendix H shows a typical crosstabulation.

The statistical criterion for rejection of the null hypotheses was set at the .05 confidence level of significance for the one-way analysis of variance technique.

III. SUMMARY

The purpose of this study is to survey college and university presidents and deans (a) to see if significant differences exist between perceived need satisfaction of college and university presidents and college and university academic deans; (b) to analyze the total sample responses; (c) to analyze the variances of independent variables on the perceived need satisfaction of college and university administrators. The survey was carried out by random stratification of 150 institutions which are accredited by the Southern Association of Colleges and Schools. Questionnaires were mailed to the president and dean in each of the 150 randomly selected institutions. Two hundred and twenty-four (224) usable questionnaires (75 percent) were returned.

The statistical design used for computer procedures and computation in the study was the one-way analysis of variance.

CHAPTER IV

DATA ANALYSES

In this chapter the data from the study are reported and interpreted in light of the stated null hypotheses. One-way analyses tables, summary tables, and histograms are presented to show the research results.

The purpose of this study was to analyze the perceived deficiencies in personal needs fulfillment of college and university presidents and academic deans. The statistical design used in the study was the one-way analysis of variance. Crosstabulations were used initially to study the distribution of the data and to assist in making decisions concerning the grouping of the data for statistical analyses. Independent variable classes were combined to avoid large deviations in group sizes. For example, the crosstab in Appendix G shows a frequency of five for the age classification 25 - 34. For this variable, classes 1 and 2 were combined to give a total of 72 for research group 1. Table 6 shows the group structures and sizes of the independent variables.

The statistical criterion for rejection of the null hypotheses was set at the .05 confidence level of significance for the one-way analyses of variance.

TABLE 6

GROUPS AND SAMPLE SIZES OF THE INDEPENDENT VARIABLES

	VARIABLE		GROUPS	NUMBERS
1.	Position	Gr. 1	Presidents	108
		Gr. 2	Deans	116
2.	Tenure	Gr. 1	42 Months or Less	77
		Gr. 2	43 Months and Over	140
3.	Age	Gr. 1	25 - 44	72
		Gr. 2	45 - 54	91
		Gr. 3	55 and Over	55
4.	Ed. Preparation	Gr. 1	Master's Degree	50
		Gr. 2	Doctor's Degree	155
5.	Religious Pref.	Gr. 1	Protestants	183
		Gr. 2	Non-Protestants	39
6.	Race	Gr. 1	Caucasian	204
		Gr. 2	Minority	17
7.	Type	Gr. 1	Two-Year	100
		Gr. 2	Four-Year Plus	122
8.	F.T.E.	Gr. 1	3,000 or Less	152
		Gr. 2	Over 3,000	70
9.	Control	Gr. 1	Public	141
		Gr. 2	Private	80

Tables and Graphic Techniques

There were 13 one-way analyses of variance computed for each null hypothesis; therefore, 13 ANOVA tables are shown following each hypothesis statement and research response. The statistical findings for each null hypothesis are reported in a summary table following the 13 ANOVA tables.

Histogram charts are presented to show the mean scores of each research group for the need categories. These charts are particularly helpful in visualizing the trends of the data.

The Null Hypotheses and Data Analyses

The nine null hypotheses are stated in reference to the 13 job characteristics which were stated on the questionnaire. For each null hypothesis 13 separate one-way analyses of variance were computed.

H_O 1. There is no difference in perceived need deficiencies between college and university presidents and college and university deans on any of the 13 characteristics: Rejected.

ANOVA Tables 7 through 19 show the results of the data analyses computed for this hypothesis. As shown in Table 19 (p. 56), a significant difference was found between the two groups on the following statement: "the feeling of worthwhile accomplishment in my administrative position." Table 19 shows the F-ratio to be: $F(1,221) = 4.547 < .05$.

Summary Table 20 (p. 57) shows the mean of the presidents group on item V-c was .88 and the mean of the deans group was 1.20; thus the data indicates that the deans perceive this characteristic as significantly more deficient than did the presidents on the same characteristic. Table 20 also indicates that two items approached significance: II-b

"opportunity for friendships" (presidents $\bar{X}$ = 1.21 and deans $\bar{X}$ = .93); III-a "feeling of self-esteem" (presidents $\bar{X}$ = .68 and deans $\bar{X}$ = .93).

Tables 7 (p. 50) and 15 (p. 54) show a significant F-ratio between the means of these two characteristics. However, the Bartlett's test indicated lack of homogeneity on the items; therefore the F-ratio was not considered reliable on the characteristics.

Figure 1 (p. 58) shows the presidents as having a higher need deficiency in the lower order needs than did the deans, but a smaller need deficiency than deans in the higher order needs.

TABLE 7

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM I-a BY POSITION GROUPS (SECURITY IN JOB)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	6.1227	1	6.1227	3.815
Within Groups	354.6934	221	1.6049	
Total	360.8162	222		

F Probability = .049 Bartlett's Homogeneity Test P = .008

TABLE 8

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-a BY POSITION GROUPS
(OPPORTUNITY TO HELP PEOPLE)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0008	1	.0008	.001
Within Groups	137.3561	122	.6187	
Total	137.3571	123		

F Probability = .922 Bartlett's Homogeneity Test P = .594

TABLE 9

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-b BY POSITION GROUPS
(OPPORTUNITY FOR FRIENDSHIPS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	4.1971	1	4.1971	2.757
Within Groups	334.9199	220	1.5224	
Total	339.1172	221		

F Probability = .094 Bartlett's Homogeneity Test P = .382

TABLE 10

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-a BY POSITION GROUPS
(FEELING OF SELF-ESTEEM)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	3.3499	1	3.3499	2.839
Within Groups	260.7397	221	1.1798	
Total	264.0896	222		

F Probability = .089 Bartlett's Homogeneity Test P = .583

TABLE 11

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-b BY POSITION GROUPS
(PRESTIGE INSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0271	1	.0271	.034
Within Groups	173.0225	220	.7865	
Total	173.0496	221		

F Probability = .831 Bartlett's Homogeneity Test P = .157

TABLE 12

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-c BY POSITION GROUPS
(PRESTIGE OUTSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0035	1	.0035	.005
Within Groups	147.9563	222	.6665	
Total	147.9598			

F Probability = .90 Bartlett's Homogeneity Test P = .274

TABLE 13

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-a BY POSITION GROUPS
(AUTHORITY IN POSITION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.4508	1	.4508	.567
Within Groups	175.0492	220	.7957	
Total	175.5000	221		

F Probability = .459 Bartlett's Homogeneity Test P = .045

TABLE 14

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-b BY POSITION GROUPS
(OPPORTUNITY FOR INDEPENDENT THOUGHT AND ACTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.8563	1	.8563	.568
Within Groups	332.9822	221	1.5067	
Total	333.8384	222		

F Probability = .458 Bartlett's Homogeneity Test P = .479

TABLE 15

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-c BY POSITION GROUPS
(OPPORTUNITY TO PARTICIPATE IN SETTING GOALS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	7.1659	1	7.1659	9.120
Within Groups	173.6413	221	.7857	
Total	180.8072	222		

F Probability = .003 Bartlett's Homogeneity Test P = .000

TABLE 16

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-d BY POSITION GROUPS
(OPPORTUNITY TO DETERMINE METHODS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.7932	1	.7932	1.031
Within Groups	170.8452	222	.7696	
Total	171.6384	223		

F Probability = .312 Bartlett's Homogeneity Test P = .037

TABLE 17

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-a BY POSITION GROUPS
(OPPORTUNITY FOR GROWTH AND DEVELOPMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0168	1	.0168	.009
Within Groups	394.7456	221	1.7862	
Total	394.7625	222		

F Probability = .885 Bartlett's Homogeneity Test P = .848

TABLE 18

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-b BY POSITION GROUPS
(FEELING OF SELF-FULFILLMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	3.2415	1	3.2415	2.216
Within Groups	324.7410	222	1.4628	
Total	327.9824	223		

F Probability = .134 Bartlett's Homogeneity Test P = .544

TABLE 19

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-c BY POSITION GROUPS
(FEELING OF ACCOMPLISHMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	5.7164	1	5.7164	4.547
Within Groups	277.8352	221	1.2572	
Total	283.5515	222		

F Probability = .032 Bartlett's Homogeneity Test P = .406

TABLE 20

SUMMARY OF STATISTICAL FINDINGS FOR VARIABLE ONE
POSITION OF ADMINISTRATORS

Group 1 - Presidents (n - 108) Group 2 - Deans (n = 116)

Need Categories and Items	Group 1 Mean	Group 2 Mean	Significance
I. Security Needs			
a. (security in job)	1.02	.69	ns
II. Social Needs	(.83)	(.69)	
a. (opportunity to help people)	.44	.45	ns
b. (opportunity for friendships)	1.21	.93	ns[a]
III. Esteem Needs	(.58)	(.65)	
a. (feeling of self-esteem)	.68	.93	ns[a]
b. (prestige inside institution)	.56	.53	ns
c. (prestige outside institution)	.49	.48	ns
IV. Autonomy Needs	(.53)	(.64)	
a. (authority in position)	.45	.54	ns
b. (opportunity for independent thought and action)	1.03	.91	ns
c. (opportunity to participate in setting goals)	.25	.61	ns
d. (opportunity to participate in determining methods)	.39	.51	ns
V. Self-Actualization Needs	(1.06)	(1.24)	
a. (opportunity for growth and development)	1.29	1.27	ns
b. (feeling of self-fulfillment)	1.01	1.25	ns
c. (feeling of accomplishment)	.88	1.20	.03

Note: The larger the mean, the less the need satisfaction.

ns means not significant at .05 level of significance as determined by a one-way ANOVA (F probability).

ns[a] means not significant at .05 level but less than .10.

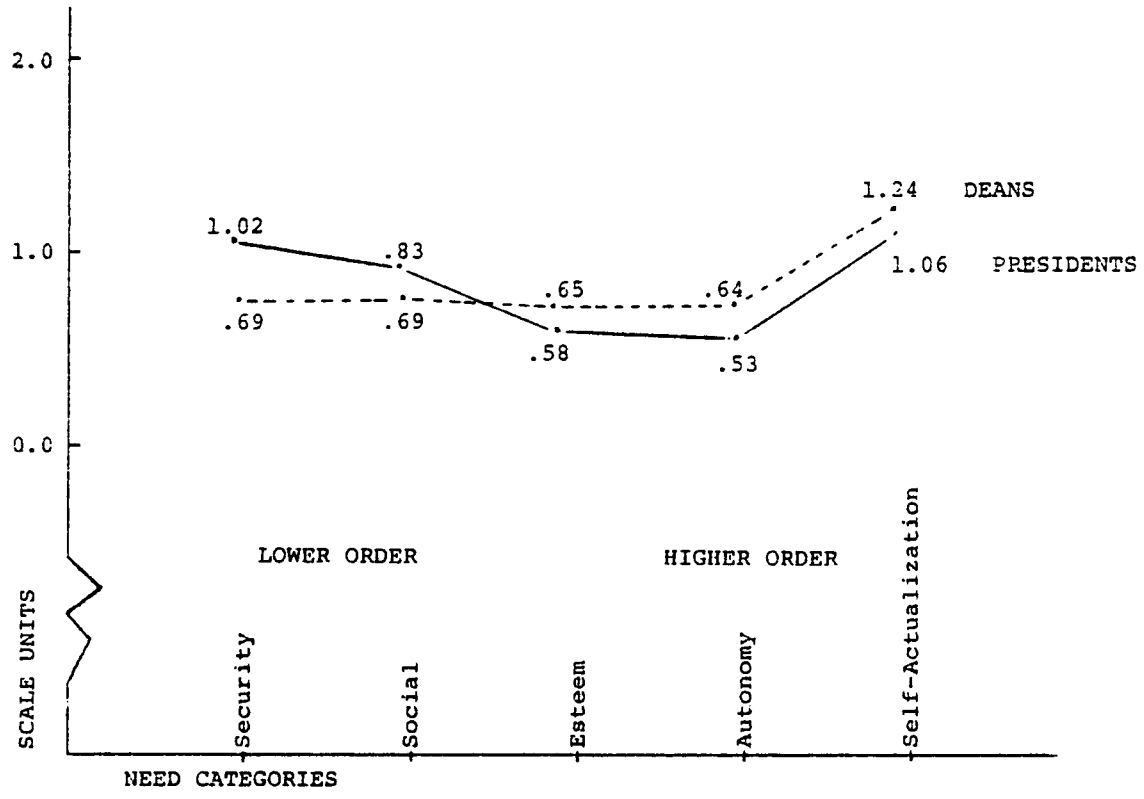


FIGURE 1

MEAN SCORES OF PERCEIVED DEFICIENCIES IN NEED CATEGORIES FOR POSITION GROUPS

H_o 2. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to length of tenure on any of the 13 administrative characteristics: Rejected.

Analyses of variance Tables 21 through 33 show the results of the data analyses computed for this hypothesis. The data indicate that administrators with shorter tenure had a significantly higher need deficiency than administrators with longer tenure on the following three questionnaire items:

V-a "The opportunity for personal growth and development in my administrative position." Table 31 (p. 65) shows the F-ratio for this item to be: $F(1,214) = 4.474 < .05$.

V-b "The feeling of self-fulfillment a person gets from being in my administrative position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities)." The F-ratio for this item as shown in Table 32 (p. 66) is: $F(1,215) = 6.017 < .05$.

V-c "The feeling of worthwhile accomplishment in my administrative position." Table 33 (p. 66) shows the F-ratio to be: $F(1,214) = 6.638 < .05$.

Summary Table 34 (p. 67) shows the administrators with 42 months or less tenure as having perceived a higher need deficiency on the three items than did the administrators with 43 months or more tenure. Thus the data analyses show the shorter tenure group to be significantly more deficient

on the need fulfillment of these three characteristics than were the longer tenured group. Item III-b approached significance with opposite results. That is, administrators with 43 months or more tenure had a mean of .63 on this item and administrators with 42 months or less tenure had an average of .42.

Figure 2 (p. 68) shows the low tenured group averaging a higher need deficiency than the high tenured group in both the lower order and higher order need areas.

TABLE 21

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM I-a BY TENURE GROUPS (SECURITY IN JOB)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	3.4740	1	3.4740	2.192
Within Groups	339.1741	214	1.5849	
Total	342.6479	215		

F Probability = .136 Bartlett's Homogeneity Test P = .724

TABLE 22

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-a BY TENURE GROUPS
(OPPORTUNITY TO HELP PEOPLE)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.4224	1	.4224	.682
Within Groups	133.2182	215	.6196	
Total	133.6406	216		

F Probability = .415 Bartlett's Homogeneity Test P = .726

TABLE 23

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-b BY TENURE GROUPS
(OPPORTUNITY FOR FRIENDSHIPS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.2261	1	.2261	.145
Within Groups	331.9878	213	1.5586	
Total	332.2139	214		

F Probability = .704 Bartlett's Homogeneity Test P = .639

TABLE 24

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-a BY TENURE GROUPS
(FEELING OF SELF-ESTEEM)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.3417	1	1.3417	1.117
Within Groups	257.0981	214	1.2014	
Total	258.4397	215		

F Probability = .292 Bartlett's Homogeneity Test P = .746

TABLE 25

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-b BY TENURE GROUPS
(PRESTIGE INSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.2814	1	2.2814	2.878
Within Groups	168.8535	213	.7927	
Total	171.1349	214		

F Probability = .087 Bartlett's Homogeneity Test P = .209

TABLE 26

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-c BY TENURE GROUPS
(PRESTIGE OUTSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0188	1	.0188	.028
Within Groups	146.2208	215	.6801	
Total	146.2396	216		

F Probability = .843 Bartlett's Homogeneity Test P = .510

TABLE 27

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-a BY TENURE GROUPS
(AUTHORITY IN POSITION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.3607	1	1.3607	1.701
Within Groups	170.3881	213	.7999	
Total	171.7488	214		

F Probability = .190 Bartlett's Homogeneity Test P = .045

TABLE 28

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-b BY TENURE GROUPS
(OPPORTUNITY FOR INDEPENDENT THOUGHT AND ACTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.3597	1	1.3597	.895
Within Groups	325.2651	214	1.5199	
Total	326.6250	215		

F Probability = .348 Bartlett's Homogeneity Test P = .130

TABLE 29

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-c BY TENURE GROUPS
(OPPORTUNITY TO PARTICIPATE IN SETTING GOALS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.3353	1	1.3353	1.625
Within Groups	175.8823	214	.8219	
Total	177.2176	215		

F Probability = .201 Bartlett's Homogeneity Test P = .077

TABLE 30

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-d BY TENURE GROUPS
(OPPORTUNITY TO DETERMINE METHODS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.7642	1	.7642	.982
Within Groups	167.2266	215	.7778	
Total	167.9908	216		

F Probability = .324 Bartlett's Homogeneity Test P = .075

TABLE 31

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-a BY TENURE GROUPS
(OPPORTUNITY FOR GROWTH AND DEVELOPMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	7.9905	1	7.9905	4.474
Within Groups	382.2134	214	1.7860	
Total	390.2039	215		

F Probability = .034 Bartlett's Homogeneity Test P = .706

TABLE 32

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-b BY TENURE GROUPS
(FEELING OF SELF-FULFILLMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	8.6333	1	8.6333	6.017
Within Groups	308.4912	215	1.4348	
Total	317.1245	216		

F Probability = .014 Bartlett's Homogeneity Test P = .178

TABLE 33

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-c BY TENURE GROUPS
(FEELING OF ACCOMPLISHMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	8.3705	1	8.3705	6.638
Within Groups	269.8472	214	1.2610	
Total	278.2175	215		

F Probability = .010 Bartlett's Homogeneity Test P = .069

TABLE 34

SUMMARY OF STATISTICAL FINDINGS FOR VARIABLE TWO
LENGTH OF TENURE OF ADMINISTRATORS

Group 1 - 42 Months or Less (n = 76) Group 2 - 43 Months or More (n = 140)

Need Categories and Items	Group 1 Mean	Group 2 Mean	Significance
I. Security Needs			
a. (security in job)	1.01	.75	ns
II. Social Needs	(.80)	(.72)	
a. (opportunity to help people)	.51	.41	ns
b. (opportunity for friendships)	1.10	1.03	ns
III. Esteem Needs	(.60)	(.62)	
a. (feeling of self-esteem)	.91	.74	ns
b. (prestige inside institution)	.42	.63	ns[a]
c. (prestige outside institution)	.48	.50	ns
IV. Autonomy Needs	(.69)	(.53)	
a. (authority in position)	.61	.44	ns
b. (opportunity for independent thought and action)	1.06	.90	ns
c. (opportunity to participate in setting goals)	.55	.38	ns
d. (opportunity to participate in determining methods)	.55	.42	ns
V. Self-Actualization Needs	(1.42)	(1.01)	
a. (opportunity for growth and development)	1.54	1.14	.03
b. (feeling of self-fulfillment)	1.40	.99	.01
c. (feeling of accomplishment)	1.32	.91	.01

Note: The larger the mean, the less the need satisfaction.

ns means not significant at .05 level of significance as determined by a one-way ANOVA (F probability).

ns[a] means not significant at .05 level but less than .10.

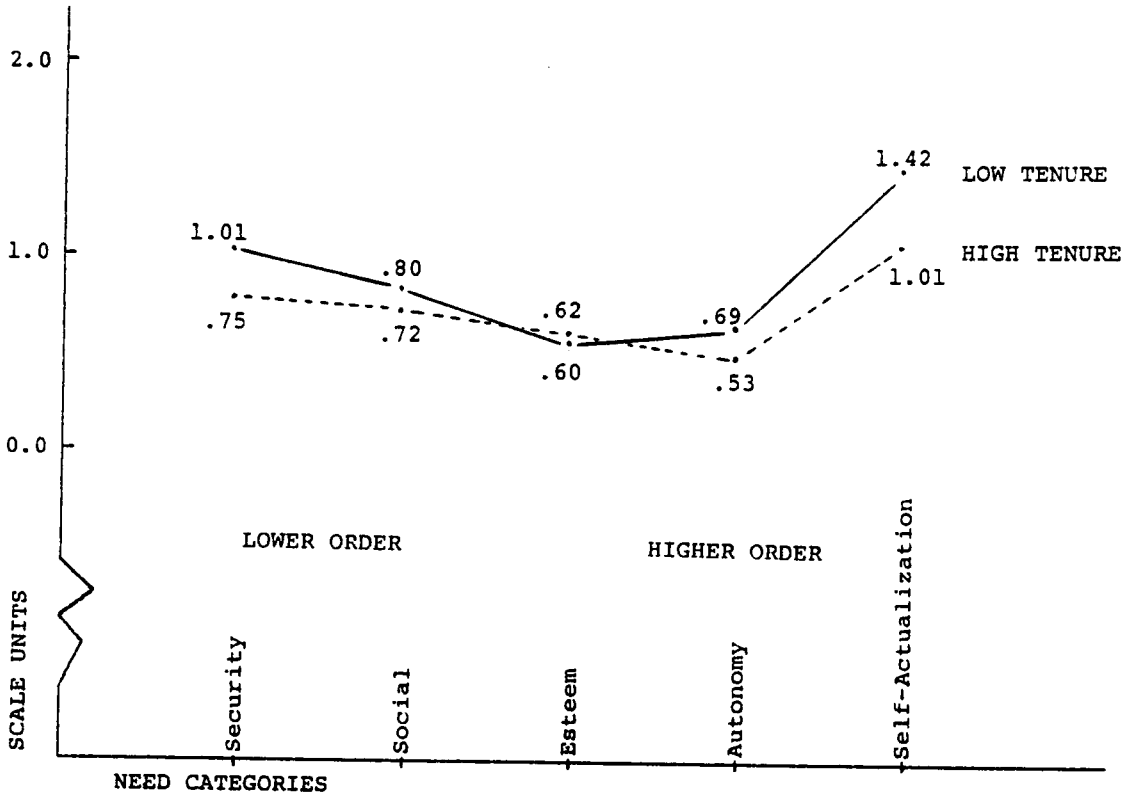


FIGURE 2

MEAN SCORES OF PERCEIVED DEFICIENCIES IN NEED CATEGORIES FOR TENURE GROUPS

H_o 3. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to age on any of the 13 administrative characteristics: Confirmed.

ANOVA Tables 35 through 47 show the summaries of the 13 one-way analyses of variance that were computed in testing this null hypothesis. No significant differences were

found between the three age groups of administrators on any of the 13 job characteristics; the null hypothesis is accepted.

In reviewing summary Table 48 (p. 76) it can be observed that there are no distinguishable patterns of differences between the means of the three age groups. It should be noted that in six of the one-way analyses of variance, the Bartlett's test showed that the variance was not homogeneous among the age groups.

Figure 3 (p. 77) shows the mean scores of perceived deficiencies in need categories for the age groups.

TABLE 35

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM I-a BY AGE GROUPS (SECURITY IN JOB)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	3.3716	2	1.6858	1.079
Within Groups	334.4993	214	1.5631	
Total	337.8708	216		

F Probability = .343 Bartlett's Homogeneity Test P = .007

TABLE 36

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-a BY AGE GROUPS
(OPPORTUNITY TO HELP PEOPLE)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.3173	2	.6587	1.121
Within Groups	126.2836	215	.5874	
Total	127.6009	217		

F Probability = .328 Bartlett's Homogeneity Test P = .004

TABLE 37

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-b BY AGE GROUPS
(OPPORTUNITY FOR FRIENDSHIPS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.0166	2	.5083	.343
Within Groups	315.8677	213	1.4829	
Total	316.8843	215		

F Probability = .715 Bartlett's Homogeneity Test P = .638

TABLE 38

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-a BY AGE GROUPS
(FEELING OF SELF-ESTEEM)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0669	2	.0334	.028
Within Groups	254.4124	214	1.1888	
Total	254.4793	216		

F Probability = .960 Bartlett's Homogeneity Test P = .163

TABLE 39

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-b BY AGE GROUPS
(PRESTIGE INSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.7203	2	.3601	.449
Within Groups	170.8168	213	.8020	
Total	171.5370	215		

F Probability = .645 Bartlett's Homogeneity Test P = .961

TABLE 40

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-c BY AGE GROUPS
(PRESTIGE OUTSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.2039	2	.1020	.152
Within Groups	144.2227	215	.6708	
Total	144.4266	217		

F Probability = .857 Bartlett's Homogeneity Test P = .291

TABLE 41

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-a BY AGE GROUPS
(AUTHORITY IN POSITION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.5944	2	.7972	.997
Within Groups	170.4010	213	.8000	
Total	171.9954	215		

F Probability = .373 Bartlett's Homogeneity Test P = .002

TABLE 42

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-b BY AGE GROUPS
(OPPORTUNITY FOR INDEPENDENT THOUGHT AND ACTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	4.7381	2	2.3690	1.642
Within Groups	308.8010	214	1.4430	
Total	313.5391	216		

F Probability = .194 Bartlett's Homogeneity Test P = .039

TABLE 43

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-c BY AGE GROUPS
(OPPORTUNITY TO PARTICIPATE IN SETTING GOALS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.7878	2	.3939	.502
Within Groups	167.8850	214	.7845	
Total	168.6728	216		

F Probability = .612 Bartlett's Homogeneity Test P = .738

TABLE 44

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-d BY AGE GROUPS
(OPPORTUNITY TO DETERMINE METHODS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	3.1205	2	1.5602	2.197
Within Groups	152.7190	215	.7103	
Total	155.8395	217		

F Probability = .111 Bartlett's Homogeneity Test P = .005

TABLE 45

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-a BY AGE GROUPS
(OPPORTUNITY FOR GROWTH AND DEVELOPMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	7.9709	2	3.9855	2.289
Within Groups	372.5271	214	1.7408	
Total	380.4980	216		

F Probability = .102 Bartlett's Homogeneity Test P = .040

TABLE 46

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-b BY AGE GROUPS
(FEELING OF SELF-FULFILLMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.5342	2	.2671	.188
Within Groups	305.5991	215	1.4214	
Total	306.1333	217		

F Probability = .829 Bartlett's Homogeneity Test P = .747

TABLE 47

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-c BY AGE GROUPS
(FEELING OF ACCOMPLISHMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.6961	2	1.3481	1.080
Within Groups	267.0088	214	1.2477	
Total	269.7051	216		

F Probability = .342 Bartlett's Homogeneity Test P = .442

TABLE 48

SUMMARY OF STATISTICAL FINDINGS FOR VARIABLE THREE
AGE OF ADMINISTRATORS

Group 1 - 25-44 (72) Group 2 - 45-54 (91) Group 3 - 55 Over (55)

Need Categories and Items	Group 1 Mean	Group 2 Mean	Group 3 Mean	Significance
I. Security Needs				
a. (security in job)	.90	.86	.59	ns
II. Social Needs	(.71)	(.88)	(.64)	
a. (opportunity to help people)	.37	.52	.36	ns
b. (opportunity for friendships)	1.04	1.08	.91	ns
III. Esteem Needs	(.58)	(.63)	(.61)	
a. (authority in position)	.79	.82	.78	ns
b. (prestige inside institution)	.47	.61	.55	ns
c. (prestige outside institution)	.48	.45	.52	ns
IV. Autonomy Needs	(.44)	(.62)	(.68)	
a. (authority in position)	.40	.49	.63	ns
b. (opportunity for independent thought and action)	.75	1.02	1.11	ns
c. (opportunity to participate in setting goals)	.33	.47	.43	ns
d. (opportunity to participate in determining methods)	.28	.51	.56	ns
V. Self-Actualization Needs	(1.11)	(.91)	(1.00)	
a. (opportunity for growth and development)	1.24	.46	.98	ns
b. (feeling of self-fulfillment)	1.18	1.10	1.05	ns
c. (feeling of accomplishment)	.91	1.16	.98	ns

Note: The larger the mean, the less the need satisfaction.

ns means not significant at .05 level of significance as determined by a one-way ANOVA (F probability).

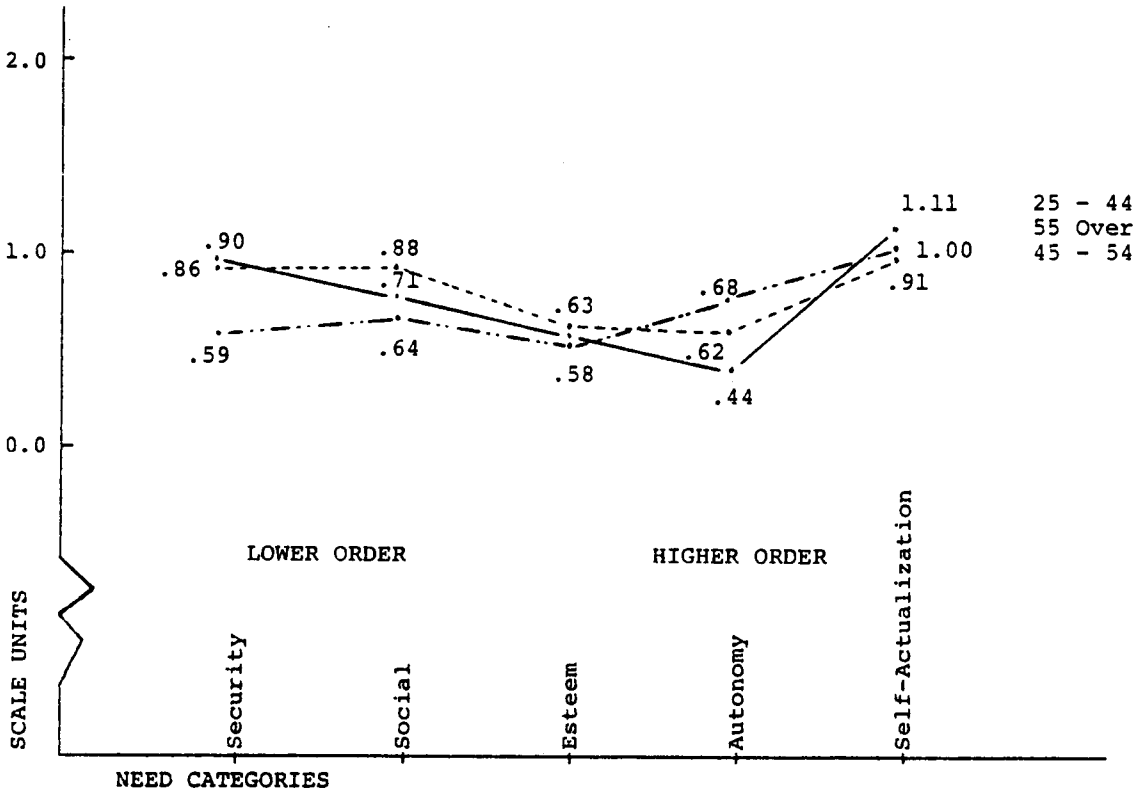


FIGURE 3

MEAN SCORES OF PERCEIVED DEFICIENCIES IN NEED CATEGORIES FOR AGE GROUPS

H_o 4. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to educational preparation on any of the 13 administrative characteristics: Rejected.

As reported in data analyses Tables 49 through 61, administrators who have earned doctor's degrees were found to have a significantly higher perceived need deficiency in their responses to three job characteristics than do administrators with master's degrees on the same characteristics. The characteristics are:

IV-b "The opportunity for independent thought and action in my administrative position." As shown in Table 56 (p. 83), the F-ratio for this item is: $F(1,202) = 4.279 < .05$.

V-a "The opportunity for personal growth and development in my administrative position." Table 59 (p. 84) shows the data of the F-ratio for this characteristic as: $F(1,202) = 6.731 < .05$.

V-b "The feeling of self-fulfillment a person gets from being in my administrative position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities). Table 60 (p. 85) shows the F-ratio to be: $F(1,203) = 3.674 < .05$.

Summary Table 62 (p. 86) shows the mean of the administrators with doctor's degree to be consistently higher on all 13 items than administrators with master's degrees.

Figure 4 (p. 87) shows the mean deficiencies of

administrators grouped according to educational preparation in the need categories. It can be seen that the discrepancies between the two groups is fairly symmetrical with reference to the lower order and higher order needs.

TABLE 49

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM I-a BY EDUCATIONAL PREPARATION GROUPS (SECURITY IN JOB)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.6443	1	.6443	.423
Within Groups	307.6448	202	1.5230	
Total	308.2891	203		

F Probability = .524 Bartlett's Homogeneity Test P = .686

TABLE 50

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-a BY EDUCATIONAL PREPARATION GROUPS
(OPPORTUNITY TO HELP PEOPLE)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.6421	1	.6421	1.001
Within Groups	130.2555	203	.6417	
Total	130.8976	204		

F Probability = .320 Bartlett's Homogeneity Test P = .004

TABLE 51

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-b BY EDUCATIONAL PREPARATION GROUPS
(OPPORTUNITY FOR FRIENDSHIPS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	5.3411	1	5.3411	3.373
Within Groups	318.2354	201	1.5833	
Total	323.5764	202		

F Probability = .064 Bartlett's Homogeneity Test P = .085

TABLE 52

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-a BY EDUCATIONAL PREPARATION GROUPS
(FEELING OF SELF-ESTEEM)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0988	1	.0988	.088
Within Groups	226.1904	202	1.1198	
Total	226.2892	203		

F Probability = .760 Bartlett's Homogeneity Test P = .264

TABLE 53

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-b BY EDUCATIONAL PREPARATION GROUPS
(PRESTIGE INSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.5692	1	1.5692	1.947
Within Groups	162.8377	202	.8061	
Total	164.4069	203		

F Probability = .161 Bartlett's Homogeneity Test P = .257

TABLE 54

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-c BY EDUCATIONAL PREPARATION GROUPS
(PRESTIGE OUTSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.9719	1	1.9719	2.834
Within Groups	141.2671	203	.6959	
Total	143.2390	204		

F Probability = .090 Bartlett's Homogeneity Test P = .279

TABLE 55

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-a BY EDUCATIONAL PREPARATION GROUPS
(AUTHORITY IN POSITION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.1792	1	1.1792	1.467
Within Groups	161.5696	201	.8038	
Total	162.7488	202		

F Probability = .225 Bartlett's Homogeneity Test P = .033

TABLE 56

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM IV-b BY EDUCATIONAL PREPARATION GROUPS (OPPORTUNITY FOR INDEPENDENT THOUGHT AND ACTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	6.6089	1	6.6089	4.279
Within Groups	311.9939	202	1.5445	
Total	318.6028	203		

F Probability = .038 Bartlett's Homogeneity Test P = .198

TABLE 57

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM IV-c BY EDUCATIONAL PREPARATION GROUPS (OPPORTUNITY TO PARTICIPATE IN SETTING GOALS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.8707	1	2.8707	3.377
Within Groups	171.7322	202	.8502	
Total	174.6030	203		

F Probability = .064 Bartlett's Homogeneity Test P = .000

TABLE 58

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-d BY EDUCATIONAL PREPARATION GROUPS
(OPPORTUNITY TO DETERMINE METHODS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0362	1	.0362	.046
Within Groups	160.9394	203	.7928	
Total	160.9756	204		

F Probability = .814 Bartlett's Homogeneity Test P = .897

TABLE 59

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-a BY EDUCATIONAL PREPARATION GROUPS
(OPPORTUNITY FOR GROWTH AND DEVELOPMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	12.1572	1	12.1572	6.731
Within Groups	364.8381	202	1.8061	
Total	376.9954	203		

F Probability = .010 Bartlett's Homogeneity Test P = .067

TABLE 60

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-b BY EDUCATIONAL PREPARATION GROUPS
(FEELING OF SELF-FULFILLMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	5.3853	1	5.3853	3.674
Within Groups	297.5710	203	1.4659	
Total	302.9563	204		

F Probability = .054 Bartlett's Homogeneity Test P = .198

TABLE 61

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-c BY EDUCATIONAL PREPARATION GROUPS
(FEELING OF ACCOMPLISHMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.6079	1	2.6079	1.979
Within Groups	266.1372	202	1.3175	
Total	268.7451	203		

F Probability = .157 Bartlett's Homogeneity Test P = .519

TABLE 62

SUMMARY OF STATISTICAL FINDINGS FOR VARIABLE FOUR
EDUCATIONAL PREPARATION OF ADMINISTRATORS

Group 1 - Master's Degree (n = 50) Group 2 - Doctor's Degree (n = 155)

Need Categories and Items	Group 1 Mean	Group 2 Mean	Significance
I. Security Needs			
a. (security in job)	.72	.85	ns
II. Social Needs	(.58)	(.84)	
a. (opportunity to help people)	.36	.50	ns
b. (opportunity for friendships)	.80	1.18	ns[a]
III. Esteem Needs	(.62)	(.63)	
a. (feeling of self-esteem)	.78	.83	ns
b. (prestige inside institution)	.40	.60	ns
c. (prestige outside institution)	.68	.45	ns[a]
IV. Autonomy Needs	(.42)	(.65)	
a. (authority in position)	.36	.55	ns
b. (opportunity for independent thought and action)	.64	1.06	.04
c. (opportunity to participate in setting goals)	.24	.52	ns
d. (opportunity to participate in determining methods)	.44	.47	ns
V. Self-Actualization Needs	(1.89)	(1.27)	
a. (opportunity for growth and development)	.90	1.46	.01
b. (feeling of self-fulfillment)	.90	1.28	.05
c. (feeling of accomplishment)	.88	1.08	ns

Note: The larger the mean, the less the need satisfaction.

ns means not significant at .05 level of significance as determined by a one-way ANOVA (F probability).

ns[a] means not significant at .05 level but less than .10.

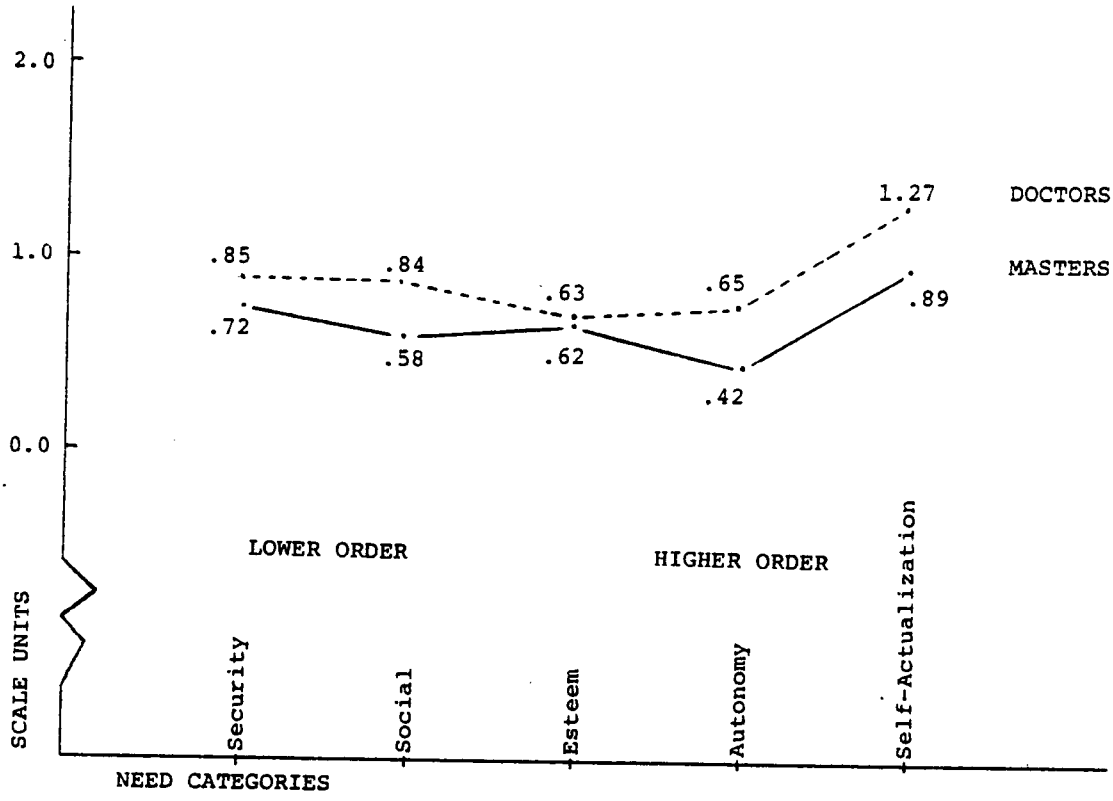


FIGURE 4

MEAN SCORES OF PERCEIVED DEFICIENCIES IN NEED CATEGORIES FOR EDUCATIONAL PREPARATION GROUPS

H_o 5. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to religious preference on any of the 13 administrative characteristics: Rejected.

Data analyses Tables 63 through 75 summarize the computation for the one-way analyses of variance on this hypothesis. As shown in Table 73 (p. 94), a significant difference was found between Protestant administrators and non-Protestant administrators on the following characteristic: V-a "The opportunity for personal growth and development in my administrative position." The F-ratio summation for this item is: $F(1,219) = 3.563 < .05$. As seen in summary Table 76, (p. 96) the mean perception of the Protestant group on this item was 1.20 and the mean perception on the non-Protestant group was 1.64. Therefore, the research finding was that non-Protestants had a significantly higher need deficiency than Protestants in their average responses to this job characteristic.

A significant F probability was found on item III-c (Table 68, p. 92). However, the Bartlett's homogeneity test probability was less than .05; thus the significant F finding was not concluded to be reliable.

Figure 5 (p. 97) shows the mean scores of perceived deficiencies in need categories for the two religious preference groups.

TABLE 63

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM I-a BY RELIGIOUS PREFERENCE GROUPS (SECURITY IN JOB)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	4.3960	1	4.3960	2.817
Within Groups	341.7214	219	1.5604	
Total	346.1174	220		

F Probability = .091 Bartlett's Homogeneity Test P = .084

TABLE 64

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM II-a BY RELIGIOUS PREFERENCE GROUPS (OPPORTUNITY TO HELP PEOPLE)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.4315	1	1.4315	2.362
Within Groups	133.3073	220	.6059	
Total	134.7388	221		

F Probability = .121 Bartlett's Homogeneity Test P = .000

TABLE 65

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM II-b BY RELIGIOUS PREFERENCE GROUPS (OPPORTUNITY FOR FRIENDSHIPS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	5.1644	1	5.1644	3.410
Within Groups	330.1809	218	1.5146	
Total	335.3455	219		

F Probability = .063 Bartlett's Homogeneity Test P = .758

TABLE 66

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-a BY RELIGIOUS PREFERENCE GROUPS
(FEELING OF SELF-ESTEEM)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.5585	1	.5585	.469
Within Groups	360.6812	219	1.1903	
Total	261.2397	220		

F Probability = .501 Bartlett's Homogeneity Test P = .885

TABLE 67

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-b BY RELIGIOUS PREFERENCE GROUPS
(PRESTIGE INSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.2629	1	.2629	.333
Within Groups	172.3689	218	.7907	
Total	172.6318	219		

F Probability = .572 Bartlett's Homogeneity Test P = .280

TABLE 68

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM III-c BY RELIGIOUS PREFERENCE GROUPS (PRESTIGE OUTSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.5044	1	2.5044	3.801
Within Groups	144.9550	220	.6589	
Total	147.4595	221		

F Probability = .050 Bartlett's Homogeneity Test P = .002

TABLE 69

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM IV-a BY RELIGIOUS PREFERENCE GROUPS (AUTHORITY IN POSITION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0701	1	.0701	.087
Within Groups	174.9299	218	.8024	
Total	175.0000	219		

F Probability = .761 Bartlett's Homogeneity Test P = .657

TABLE 70

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM IV-b BY RELIGIOUS PREFERENCE GROUPS (OPPORTUNITY FOR INDEPENDENT THOUGHT AND ACTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	3.9303	1	3.9303	2.617
Within Groups	328.8479	219	1.5016	
Total	332.7781	220		

F Probability = .103 Bartlett's Homogeneity Test P = .043

TABLE 71

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM IV-c BY RELIGIOUS PREFERENCE GROUPS (OPPORTUNITY TO PARTICIPATE IN SETTING GOALS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.6556	1	2.6556	3.314
Within Groups	175.5073	219	.8014	
Total	178.1629	220		

F Probability = .067 Bartlett's Homogeneity Test P = .011

TABLE 72

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM IV-d BY RELIGIOUS PREFERENCE GROUPS (OPPORTUNITY TO DETERMINE METHODS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.4144	1	1.4144	1.856
Within Groups	167.6352	220	.7620	
Total	169.0496	221		

F Probability = .171 Bartlett's Homogeneity Test P = .095

TABLE 73

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM V-a BY RELIGIOUS PREFERENCE GROUPS (OPPORTUNITY FOR GROWTH AND DEVELOPMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	6.3096	1	6.3096	3.563
Within Groups	387.8538	219	1.7710	
Total	394.1633	220		

F Probability = .057 Bartlett's Homogeneity Test P = .236

TABLE 74

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM V-b BY RELIGIOUS PREFERENCE GROUPS (FEELING OF SELF-FULFILLMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.8030	1	.8030	.546
Within Groups	323.6658	220	1.4712	
Total	324.4687	221		

F Probability = .467 Bartlett's Homogeneity Test P = .865

TABLE 75

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM V-c BY RELIGIOUS PREFERENCE GROUPS (FEELING OF ACCOMPLISHMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.3260	1	.3260	.254
Within Groups	281.2214	219	1.2841	
Total	281.5476	220		

F Probability = .621 Bartlett's Homogeneity Test P = .376

TABLE 76

SUMMARY OF STATISTICAL FINDINGS FOR VARIABLE FIVE
RELIGIOUS PREFERENCE OF ADMINISTRATORS

Group 1 - Protestant (n = 181) Group 2 - Non-Protestants (n = 39)

	Need Categories and Items	Group 1 Mean	Group 2 Mean	Significance
I.	Security Needs			
	a. (security in job)	.76	1.13	ns[a]
II.	Social Needs	(.69)	(1.00)	
	a. (opportunity to help people)	.40	.62	ns
	b. (opportunity for friendships)	.98	1.38	ns[a]
III.	Esteem Needs	(.65)	(.52)	
	a. (feeling of self-esteem)	.89	.69	ns
	b. (prestige inside institution)	.52	.62	ns
	c. (prestige outside institution)	.54	.26	ns
IV.	Autonomy Needs	(.57)	(.67)	
	a. (authority in position)	.51	.46	ns
	b. (opportunity for independent thought and action)	.90	1.26	ns[a]
	c. (opportunity to participate in setting goals)	.38	.67	ns
	d. (opportunity to participate in determining methods)	.49	.28	ns
V.	Self-Actualization Needs	(1.11)	(1.34)	
	a. (opportunity for growth and development)	1.20	1.64	.05
	b. (feeling of self-fulfillment)	1.10	1.26	ns
	c. (feeling of accomplishment)	1.02	1.13	ns

Note: The larger the mean, the less the need satisfaction.

ns means not significant at .05 level of significance as determined by a one-way ANOVA (F probability).

ns[a] means not significant at .05 level but less than .10.

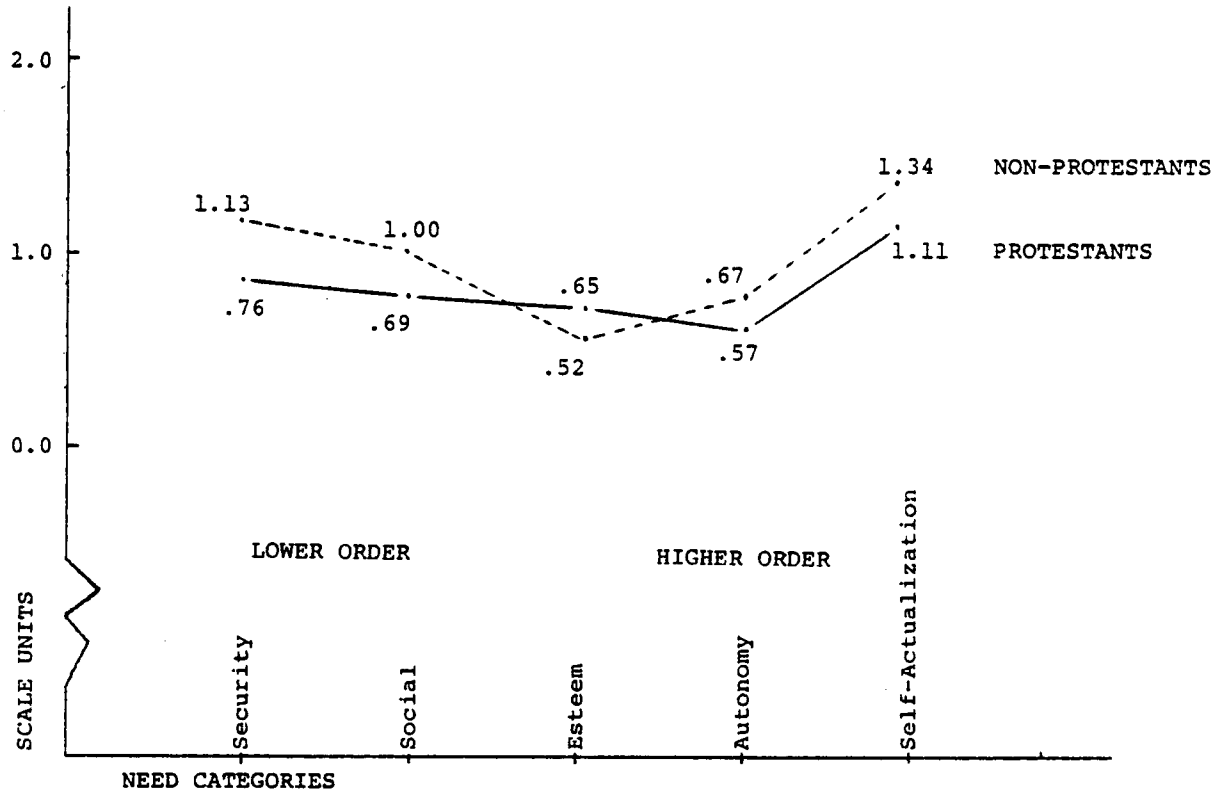


FIGURE 5

MEAN SCORES OF PERCEIVED DEFICIENCIES IN NEED CATEGORIES FOR RELIGIOUS PREFERENCE GROUPS

H_o 6. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to race on any of the 13 administrative characteristics: Rejected.

Data analyses Tables 77 through 89 show the results of the computation for this hypothesis. The findings of the data analyses are that the minority group had a significantly greater mean need deficiency than the Caucasian group on the following two administrative characteristics:

III-b "The prestige of my administrative position inside the institution (that is, the regard received from others in the institution)." Table 81 (p. 101) shows the F-ratio for this item to be: $F(1,217) = 3.955 < .05$.

III-c "The prestige of my administrative position outside the institution (that is, the regard received from others not in the institution)." Table 82 (p. 102) shows the F-ratio for this item to be: $F(1,219) = 4.601 < .05$.

Summary Table 90 (p. 106) shows the mean for the Caucasian group on item III-b as .50 and the mean for the minority group on the same item as .94. The means for item III-c are: Caucasians, .45; and minorities, .88.

Figure 6 (p. 107) shows the perceived deficiency mean scores of the two race groups in need categories.

TABLE 77

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM I-a BY RACE GROUPS
(SECURITY IN JOB)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.6592	1	.6592	.438
Within Groups	327.9363	218	1.5043	
Total	328.5955	219		

F Probability = .516 Bartlett's Homogeneity Test P = .737

TABLE 78

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-a BY RACE GROUPS
(OPPORTUNITY TO HELP PEOPLE)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.7300	1	.7300	1.215
Within Groups	131.5686	219	.6008	
Total	132.2986	220		

F Probability = .271 Bartlett's Homogeneity Test P = .006

TABLE 79

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-b BY RACE GROUPS
(OPPORTUNITY FOR FRIENDSHIPS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.9471	1	.9471	.616
Within Groups	333.5002	217	1.5369	
Total	334.4475	218		

F Probability = .439 Bartlett's Homogeneity Test P = .786

TABLE 80

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-a BY RACE GROUPS
(FEELING OF SELF-ESTEEM)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	3.6382	1	3.6382	3.138
Within Groups	252.7436	218	1.1594	
Total	256.3818	219		

F Probability = .074 Bartlett's Homogeneity Test P = .797

TABLE 81

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-b BY RACE GROUPS
(PRESTIGE INSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	3.0520	1	3.0520	3.955
Within Groups	167.4412	217	.7716	
Total	170.4932	218		

F Probability = .045 Bartlett's Homogeneity Test P = .082

TABLE 82

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-c BY RACE GROUPS
(PRESTIGE OUTSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.9868	1	2.9868	4.601
Within Groups	142.1716	219	.6492	
Total	145.1584	220		

F Probability = .031 Bartlett's Homogeneity Test P = .391

TABLE 83

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-a BY RACE GROUPS
(AUTHORITY IN POSITION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.4570	1	2.4570	3.095
Within Groups	172.2919	217	.7940	
Total	174.7489	218		

F Probability = .076 Bartlett's Homogeneity Test P = .004

TABLE 84

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-b BY RACE GROUPS
(OPPORTUNITY FOR INDEPENDENT THOUGHT AND ACTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.4901	1	.4901	.331
Within Groups	323.0552	218	1.4819	
Total	323.5454	219		

F Probability = .573 Bartlett's Homogeneity Test P = .269

TABLE 85

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-c BY RACE GROUPS
(OPPORTUNITY TO PARTICIPATE IN SETTING GOALS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0557	1	.0557	.068
Within Groups	177.9216	218	.8162	
Total	177.9773	219		

F Probability = .783 Bartlett's Homogeneity Test P = .236

TABLE 86

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-d BY RACE GROUPS
(OPPORTUNITY TO DETERMINE METHODS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.3624	1	.3624	.477
Within Groups	166.2892	219	.7593	
Total	166.6516	220		

F Probability = .498 Bartlett's Homogeneity Test P = .614

TABLE 87

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-a BY RACE GROUPS
(OPPORTUNITY FOR GROWTH AND DEVELOPMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.1873	1	.1873	.104
Within Groups	393.8994	218	1.8069	
Total	394.0867	219		

F Probability = .744 Bartlett's Homogeneity Test P = .071

TABLE 88

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-b BY RACE GROUPS
(FEELING OF SELF-FULFILLMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0737	1	.0737	.050
Within Groups	323.6279	219	1.4778	
Total	323.7017	220		

F Probability = .808 Bartlett's Homogeneity Test P = .728

TABLE 89

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-c BY RACE GROUPS
(FEELING OF ACCOMPLISHMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.7220	1	.7220	.560
Within Groups	280.8235	218	1.2882	
Total	281.5454	219		

F Probability = .461 Bartlett's Homogeneity Test P = .724

TABLE 90

SUMMARY OF STATISTICAL FINDINGS FOR VARIABLE SIX
RACE OF ADMINISTRATORS

Group 1 - Caucasian (n = 203)		Group 2 - Minority (n = 17)	
Need Categories and Items	Group 1 Mean	Group 2 Mean	Significance
I. Security Needs			
a. (security in job)	.79	1.00	ns
II. Social Needs	(.76)	(.53)	
a. (opportunity to help people)	.45	.24	ns
b. (opportunity for friendships)	1.07	.82	ns
III. Esteem Needs	(.57)	(1.02)	
a. (feeling of self-esteem)	.75	1.24	ns[a]
b. (prestige inside institution)	.50	.94	.04
c. (prestige outside institution)	.45	.88	.03
IV. Autonomy Needs	(.57)	(.74)	
a. (authority in position)	.47	.87	ns
b. (opportunity for independent thought and action)	.94	1.12	ns
c. (opportunity to participate in setting goals)	.44	.37	ns
d. (opportunity to participate in determining methods)	.44	.59	ns
V. Self-Actualization Needs	(1.18)	(1.16)	
a. (opportunity for growth and development)	1.28	1.18	ns
b. (feeling of self-fulfillment)	1.23	1.06	ns
c. (feeling of accomplishment)	1.03	1.25	ns

Note: The larger the mean, the less the need satisfaction.

ns means not significant at .05 level of significance as determined by a one-way ANOVA (F probability).

ns[a] means not significant at .05 level but less than .10.

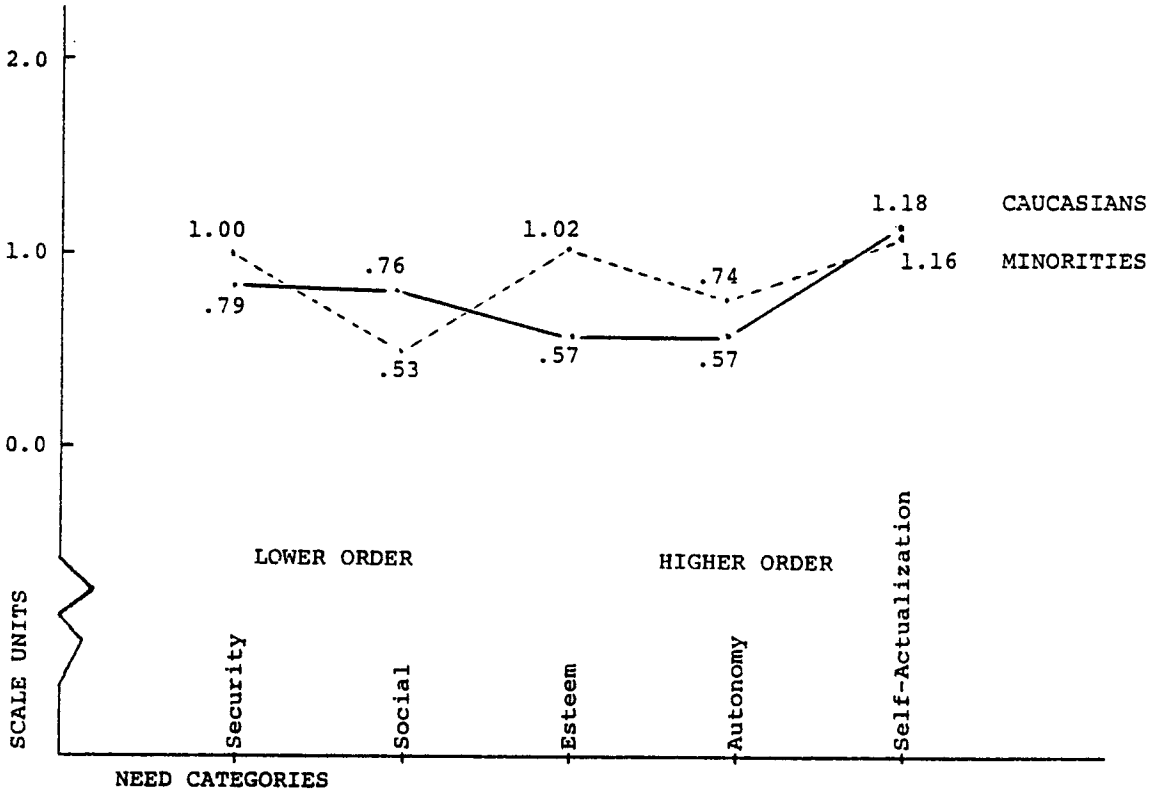


FIGURE 6

MEAN SCORES OF PERCEIVED DEFICIENCIES IN NEED CATEGORIES FOR RACE GROUPS

H_o 7. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to institutional type on any of the 13 administrative characteristics: Rejected.

Data analyses Tables 91 through 103 show that administrators in four-year and above colleges and universities had significantly higher mean need deficiencies than the means of administrators in two-year colleges on the following two administrative characteristics:

II-a "The opportunity in my administrative position to give help to other people." Table 92 (p. 110) shows the F-ratio to be: $F(1,220) = 3.753 < .05$.

V-a "The opportunity for personal growth and development in my administrative position." Table 101 (p. 114) shows the F-ratio on this item as: $F(1,219) = 3.970 < .05$.

Summary Table 104 (p. 116) shows the means of the two groups for the significant items as follows: II-a the mean of the administrators in two-year colleges and universities is .33 as compared to the mean for administrators in four-year and above colleges and universities, which was .53; V-a the mean of the two-year administrators group is 1.08 and the mean for the four-year and above administrators group is 1.43.

Although items II-b and IV-b had significant F probabilities, they were not accepted because of lack of homogeneity of variance as determined by the Bartlett's Test.

Figure 7 (p. 121) shows the mean scores of perceived deficiencies in the need categories for administrators grouped according to institutional types. It can be seen that the administrators in the four-year and above institutions were higher in their perceived need deficiencies for both the lower order and higher order needs than were administrators of two-year institutions.

TABLE 91

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM I-a BY INSTITUTIONAL TYPES GROUPS (SECURITY IN JOB)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.7372	1	.7372	.467
Within Groups	345.3804	219	1.5771	
Total	346.1174	220		

F Probability = .502 Bartlett's Homogeneity Test P = .636

TABLE 92

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM II-a BY INSTITUTIONAL TYPES GROUPS (OPPORTUNITY TO HELP PEOPLE)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.2599	1	2.2599	3.753
Within Groups	132.4789	220	.6022	
Total	134.7388	221		

F Probability = .051 Bartlett's Homogeneity Test P = .121

TABLE 93

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM II-b BY INSTITUTIONAL TYPES GROUPS (OPPORTUNITY FOR FRIENDSHIPS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	11.8484	1	11.8484	7.984
Within Groups	323.4971	218	1.4839	
Total	335.3455	219		

F Probability = .005 Bartlett's Homogeneity Test P = .049

TABLE 94

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-a BY INSTITUTIONAL TYPES GROUPS
(FEELING OF SELF-ESTEEM)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.3056	1	.3056	.256
Within Groups	260.9341	219	1.1915	
Total	261.2397	220		

F Probability = .619 Bartlett's Homogeneity Test P = .103

TABLE 95

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-b BY INSTITUTIONAL TYPES GROUPS
(PRESTIGE INSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.9218	1	.9218	1.170
Within Groups	171.7100	218	.7877	
Total	172.6318	219		

F Probability = .280 Bartlett's Homogeneity Test P = .102

TABLE 96

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-c BY INSTITUTIONAL TYPES GROUPS
(PRESTIGE OUTSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.1277	1	.1277	.191
Within Groups	147.3318	220	.6697	
Total	147.4595	221		

F Probability = .666 Bartlett's Homogeneity Test P = .817

TABLE 97

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-a BY INSTITUTIONAL TYPES GROUPS
(AUTHORITY IN POSITION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0413	1	.0413	.051
Within Groups	174.9587	218	.8026	
Total	175.0000	219		

F Probability = .805 Bartlett's Homogeneity Test P = .475

TABLE 98

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-b BY INSTITUTIONAL TYPES GROUPS
(OPPORTUNITY FOR INDEPENDENT THOUGHT AND ACTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	11.2629	1	11.2629	7.672
Within Groups	321.5154	219	1.4681	
Total	332.7781	220		

F Probability = .006 Bartlett's Homogeneity Test P = .049

TABLE 99

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-c BY INSTITUTIONAL TYPES GROUPS
(OPPORTUNITY TO PARTICIPATE IN SETTING GOALS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.2314	1	.2314	.285
Within Groups	177.9315	219	.8125	
Total	178.1629	220		

F Probability = .601 Bartlett's Homogeneity Test P = .487

TABLE 100

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM IV-d BY INSTITUTIONAL TYPES GROUPS (OPPORTUNITY TO DETERMINE METHODS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.0248	1	1.0248	1.342
Within Groups	168.0248	220	.7637	
Total	169.0496	221		

F Probability = .246 Bartlett's Homogeneity Test P = .004

TABLE 101

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM V-a BY INSTITUTIONAL TYPES GROUPS (OPPORTUNITY FOR GROWTH AND DEVELOPMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	7.0181	1	7.0181	3.970
Within Groups	387.1453	219	1.7678	
Total	394.1633	220		

F Probability = .045 Bartlett's Homogeneity Test P = .234

TABLE 102

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-b BY INSTITUTIONAL TYPES GROUPS
(FEELING OF SELF-FULFILLMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.0544	1	1.0544	.717
Within Groups	323.4143	220	1.4701	
Total	324.4687	221		

F Probability = .403 Bartlett's Homogeneity Test P = .488

TABLE 103

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-c BY INSTITUTIONAL TYPES GROUPS
(FEELING OF ACCOMPLISHMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	3.3411	1	3.3411	2.630
Within Groups	278.2065	219	1.2703	
Total	281.5476	220		

F Probability = .102 Bartlett's Homogeneity Test P = .094

TABLE 104

SUMMARY OF STATISTICAL FINDINGS FOR VARIABLE SEVEN
TYPE OF INSTITUTIONS

Group 1 - Two-Year (n = 100) Group 2 - Four-Year Above (n = 121)

	Need Categories and Items	Group 1 Mean	Group 2 Mean	Significance
I.	Security Needs			
	a. (security in job)	.76	.88	ns
II.	Social Needs	(.57)	(.90)	
	a. (opportunity to help people)	.33	.53	.05
	b. (opportunity for friendships)	.80	1.26	ns
III.	Esteem Needs	(.56)	(.65)	
	a. (authority in position)	.76	.83	ns
	b. (prestige inside institution)	.47	.60	ns
	c. (prestige outside institution)	.46	.51	ns
IV.	Autonomy Needs	(.53)	(.63)	
	a. (authority in position)	.48	.51	ns
	b. (opportunity for independent thought and action)	.72	1.17	ns
	c. (opportunity to participate in setting goals)	.39	.46	ns
	d. (opportunity to participate in determining methods)	.53	.39	ns
V.	Self-Actualization Needs	(1.01)	(1.26	
	a. (opportunity for growth and development)	1.08	1.43	.04
	b. (feeling of self-fulfillment)	1.05	1.19	ns
	c. (feeling of accomplishment)	.91	1.16	ns

Note: The larger the mean, the less the need satisfaction.

ns means not significant at .05 level of significance as determined by a one-way ANOVA (F probability).

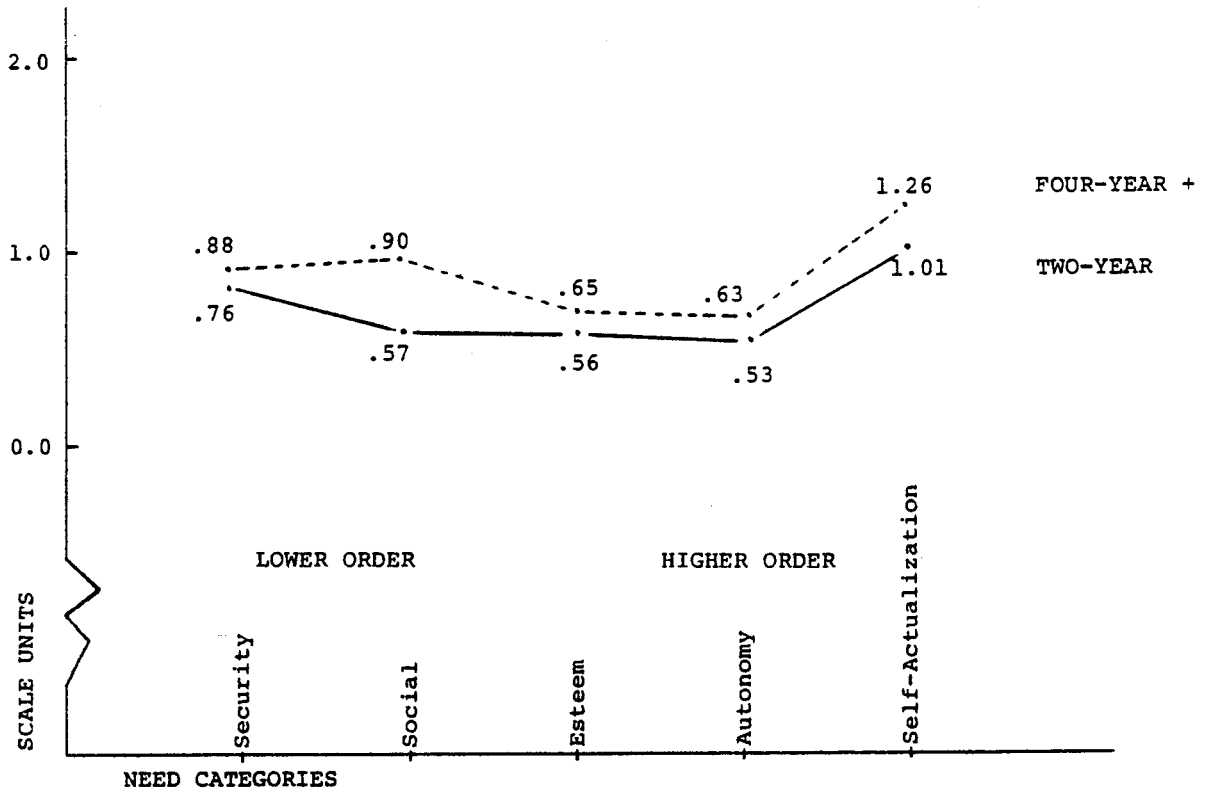


FIGURE 7

MEAN SCORES OF PERCEIVED DEFICIENCIES IN NEED CATEGORIES FOR INSTITUTIONAL TYPES GROUPS

H_o 8. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to full-time enrollment of their institutions on any of the 13 administrative characteristics: Confirmed.

Tables 105 through 117 show that there were no significant F-ratios on any of the 13 analyses of variance. The F probability as seen in Table 112 (p. 122) is .03; however, the Bartlett's homogeneity probability is .001. Therefore, the F test was concluded to be unreliable.

A comparison of the summary Table 118 (p. 125) with Figure 8 (p. 126) reveals that there were no distinguishable patterns in need deficiencies between the administrators grouped according to the size of their institutions.

TABLE 105

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM I-a BY FTE GROUPS (SECURITY IN JOB)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.3675	1	.3675	.233
Within Groups	345.7500	219	1.5788	
Total	346.1174	220		

F Probability = .635 Bartlett's Homogeneity Test P = .214

TABLE 106

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-a BY FTE GROUPS
(OPPORTUNITY TO HELP PEOPLE)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0919	1	.0919	.150
Within Groups	134.6468	220	.6120	
Total	134.7388	221		

F Probability = .700 Bartlett's Homogeneity Test P = .821

TABLE 107

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-b BY FTE GROUPS
(OPPORTUNITY FOR FRIENDSHIPS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0692	1	.0692	.045
Within Groups	335.2761	218	1.5380	
Total	335.3455	219		

F Probability = .815 Bartlett's Homogeneity Test P = .679

TABLE 108

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-a BY FTE GROUPS
(FEELING OF SELF-ESTEEM)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0890	1	.0890	.075
Within Groups	261.1506	219	1.1925	
Total	261.2397	220		

F Probability = .776 Bartlett's Homogeneity Test P = .290

TABLE 109

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-b BY FTE GROUPS
(PRESTIGE INSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0594	1	.0594	.075
Within Groups	172.5724	218	.7916	
Total	172.6318	219		

F Probability = .775 Bartlett's Homogeneity Test P = .689

TABLE 110

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-c BY FTE GROUPS
(PRESTIGE OUTSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0187	1	.0187	.028
Within Groups	147.4408	220	.6702	
Total	147.4595	221		

F Probability = .843 Bartlett's Homogeneity Test P = .436

TABLE 111

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-a BY FTE GROUPS
(AUTHORITY IN POSITION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.3622	1	1.3622	1.710
Within Groups	173.6378	218	.7965	
Total	175.0000	219		

F Probability = .189 Bartlett's Homogeneity Test P = .000

TABLE 112

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-b BY FTE GROUPS
(OPPORTUNITY FOR INDEPENDENT THOUGHT AND ACTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	6.9387	1	6.9387	4.664
Within Groups	325.8396	219	1.4879	
Total	332.7781	220		

F Probability = .030 Bartlett's Homogeneity Test P = .001

TABLE 113

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-c BY FTE GROUPS
(OPPORTUNITY TO PARTICIPATE IN SETTING GOALS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.7302	1	.7302	.901
Within Groups	177.4327	219	.8102	
Total	178.1629	220		

F Probability = .346 Bartlett's Homogeneity Test P = .017

TABLE 114

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-d BY FTE GROUPS
(OPPORTUNITY TO DETERMINE METHODS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.5540	1	.5540	.723
Within Groups	168.4955	220	.7659	
Total	169.0496	221		

F Probability = .401 Bartlett's Homogeneity Test P = .032

TABLE 115

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-a BY FTE GROUPS
(OPPORTUNITY FOR GROWTH AND DEVELOPMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.8354	1	.8354	.465
Within Groups	393.3279	219	1.7960	
Total	394.1633	220		

F Probability = .503 Bartlett's Homogeneity Test P = .074

TABLE 116

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-b BY FTE GROUPS
(FEELING OF SELF-FULFILLMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0984	1	.0984	.067
Within Groups	324.3704	220	1.4744	
Total	324.4687	221		

F Probability = .785 Bartlett's Homogeneity Test P = .522

TABLE 117

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-c BY FTE GROUPS
(FEELING OF ACCOMPLISHMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	2.9730	1	2.9730	2.337
Within Groups	278.5747	219	1.2720	
Total	281.5476	220		

F Probability = .123 Bartlett's Homogeneity Test P = .469

TABLE 118

SUMMARY OF STATISTICAL FINDINGS FOR VARIABLE EIGHT
FULL-TIME ENROLLMENT OF INSTITUTIONS

Group 1 - Below 3,000 (n = 151) Group 2 = Over 3,000 (n = 70)

Need Categories and Items	Group 1 Mean	Group 2 Mean	Significance
I. Security Needs			
a. (security in job)	.80	.88	ns
II. Social Needs	(.75)	(.75)	
a. (opportunity to help people)	.43	.47	ns
b. (opportunity for friendships)	1.07	1.03	ns
III. Esteem Needs	(.61)	(.61)	
a. (feeling of self-esteem)	.81	.77	ns
b. (prestige inside institution)	.53	.57	ns
c. (prestige outside institution)	.48	.50	ns
IV. Autonomy Needs	(.53)	(.72)	
a. (authority in position)	.45	.62	ns
b. (opportunity for independent thought and action)	.85	1.23	ns
c. (opportunity to participate in setting goals)	.39	.51	ns
d. (opportunity to participate in determining methods)	.42	.53	ns
V. Self-Actualization Needs	(1.13)	(1.19)	
a. (opportunity for growth and development)	1.32	1.19	ns
b. (feeling of self-fulfillment)	1.11	1.16	ns
c. (feeling of accomplishment)	.97	1.22	ns

Note: The larger the mean, the less the need staisfaction.

ns means not significant at .05 level of significance as determined by a one-way ANOVA (F probability).

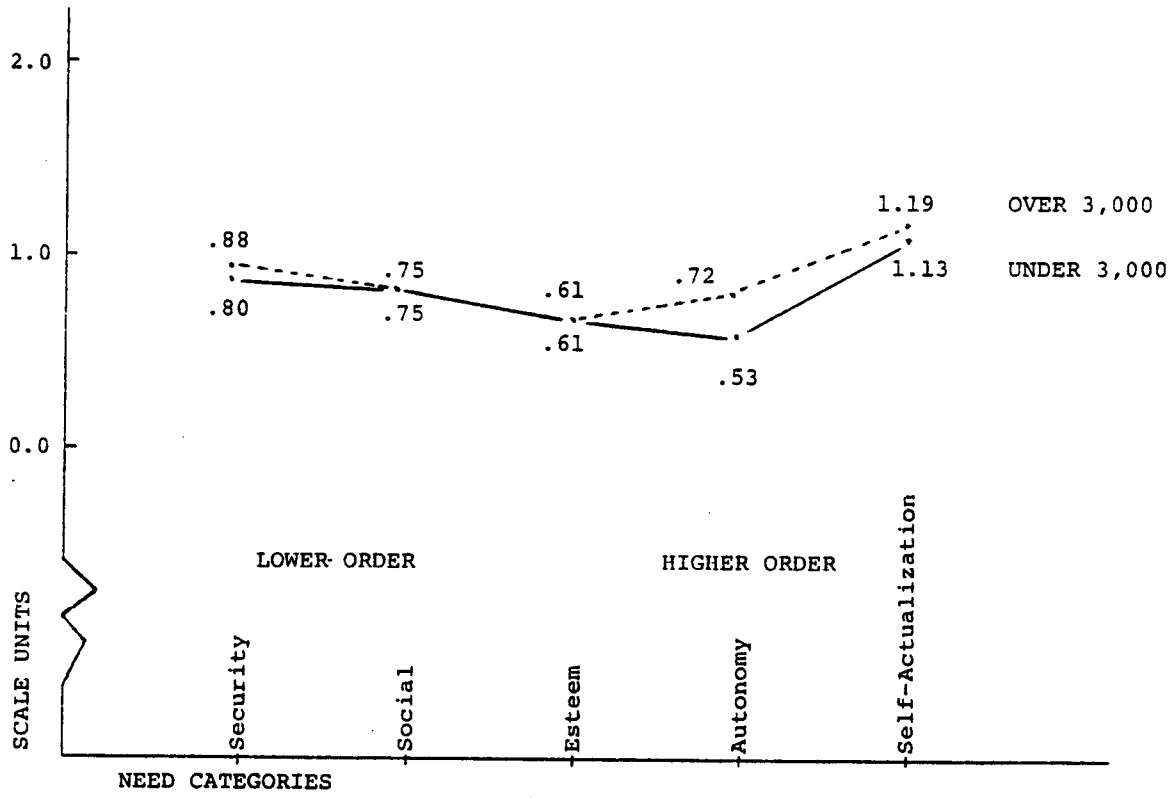


FIGURE 8

MEAN SCORES OF PERCEIVED DEFICIENCIES IN NEED CATEGORIES FOR FTE GROUPS

H_o 9. There is no difference in perceived need deficiencies between college and university administrators who are grouped according to the control of their institutions on any of the 13 administrative characteristics: Rejected.

ANOVA Tables 119 through 131 show the results of the data analyses computed for this hypothesis. It was found that administrators in private colleges and universities perceived a significantly greater mean need deficiency than did administrators in public institutions on the following item: II-b "Opportunity to develop close friendships in my administrative position." As shown in Table 121 (p. 129), the F-ratio summation of this item is: $F(1,217) = 5.436 < .05$. Summary Table 132 (p. 135) shows the mean of the public administrator group on this item to be .91 and the mean of the private administrator group to be 1.32.

Figure 9 (p. 136) shows the mean scores of perceived deficiencies in the need categories for the administrators grouped according to institutional control. The most distinguishable discrepancy was in the lower order need area with private administrators having a higher average deficiency in the social category.

Summary

This chapter has presented the data analyses of the research and stated the interpretation of the data in relation to the null hypotheses. Seven of the nine null hypotheses were rejected.

TABLE 119

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM I-a BY INSTITUTIONAL CONTROL GROUPS (SECURITY IN JOB)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0006	1	.0006	.000
Within Groups	345.4355	218	1.5846	
Total	345.4363	219		

F Probability = .932 Bartlett's Homogeneity Test P = .257

TABLE 120

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-a BY INSTITUTIONAL CONTROL GROUPS
(OPPORTUNITY TO HELP PEOPLE)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.7775	1	1.7775	2.932
Within Groups	132.7655	219	.6062	
Total	134.5430	220		

F Probability = .084 Bartlett's Homogeneity Test P = .208

TABLE 121

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM II-b BY INSTITUTIONAL CONTROL GROUPS
(OPPORTUNITY FOR FRIENDSHIPS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	8.1682	1	8.1682	5.436
Within Groups	326.0601	217	1.5026	
Total	334.2283	218		

F Probability = .020 Bartlett's Homogeneity Test P = .089

TABLE 122

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-a BY INSTITUTIONAL CONTROL GROUPS
(FEELING OF SELF-ESTEEM)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.2597	1	.2597	.217
Within Groups	260.3357	218	1.1942	
Total	260.5955	219		

F Probability = .646 Bartlett's Homogeneity Test P = .006

TABLE 123

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-b BY INSTITUTIONAL CONTROL GROUPS
(PRESTIGE INSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.0963	1	.0963	.123
Within Groups	170.3969	217	.7852	
Total	170.4932	218		

F Probability = .725 Bartlett's Homogeneity Test P = .579

TABLE 124

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM III-c BY INSTITUTIONAL CONTROL GROUPS
(PRESTIGE OUTSIDE THE INSTITUTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.3285	1	.3285	.490
Within Groups	146.8932	219	.6707	
Total	147.2217	220		

F Probability = .492 Bartlett's Homogeneity Test P = .268

TABLE 125

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-a BY INSTITUTIONAL CONTROL GROUPS
(AUTHORITY IN POSITION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	1.6606	1	1.6606	2.082
Within Groups	173.0882	217	.7976	
Total	174.7489	218		

F Probability = .146 Bartlett's Homogeneity Test P = .034

TABLE 126

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-b BY INSTITUTIONAL CONTROL GROUPS
(OPPORTUNITY FOR INDEPENDENT THOUGHT AND ACTION)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.1599	1	.1599	.105
Within Groups	331.6763	218	1.5215	
Total	331.8362	219		

F Probability = .742 Bartlett's Homogeneity Test P = .782

TABLE 127

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-c BY INSTITUTIONAL CONTROL GROUPS
(OPPORTUNITY TO PARTICIPATE IN SETTING GOALS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.1273	1	.1273	.156
Within Groups	177.8500	218	.8158	
Total	177.9773	219		

F Probability = .695 Bartlett's Homogeneity Test P = .154

TABLE 128

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM IV-d BY INSTITUTIONAL CONTROL GROUPS
(OPPORTUNITY TO DETERMINE METHODS)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.4076	1	.4076	.530
Within Groups	168.4341	219	.7691	
Total	168.8416	220		

F Probability = .474 Bartlett's Homogeneity Test P = .065

TABLE 129

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES
FOR ITEM V-a BY INSTITUTIONAL CONTROL GROUPS
(OPPORTUNITY FOR GROWTH AND DEVELOPMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	5.5322	1	5.5322	3.116
Within Groups	386.9954	218	1.7752	
Total	392.5276	219		

F Probability = .075 Bartlett's Homogeneity Test P = .004

TABLE 130

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM V-b BY INSTITUTIONAL CONTROL GROUPS (FEELING OF SELF-FULFILLMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.5933	1	.5933	.403
Within Groups	322.6016	219	1.4731	
Total	323.1948	220		

F Probability = .534 Bartlett's Homogeneity Test P = .341

TABLE 131

ONE-WAY ANALYSIS OF VARIANCE OF MEAN SCORES FOR ITEM V-c BY INSTITUTIONAL CONTROL GROUPS (FEELING OF ACCOMPLISHMENT)

Source of Variation	Sum of Squares	df	Mean Square	F
Between Groups	.1366	1	.1366	.106
Within Groups	281.4089	218	1.2909	
Total	281.5454	219		

F Probability = .741 Bartlett's Homogeneity Test P = .500

TABLE 132

SUMMARY OF STATISTICAL FINDINGS FOR VARIABLE NINE
CONTROL OF INSTITUTIONS

Need Categories and Items	Group 1 - Public (n = 140) Mean	Group 2 - Private (n = 80) Mean	Significance
I. Security Needs			
a. (security in job)	.83	.82	ns
II. Social Needs	(.64)	(.94)	
a. (opportunity to help people)	.38	.56	ns[a]
b. (opportunity for friendships)	.91	1.32	.02
III. Esteem Needs	(.62)	(.60)	
a. (feeling of self-esteem)	.78	.85	ns
b. (prestige inside institution)	.55	.50	ns
c. (prestige outside institution)	.52	.44	ns
IV. Autonomy Needs	(.63)	(.53)	
a. (authority in position)	.57	.39	ns
b. (opportunity for independent thought and action)	.99	.94	ns
c. (opportunity to participate in setting goals)	.45	.40	ns
d. (opportunity to participate in determining methods)	.49	.40	ns
V. Self-Actualization Needs	(1.23)	(1.10)	
a. (opportunity for growth and development)	1.16	1.49	ns
b. (feeling of self-fulfillment)	1.09	1.20	ns
c. (feeling of accomplishment)	1.06	1.01	ns

Note: The larger the mean, the less the need satisfaction.

ns means not significant at .05 level of significance as determined by a one-way ANOVA (F probability).

ns[a] means not significant at .05 level but less than .10.

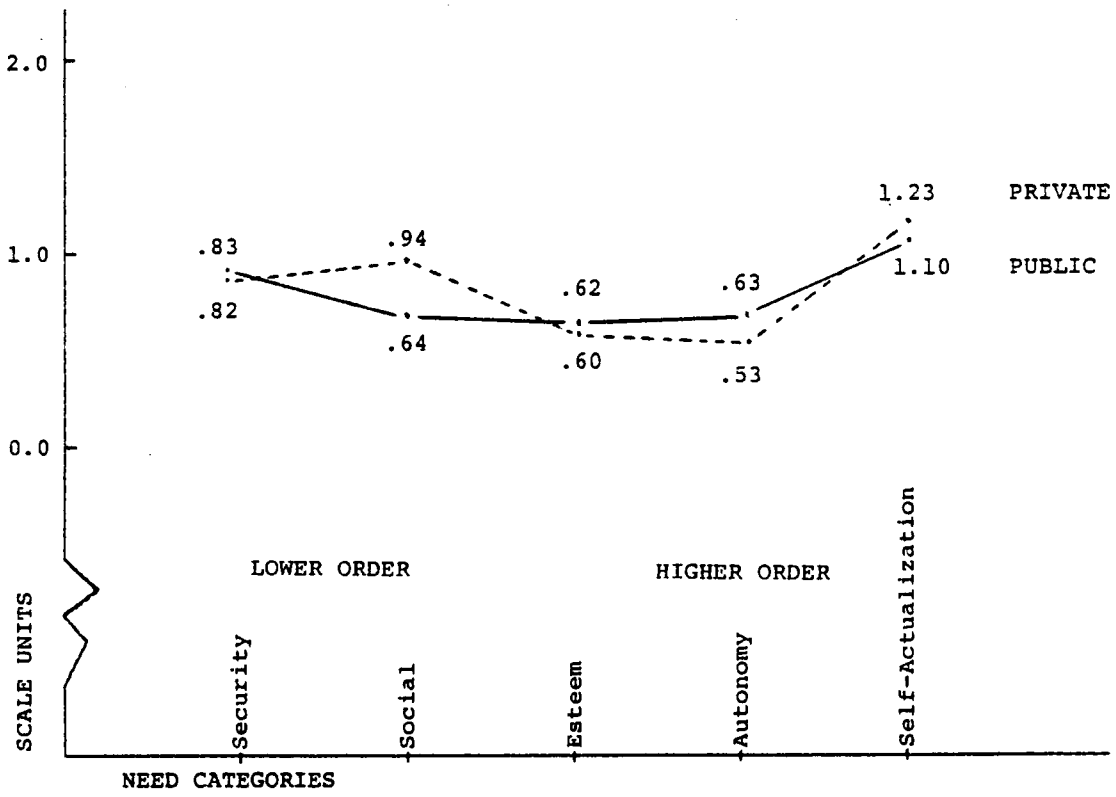


FIGURE 9

MEAN SCORES OF PERCEIVED DEFICIENCIES IN NEED CATEGORIES FOR CONTROL GROUPS

CHAPTER V

SUMMARY

The purpose of this study was to survey perceived need deficiencies of college and university presidents and academic deans. Of major interest was the determination of what effect the differential job levels of the two administrative positions have on the administrator's responses to perceived job characteristics.

Although studies of job satisfaction of workers in business and industry have been replicated many times, little research has been reported of the job satisfaction of college administrators.

This study followed the methodology used by Lyman W. Porter (1961, 1962) who studied job satisfaction as perceived need fulfillment of managers in business and industry. The questionnaire, which was revised for application to the population of the study, was originated by Porter to relate to five need categories similar to those in Maslow's need hierarchy.

In addition to reporting the demographic data, administrators who were selected to participate in the study on a stratified random basis completed the questionnaire by giving two responses to each of the 13 statements of job characteristics. The first response to each statement was given by rating on a Likert-type seven-point scale the amount of

the characteristic which the administrator presently perceived as being a characteristic in his administrative position. The second response was indicated on an identical scale to report the amount of the characteristic which the administrator believed should be a characteristic of his administrative position. A perceived need deficiency was indicated when the numeric value of the second response exceeded the numeric value of the first response. The magnitude of the deficiency was measured by the numeric difference between the two responses. Thus it was concluded that the greater the difference between the two responses, the greater the need deficiency.

The population of this study to which the findings can be inferred are the 671 chief academic officers and the 671 chief executive officers of institutions accredited by the Southern Association of Colleges and Schools. Sixteen percent (224) of the population's total of 1,342 administrators responded to the questionnaire. The procedure for randomization was based upon a stratification of institution by type as listed in the Proceedings (March, 1976) of the Southern Association of Colleges and Schools. From the total sample of 300 administrators, 224 usable questionnaires (74.6 percent) were completed and returned.

The Findings

The one-way analysis of variance statistical technique was used to analyze the data.

Nine null hypotheses were stated with reference to the 13 individual job characteristic statements on the questionnaire. Seven of the nine null hypotheses were statistically rejected by one-way analyses of variance at the .05 confidence level.

The following independent variables were controlled for in data analyses: (1) position, (2) tenure, (3) age, (4) educational preparation, (5) religious preference, (6) race, (7) type, (8) full-time enrollment, and (9) control of the institution.

For variable 1, a significant difference was found between deans and presidents in their responses to the following questionnaire item: "The feeling of worthwhile accomplishment in my administrative position." The mean response given by the presidents was significantly higher than the average response given by the deans on this statement which falls in the higher order need area of self-actualization. Although not significant at the .05 level, the perceived need deficiencies of the presidents were higher than deans on six of the other nine items in the higher order need categories.

Administrators with 42 months or less tenure in their positions were found to be significantly more deficient in their perceived need satisfaction in relation to three higher order job characteristics. These characteristics as stated in the questionnaire were:

1. "The opportunity for personal growth and

development in my administrative position."

2. "The feeling of self-fulfillment a person gets from being in my administrative position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities)."

3. "The feeling of worthwhile accomplishment in my administrative position."

For variable 3, there were no significant differences between the three age groups of college and university administrators. The null hypothesis related to age was confirmed.

Significant differences were found between administrators with master's degrees and administrators with doctor's degrees on the following three job characteristics:

1. "The opportunity for independent thought and action in my administrative position."

2. "The opportunity for personal growth and development in my administrative position."

3. "The feeling of self-fulfillment a person gets from being in my administrative position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities)."

The doctor's degree group had significantly higher need deficiencies on these three items than the master's degree group. Additionally, the doctor's degree group averaged a higher perceived need deficiency than the master's

degree group on 12 of the 13 questionnaire items.

On variable 5, non-Protestants were found to have a significantly higher need deficiency than Protestants in their mean responses to the following job characteristic: "The opportunity for personal growth and development in my administrative position." Differences between the two groups approached significance with the same interpretation in three other job characteristics.

Two significant differences were found between the means of Caucasian administrators and administrators of minority races. On the following questionnaire items related to prestige, minority administrators had a significantly higher mean need deficiency than did the Caucasian administrators:

1. "The prestige of my administrative position inside the institution (that is, the regard received from others in the institution)."

2. "The prestige of my administrative position outside the institution (that is, the regard received from others not in the institution)."

For variable 7, it was found that administrators in four-year and above colleges and universities had significantly higher mean need deficiencies than did administrators in two-year colleges on the following characteristics:

1. "The opportunity in my administrative position to give help to other people."

2. "The opportunity for personal growth and development in my administrative position."

The first characteristic is related to social satisfaction, and the latter related to self-actualization. Administrators from four-year institutions averaged a higher need deficiency on 11 of the 13 questionnaire items.

No significant differences were found between the means of administrators grouped according to institutional size. Administrators employed in institutions of higher learning with less than 3,000 full-time student enrollment were compared with administrators employed in institutions with full-time enrollments over 3,000.

On variable 9, administrators in private colleges and universities reported a significantly greater average need deficiency than did administrators in public institutions on the following questionnaire item: "The opportunity to develop close friendships in my administrative position."

Conclusions

This study has investigated the psychological phenomenon of differences in perception of personal needs fulfillment of the 224 college and university administrators who participated in the study. Of the 117 statistical procedures calculated on the data, 13 indicated nonchance (.05 confidence level) differences between the groups in their responses to the questionnaire. Based on the findings of

the research, the following conclusive statements are inferred to the population of the study:

1. Academic deans tend to perceive the job characteristics which are related to the higher level needs (autonomy and self-actualization) as more deficient than do the presidents.

2. Administrators with 42 months or less tenure tend to have higher need deficiencies in the higher order need areas of autonomy and self-actualization, than administrators with more than 42 months tenure.

3. Age was not found to be a factor in differentiating perceived need deficiencies of college and university administrators.

4. College and university administrators with earned doctor's degrees tend to perceive more need deficiency than do their colleagues with master's degrees.

5. Non-Protestants have a higher need deficiency than Protestants with respect to the opportunity perceived for personal growth and development in their administrative positions.

6. Administrators of the minority races tend to have higher perceived deficiencies of needs related to prestige than do the Caucasian administrators.

7. Administrators in four-year institutions or above tend to have a higher average of need deficiency in their job characteristics than do administrators from two-year institutions.

8. Administrators employed in institutions with less than 3,000 students do not perceive their job characteristics differently than administrators in institutions with full-time enrollments over 3,000.

9. Administrators from private colleges and universities perceive less opportunities in their positions to develop close friendships than do administrators in public institutions.

Comparison of Research Findings with Previously Reported Literature

In this section the results of the research are discussed in light of the literature reviewed in Chapter II. The findings for each independent variable of this study will be compared and contrasted to those previously reported.

Porter (1962), Trusty and Sergiovanni (1966), and Brown (1973) all found vertical job position to be a significant determiner in the satisfaction of the high order needs. The findings of this study tend to confirm those conclusions in that the deans were significantly more deficient in their perception of need fulfillment on one item at the self-actualization level. Also in five of the seven items which make up the upper division categories of autonomy and self-actualization, the deans' average deficiencies were higher than that of the presidents.

In relation to length of experience or tenure, two

previous studies had contradicted. Trusty and Sergiovanni (1966) did not find years of experience to be a significant factor in perceived need fulfillment of secondary school administrators. However, in the conclusion of the New York Regent's Study it was stated that the more-satisfied presidents characteristically had longer administrative experience. The findings of this present study would tend to confirm the latter. It was found that administrators with 43 months or more tenure had significantly less need deficiency in higher order needs than administrators with shorter tenure.

As to the age of administrators, this research did not find significant differences in any category or on any item. Blunt (1972) had found significant discrepancies between age groups in the security need category. This research did not find the same. It did, however, support the findings of Dahl (1970), Trusty and Sergiovanni (1976), and Brown (1970), who all found no significant relationships between administrators' satisfaction and age.

Brown (1970) found level of education to be a significant factor in job satisfaction. His findings indicated that higher educational level resulted in greater need satisfaction. The results of this study did not confirm the conclusion that Brown drew from his findings. On three job characteristics, it was found that administrators holding the doctor's degree were significantly more deficient in

their perception of needs than were administrators with the master's degree. Furthermore, on 12 of the 13 characteristics the average perceived deficiency for administrators with doctor's degrees was greater than that of administrators with master's degrees. In the one exception (prestige outside the institution), the difference approached significance with administrators with master's degrees reporting a near significant higher deficiency than administrators with doctor's degrees.

Concerning institutional types, Dahl (1970) had reported that job satisfaction of junior college administrators was very high. The findings of this research would concur with Dahl's statement in that junior college administrators reported significantly smaller deficiencies on two job characteristics than administrators from four-year or above institutions. There was also an additional characteristic which approached significance with the same interpretation. Furthermore, on all 13 characteristics, administrators from the four-year institutions averaged a higher need deficiency than administrators from the two-year institutions.

Porter (1963) and Hussein (1968) found some relationship of need satisfaction to institutional size. Brown (1970) found no relation between administrators' need satisfaction and organizational size. The findings of this study confirm the latter. There was no discernable pattern or trends in

the average deficiencies between the administrators who were grouped according to institutional size.

As to the control factor of the institution, Porter and Mitchell (1967) and Paine et al. (1966) all found government sponsored officers and managers to be less satisfied than their civilian or private counterparts. This study did not find similar results. Conversely, a social need of administrators in private institutions was found to be significantly more deficient than those of administrators in publicly supported institutions.

Applications and Implications

The application of the empirical results of this study are both theoretical and practical. First, the research findings can be interpreted in light of Maslow's need hierarchy theory. If one accepts the face validity of the items from the instrument and their constitution of the various need categories, a number of interesting comparisons can be made with Maslow's need hierarchy. For example, self-actualization does appear to be highly valued by the college and university administrators who participated in this study in that job characteristics related to self-actualization were consistently more deficient than other need categories.

The research has practical application in that it does contribute to the occupational information for prospective administrators who would like to know how other administrators perceive characteristics in their jobs.

Some precaution should be taken, however, not to overgeneralize the evidence of this study to unrelated populations. Inferential statements of conclusions and projections are primarily restricted to academic deans and presidents of accredited institutions in the South.

Need for Additional Research

This study has been a preliminary report of perceived need deficiencies of college and university administrators. There is a need for additional studies using similar or divergent methodology. The results of future studies should be compared with this one to indicate strengths or weaknesses of the latter.

Replications of this study using another regional accrediting association as the population could give some indication as to the effect of geographic locations on perceived need deficiencies of administrators in higher education.

Perceptions of job characteristics of administrators in different academic roles and position levels should be surveyed for differential analysis. For example, differences in perceptions of need fulfillment between academic department heads and college and university vice presidents could be studied.

With additional research, and in time, there may emerge a better understanding of the vocational dynamics of administrators in higher education.

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APPENDIXES

APPENDIX A

FIRST LETTER MAILED

WITH

QUESTIONNAIRE

THE UNIVERSITY OF TENNESSEE
KNOXVILLE 37916
COLLEGE OF EDUCATION

DEPARTMENT OF
EDUCATIONAL ADMINISTRATION
AND SUPERVISION

January 4, 1977

Tenure of college and university administrators is at an all time low. Recent research states that the average length of employment for educational administrators in higher education is about four years.

Many factors may be contributing to this phenomenon. The problem of personal needs fulfillment seems to be one of the most important determiners of job satisfaction. In an effort to research the validity of this assumption, the enclosed questionnaire, which is based on Abraham Maslow's need hierarchy, has been selected for use in this study. The research proposes to help college and university administrators better understand the conditions which influence their positions.

Completion of the questionnaire will take just a few minutes of your valuable time. After completing, please return it in the enclosed envelope. This study is completely confidential; care will be taken not to identify the participants or their institutions.

If you would like to receive a summary of this study, separately return the enclosed post card, and a copy will be sent to you.

I hope you will cooperate in this project.

Sincerely yours,

L. W. Nichols
Project Director

LWN/mfs

APPENDIX B

THE QUESTIONNAIRE

This questionnaire is designed to study factors which relate to the administration of higher education. The purpose of this study can best be realized if you answer the items CAREFULLY and CANDIDLY.

Please respond by blackening the appropriate circle of each item.

The data collected from this questionnaire will be reported in such a way as to insure that the anonymity of the respondents is protected, as well as complying with any other requirements in the DHEW Policy on Protection of Human Subjects.

1. Position
- ● President
- ② Dean

2. Length of Tenure in Position
- ① Less than 6 months
- ② 6 months to 18 months
- ③ 19 months to 30 months
- ④ 31 months to 42 months
- ⑤ 43 months and over

3. Age
- ① 25 - 34
- ② 35 - 44
- ③ 45 - 54
- ④ 55 +

4. Educational Preparation (Highest Degree)
- ① Bachelors Degree
- ② Masters Degree
- ③ Ed. S. Degree
- ④ Doctorate
- ⑤ Honorary Doctorate
- ⑥ Other

5. Religious Preference
- ① Protestant
- ② Catholic
- ③ Jewish
- ④ Other
- ⑤ Non-Affiliated

6. Race
- ① Caucasian
- ② Afro-American
- ③ Oriental
- ④ American Indian
- ⑤ Other

7. Type of Institution
- ① Two-Year
- ② Four-Year
- ③ Four-Year plus Graduate School
- ④ Graduate or Professional

8. Full-Time Enrollment
- ① Below 500
- ② 501 to 1,500
- ③ 1,501 to 3,000
- ④ 3,001 to 6,000
- ⑤ 6,001 +

9. Control of Institution
- ① Public
- ② Private -- Non-Sectarian
- ③ Private -- Denominational

(OVER)

Instructions: Listed below are thirteen characteristics of qualities connected with administrative positions. For each such characteristic, you will be asked to give two ratings:

a) How much of the characteristic is there now connected with your administrative position?

b) How much of the characteristic do you think should be connected with your administrative position?

For each of the thirteen items please answer the above two questions by blackening a number on the rating scale from 1 to 7, where "low numbers represent low or minimum amounts, and high numbers represent high or maximum amounts."

	QUESTIONNAIRE FOR COLLEGE AND UNIVERSITY ADMINISTRATORS Developed by Lyman W. Porter Revised by L. W. Nichols	How much is there now? (min) (max)	How much should there be? (min) (max)
(10-11)	The feeling of self-esteem a person gets from being in my administrative position:		
(12-13)	The opportunity for personal growth and development in my administrative position:		
(14-15)	The opportunity for independent thought and action in my administrative position:		
(16-17)	The feeling of security in my administrative position:		
(18-19)	The opportunity in my administrative position, for participation in the determination of methods and procedures:		
(20-21)	The feeling of worthwhile accomplishment in my administrative position:		
(22-23)	The opportunity to develop close friendships in my administrative position:		
(24-25)	The prestige of my administrative position inside the institution (that is, the regard received from others in the institution):		
(26-27)	The authority connected with my administrative position:		
(28-29)	The opportunity in my administrative position, for participation in the setting of goals:		
(30-31)	The opportunity in my administrative position, to give help to other people:		
(32-33)	The prestige of my administrative position outside the institution (that is, the regard received from others not in the institution):		
(34-35)	The feeling of self-fulfillment a person gets from being in my administrative position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities):		

APPENDIX C

REQUEST CARDS

Place
Stamp
Here

The University of Tennessee
College of Education
Department of Educational
Administration and Supervison
Knoxville, Tennessee 37916

Please send me the free summary of the study on job satisfaction.

Name_____

Address_____

City_____ State_____

Zip_____

APPENDIX D

FOLLOW-UP LETTER

THE UNIVERSITY OF TENNESSEE
KNOXVILLE 37916
COLLEGE OF EDUCATION

DEPARTMENT OF
EDUCATIONAL ADMINISTRATION
AND SUPERVISION

February 2, 1977

A few weeks ago, I wrote to 300 college and university administrators asking them to participate in an important study of job satisfaction. The final result of this study proposes to be most informative to all administrators in higher education. This follow-up letter is twofold: First, it is a reminder to those who have not returned the questionnaire; and secondly, it is an expression of my appreciation to those who have already responded.

Since there is a slight possibility that you did not receive the first letter, I am enclosing the questionnaire which is being used for this study. It is based on Abraham Maslow's need hierarchy theory and is designed to indicate discrepancies in perceived need fulfillment. After completing, please return it in the enclosed envelope. I assure you that this study is completely confidential, and care is being taken not to identify the participants or their institutions.

If you would like to receive a summary of this study, separately return the enclosed post card, and a copy will be sent to you.

Your cooperation in this project will be appreciated.

Sincerely,

L. W. Nichols
Project Director

LWN/mfs

Enclosures

APPENDIX E

PORTER'S LETTER

UNIVERSITY OF CALIFORNIA, IRVINE

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

OFFICE OF THE DEAN
GRADUATE SCHOOL OF ADMINISTRATION

IRVINE, CALIFORNIA 92664

June 6, 1977

Mr. L.W. Nichols
3801 Conner Street
Chattanooga, Tenn. 37411

Dear Mr. Nichols:

This is in response to your recent inquiry regarding my Need Satisfaction Questionnaire.

Reliability data on the instrument have been reported in a Ph.D. dissertation in the School of Public Administration at the University of Southern California by Thomas Carlson (approximately 1969). Also, an article by Dore and Meacham in the Spring, 1973 issue of Personnel Psychology provides reliability data. As you can see, a reliability of approximately .80 seems indicated. The question of validity for an instrument of this type presents an interesting conceptual problem because of the issue of "what is the criterion?" against which to measure validity. My own view is that for an instrument of this type, its pattern of relationships with other relevant variables provides a kind of indirect measure. (Apropos of this, you may find the article by Waters and Roach in the Summer, 1973 issue of Personnel Psychology, is relevant.) Thus, any of the studies that have used the questionnaire and have formed meaningful relationships with independent variables are providing data relevant to validity.

In conclusion, let me say that the instrument was developed for limited purposes (at the time of the original research with it some ten years ago) and may or may not be appropriate to your needs (vis-a-vis other possible instruments). The questionnaire itself is printed in Managerial Attitudes and Performance, 1968, by myself and Edward E. Lawler. In any event, you have my permission to use it, and my good wishes for the best of luck in your research project.

Sincerely yours,

Lyman W. Porter

Lyman W. Porter

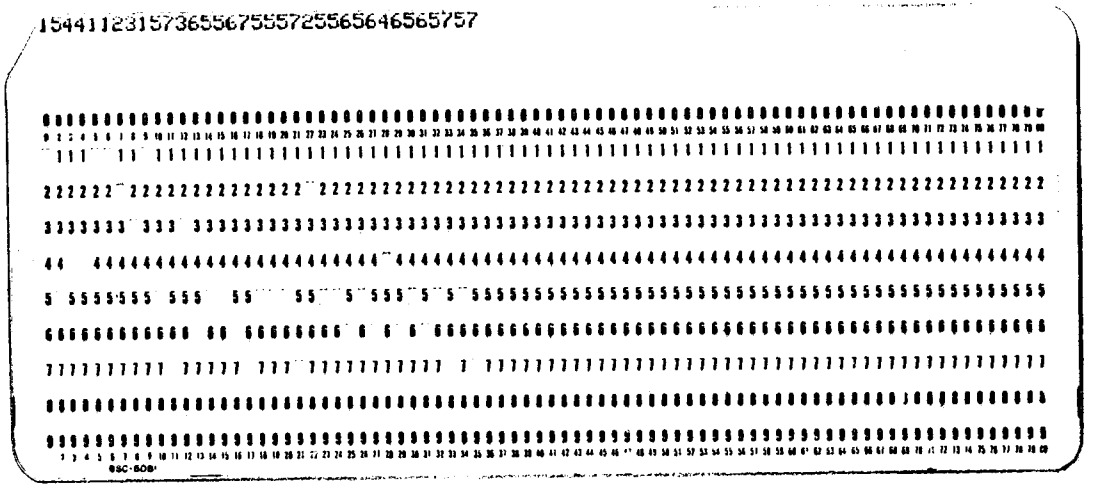
LWP:em

APPENDIX F

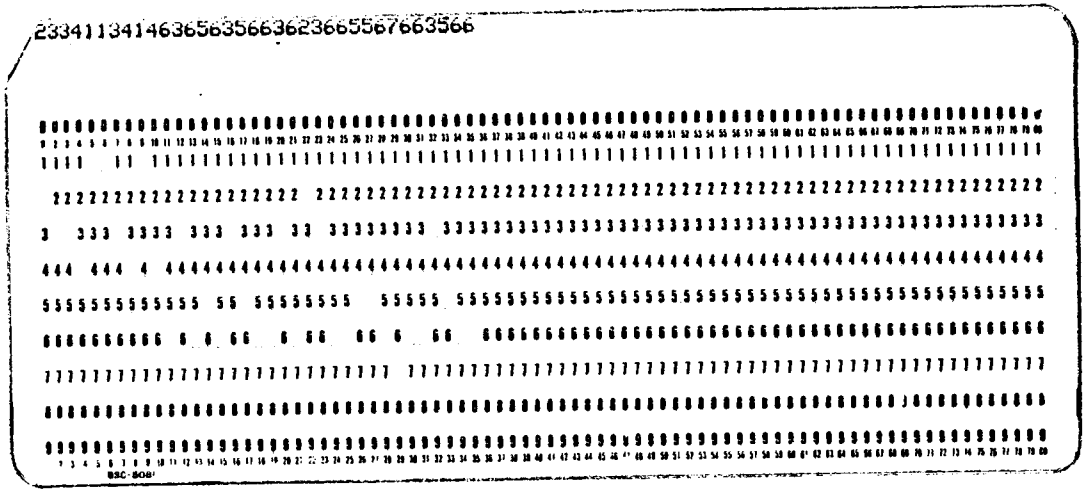
TYPICAL COMPUTER CARDS

TYPICAL COMPUTER CARDS

Typical Presidents Card



Typical Deans Card



APPENDIX G

EXPLANATION OF FORMULA

FOR

ONE-WAY ANOVA

Nie et al.* (1975) explain the basis of analysis of variance as the decomposition of variation of sums of squares corrected for the means (SS). An illustration of the procedures of a one-way analysis of variance with a dependent variable Y and a categorical independent variable (factor A) is as follows:

$$SS_y = SS_{between} + SS_{within}$$

where $$SS_y = \sum_j \sum_i (Y_{ji} - \bar{Y})^2$$

in which $\bar{Y}$ is the mean of Y over the whole sample (known as the grand mean), and the summations are over all individual cases i in each category j of the factor A

$$SS_{between} = \sum_j N_j (\bar{Y}_j. - \bar{Y})^2$$

in which $\bar{Y}_j.$ is the mean of Y in the category j, and N_j is the number of cases in category j

$$SS_{within} = \sum_j \sum_i (Y_{ji} - \bar{Y}_j.)^2$$

One-way ANOVA tests the null hypothesis that sample groups were drawn from the same population which is symbolized: $\alpha_1 = \alpha_2 = \alpha_3 = 0$. Therefore, the ANOVA procedure calculates the within group and between group variance as independent estimates of the same quality. The formula for the one-way ANOVA procedure is:

$$F = \frac{SS_A / (k - 1)}{SS_{error} / (N - k)} = \frac{MS_A}{MS_{error}}$$

Where (K - 1) is the number of categories in A - 1,

and (N - k) degrees of freedom.

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*From Statistical Package for the Social Sciences, Second Edition, Nie et al., New York: McGraw-Hill Book Company, 1975, pp. 400-401.

APPENDIX H

TYPICAL CROSSTABULATION

FILE NONAME (CREATION DATE = 05/23/77)

CROSSTABULATION OF VAR03 AGE BY VAR50 SOCIAL

VAR03	COUNT / ROW PCT / COL PCT / TOT PCT	VAR50 0.	VAR50 1.	VAR50 2.	ROW TOTAL
0.		2	4	0	6
		33.3	66.7	0.0	2.7
		4.9	3.8	0.0	
		0.9	1.8	0.0	
1.		1	1	3	5
25-34		20.0	20.0	60.0	2.2
		2.4	1.0	4.8	
		0.4	0.4	1.3	
2.		9	35	23	67
35-44		13.4	52.2	34.3	29.9
		22.0	33.7	29.1	
		4.0	15.6	10.3	
3.		19	41	31	91
45-54		20.9	45.1	34.1	40.6
		46.3	39.4	39.2	
		8.5	18.3	13.8	
4.		10	23	22	55
55+		18.2	41.8	40.0	24.6
		24.4	22.1	27.8	
		4.5	10.3	9.8	
COLUMN TOTAL		41	104	79	224
		18.3	46.4	35.3	100.0

VITA

Leldon Wade Nichols was born in Russellville, Alabama, on February 19, 1944. He attended elementary schools in Alabama, Florida, and Kentucky. He graduated from Russellville High School, Russellville, Alabama, in 1962. In June 1963 he entered Tennessee Temple College, and in May 1967 he received a Bachelor of Arts Degree in Psychology. In the spring semester of 1969 he entered the University of Alabama Graduate School and began study toward a Master's Degree. The Master of Arts Degree in Student Personnel Work and Higher Education was awarded in May 1969.

From 1969 to 1971 he was employed by Tennessee Temple College as an instructor in Psychology. He served as Chairman of the Psychology Department at Tennessee Temple from 1971 to 1976. From 1976 to the present he has served that institution as Academic Dean. He received the Doctor of Education Degree with a major in Educational Administration and Supervision in August, 1977.

Mr. Nichols will continue his employment with Tennessee Temple College as Academic Dean after graduation.

He is married to the former LeeAnne Roberson of Chattanooga, Tennessee. They have two children, Robbie and Caroline.