THE DEPARTMENT HEADSHIP IN COLLEGE AND UNIVERSITY ALLIED HEALTH DEPARTMENTS

by

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(ABSTRACT)

Programs to prepare allied health professionals are the latest in a progression of health related programs to be assimilated into college and university life. Like their predecessors, preparation programs for physicians and nurses, allied health programs developed almost willy-nilly in the past 50 years, and only within the past decade have begun to be taken seriously by the nation's leading colleges and universities.

In this study, new departments of allied health that have been established in 133 senior colleges and universities with two or more programs accredited by the Committee on Allied Health Education and Accreditation were surveyed. From a sample of 36 institutions, fully useable responses were received from 114 heads of allied health departments and 90 heads of other academic departments, such as education, English, psychology, chemistry and biology.

The study revealed that there are significant differences in responses from allied health department heads and other academic area department heads in terms of personal

characteristics (age, academic rank and gender), departmental activities (allied health department heads place more emphasis on administrative tasks), and departmental goals. The most powerful variables differentiating responses between the two classes of department heads were percent of faculty with doctoral degrees, size of departments, percent of students in departmental courses who are departmental majors, emphasis given to teaching service courses, and emphasis on administrative activities. In summary, allied health departments (in contrast to other departments) are small (about six FTE), under credentialed, insular, engaged principally with their own majors, and committed primarily to the professional preparation of their students for future careers. Allied health department heads typically are experienced professionals who were brought to the institution from the outside to serve an indefinite term, and who appear to be overly concerned with the nuts and bolts of departmental administration. The researcher concluded that extant departments of allied health are still predominantly professional rather than academic in outlook and standard practice.

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CHAPTER 1

INTRODUCTION

As one of the fastest growing service industries in the United States, the health care industry employs over 6.7 million workers in medical services. Since only 8% of those employed are physicians, allied health professionals in over 200 allied health occupations comprise the largest component of the team of physicians, nurses, and others who diagnose and treat disease and injury and promote the health and general well-being of patients (Cohan, 1984). To meet the need for highly trained allied health professionals, more than one-half of the institutions of higher learning in the United States offer at least one allied health program and there are over 8,000 such programs (Biscounti, 1982). Some universities have Schools of Allied Health Professions or Health Sciences while others lodge allied health departments in a College of Arts and Sciences or Biological Sciences. Selker and Vogt (1978) observed that

> the environment in which schools of allied health must exist is extremely turbulent and chaotic. The key to survival in such an environment lies in the creativity and effectiveness of those involved in the management of (allied health) educational programs at all levels. In particular, it is is the department chairperson who may critically

influence the growth or decline of individual programs. (p. 213)

Yet little is known about department heads or coordinators of allied health disciplines in institutions of higher education. Perhaps because of the rapid growth in the field, only a few studies have been conducted on the roles and activities of department heads and coordinators in this area, namely, Vogt & Duncanis, 1977; Selker & Vogt, 1978; Dietrick, King & Protos, 1980; McTernan, 1982; Selker, Rogier & Vogt, 1983; Seig, 1986. This study is an investigation of the activities, personal characteristics, departmental goals, and environmental characteristics of selected department heads and coordinators in senior colleges and universities with two or more allied health programs accredited by the Committee on Allied Health Education and Accreditation (CAHEA).

Until about 1890, many medical schools were proprietary institutions often owned by professors who taught in them. Consequently, medical education left much to be desired (Boyles, 1982). This trend began to change with the publication of the Flexner Report in 1910 (Vevier, 1987). This report was highly influential in establishing that professional training, especially in theoretical or conceptual material, was best accomplished within the university system. Hospitals, often community or university

based, then took the leadership role for providing practice and observation in the practical skills of medicine. Generally, this has been the history of most health-related professions: a basic university preparation followed by an "internship" or clinical experience in a cooperating "teaching" hospital.

> McTernan and Leiken (1984) observed that
> the era of rapid expansion and transformation of health-related professions was "contemporaneous" with and a product of the social reforms that followed World War II. Since then, numerous medical advances have been made, a broadly educated society has developed, and a pervasive media system has informed the public about protecting health and extending human life. This combination of technological capability, public sophistication, and widespread awareness has generated a huge demand for complex health care services.

However, the system of medical education, developed as a model response to the Flexner Report of 1910, was provider, not consumer controlled, and unable to meet the fast expansion of the industry. The result was physician dominated medical colleges and narrow training for allied health assistants.

McTernan and Leiken (1984) also reported,

> The nursing profession (chief among the allied health assistants) was drawn into the medical model (e.g., nurse anesthetists, nurse midwives), but spiraling demand created a shortage in nursing personnel, forcing nursing education to expand exponentially to meet the demands for large numbers of graduates to fill traditional nursing roles. Nursing leaders of the 1950s and 1960s were, for the most part, uninterested in developing new, highly technical specialities. (p. 21)

As a result, new health professions under the umbrella of allied health were created. Initially, allied health workers were prepared through on-the-job training and brief technical training programs. When this proved insufficient, allied health education programs were initiated (McTernan & Leiken, 1984).

The first School of Allied Health Professions was established at the University of Pennsylvania in Philadelphia in 1950. The second and third were the College of Health Related Professions at the University of Florida founded in 1957, and the Division of Allied Health Sciences at Indiana University founded in 1958 (McTernan & Hawkins, 1972). These colleges and their successors were founded in prestigious universities and associated with medical schools and teaching hospitals. However, there are many exceptions. Allied

health schools and allied health programs also exist in universities without medical schools. These programs depend on cooperative relationships with local hospitals to provide practical experiences for students. Also, because of the diversity of programs in allied health, there is a variety of allied health professional organizations, each with its own specialized mechanisms for approving educational programs (accreditation) and recognizing individual practitioners (registration, certification, or licensure).

Accreditation of some allied health programs is by individual professional organizations. For example, the American Physical Therapy Association accredits physical therapy education programs. However, accreditation functions for a large number of allied health disciplines are administered in collaboration with the Committee on Allied Health Education and Accreditation (CAHEA), an agency of the American Medical Association. CAHEA is recognized nationally as an umbrella accrediting body for allied health educational programs within medical schools, junior and community colleges, senior colleges and universities, vocational and technical schools, institution consortia, proprietary schools, and military training institutions. There are 1,540 institutions and 2,915 allied health programs accredited by CAHEA (American Medical Association, 1988). These institutions offer degrees and certification in several

areas, as for examples: radiography, medical technology, medical record administration, and occupational therapy, preparing physician assistants, nuclear medicine technologists, and emergency medical technician paramedics. A list of CAHEA accredited programs is located in Appendix A.

Allied Health Education is a relatively new addition to higher education and is ill-defined in terms of its professional and academic status. Ambiguity surrounding the exact nature and substance of allied health education is indicated by the various academic units in which allied health programs are located in colleges and universities across the United States. Selker and Vogt (1978) have maintained that "many of these (allied health education) academic units, especially those that are located within the university setting are struggling to attain "academic respectability" as defined by faculty and administration in the traditional disciplines." Allied health education presents particular challenges to the person who manages the organizational unit. According to McTernan (1982),

> The role of the (allied health) chairperson is an ambiguous one, for on the one hand he or she is seen by the dean and higher officials as an administrative officer. On the other hand, the chairperson is often regarded by members of the

department as primus interpares, one of them, the senior member of that particular professional group within the institution, but charged primarily with the advancement and protection of the interests of that professional field against the depredations of the administration above. These two conflicting sets of expectations will collide resoundingly on the department heads. (p. 204)

Purpose of Study

Now that the explosive proliferation in types and numbers of these programs has subsided, educational programs in allied health should mature and create a paramount place for themselves in the academic community. The degree to which they succeed will depend in part on the activities, goals, and characteristics of those who are leading these infant disciplines. The importance of department chairpersons, and the complexities of managing schools and departments within universities, have been attested to by such researchers of higher education as Dressel, Johnson, and Marcus (1970) and Corson (1975).

This study of allied health department heads has the following objectives:

1. To describe department heads of allied health programs in terms of selected personal attributes,

the amount of time they report that they devote to various administrative or leadership activities, the goals they perceive for their departments, and the signal elements of the university environment in which their departments must function.

2. To determine whether allied health department heads or program coordinators differ to any significant degree from their peers (department heads in biology, chemistry, English, education, and psychology) in older, established conventional departments of the university.

Accordingly, this research study was developed around two principal research questions, namely:

1. In what ways, if any, do department chairpersons in schools of allied health professions differ from department chairmen in schools of education and schools of liberal arts and sciences (biology, chemistry, English, and psychology departments) in the same universities?
2. Which factors among all studied best discriminate between allied health chairpersons and chairpersons of other academic departments?

Significance of Study

Corson, Dressel, and others have emphasized the importance of department chairpersons in determining the quality of their departments and their institutions as a whole. If allied health education is to mature and gain respect as other professions in the academic world have done, then it would be prudent to examine how allied health department heads compare with their colleagues from more traditional disciplines. Much research has addressed leadership of academic departments, including studies by Corson (1975); Dressel, Johnson, and Marcus (1970); Cohen and March (1974); McLaughlin, Montgomery, and Sullins (1977); and Terry (1984). However, allied health chairpersons were not included among any of these studies.

Even without empirical evidence, it is clear that allied health chairs are responsible for the supervision and leadership of faculty and for the performance of various other managerial functions in schools of allied health in senior colleges, universities, and medical schools throughout the nation. Because they are largely responsible for the quality of educational programs in allied health, a study of the roles, activities, and administrative styles of allied health chairs may provide information that can be used to improve educational quality and status in allied health.

The leaders of allied health programs at colleges and universities comprise a group whose goal is to establish themselves in the coming decade as recognized and respected academic and professional disciplines within the university community. Seig (1986) argues, if leaders of allied health are to achieve their goals, the profession must have aggressive and assertive departmental leadership. This study surveyed heads of allied health programs to determine their goals and activities. Their perceptions were compared with those of their peers in other departments with whom they must compete for resources, status, and academic recognition in their university residences.

Theoretical Basis for Study

Role of the Department in the University

Academic departments are widely accepted as an important part of university organization. Many authors consider the academic departments to be the most critical organizational units in what is possibly the most complex of all modern organizations--the university. Alpert (1984) observed that the university is complex and archaic and that its formal structure does not describe either power or responsibilities; nor can the functions it must perform be discharged through the formal structure provided in its charter. Coleman (1981) stated that

> institutions of higher learning are best understood as collections of fundamentally autonomous units (departments) rather than a central authority, or conception of a whole, to which they are subordinates. Departments were designed to avoid curricular chaos and to shift power from the president to the faculty.

Petrie and Alpert (1983) used a "linear model" to describe the university's structure and its internally perceived mission. In the model, the university is portrayed as a set of autonomous academic departments and professional schools each represented by a separate rectangle and tied together by its institutional identity, demographic location, administration, support services, and board of trustees. The mission of the university is seen as the sum of its departmental missions, and the quality of the institution is seen as the separately measured quality of its departments. Therefore, the whole of the university has come to be viewed as the sum of it individual departmental parts in both structure and mission. Thus, the department has become the key unit of academic life. Corson (1975) and Dressel, Marcus, and Johnson (1970) have argued that the success and character of a department and ultimately the university depends on the quality (i.e. administrative characteristics) of the department head).

Role of the Department Chairman

The duties and responsibilities of allied health chairpersons appear to be the same as those duties and responsibilities described by Heimler (1967) as specific tasks of department chairpersons (see Table 1.1). The department head is the all-important link between faculty and administration, as he represents each to the other (Mobley, 1971). Woodburne (1958) has stated that approximately 80% of all administrative decisions take place at the departmental level, rather than at the higher levels of authority and policy formulation. He also suggested that it is in the academic department that policy and general administrative decisions are defined, adopted, or applied. Chairpersons interpret institutional policies to the faculty, implement them in the department, and interpret departmental objectives and programs to administration.

Heimler (1967) and McLaughlin, Montgomery, and Malpass (1975) have maintained that the departmental chairperson occupies a status position that falls into three categories: academic, administrative, and leadership. McLaughlin, Montgomery, and Malpass also found that the chairmen in their study enjoy the role of academician. Although the administrative roles consumed the majority of time and contained some of the less desirable duties, the leadership role is a major source of satisfaction realized by those

Table 1.1

Specific Tasks of Department Chairpersons

1.	Improving instruction
2.	Developing and revising courses
3.	Making the semester schedule
4.	Developing programs: major, minor, state teaching credentials, M.A., general education
5.	Recruiting faculty
6.	Evaluating faculty and staff
7.	Preparing the departmental budget
8.	Administering the departmental budget
9.	Reviewing and approving student petitions
10.	Requisitioning textbooks and library materials
11.	Maintaining departmental records
12.	Attending meetings and conferences
13.	Making faculty schedules
14.	Responding to on- and off-campus inquiries regarding college programs and regulations
15.	Taking care of departmental correspondence
16.	Writing student recommendations for employment and graduate schools

Heimler, Charles H., 1967

accepting the position of chairman. These authors also stated that the department chairperson occupies a pivotal role in higher education in the United States; he stands in the uncomfortable area between an educational system continually under pressure for efficient management and a learning environment whose members search for meaning, relevance, and greater flexibility and freedom. Further, Rausch (1981) found that, while the tasks assigned to the department chairmen are managerial in nature, the chair often does not wield a great deal of authority in carrying out his duties.

In 1970, Dressel, Johnson, and Marcus found that the administrative style of the department chairpersons could be associated with three levels of activity: (1) the things the chairman did; (2) those things the chairman delegated; and (3) those things the chairman left undone.

In their study of department chairpersons in 15 major universities, Dressel, Johnson, and Marcus (1970) placed the department chairman in categories ranging from "Doers" to "Delegators" to "Dalliers," based on their performance on certain administrative tasks. They concluded that effective leadership of a department requires "knowledge of the administrative routine of the college, institutional legislative organization, government grant procedures,

policies relating to graduate students, and scholarly productivity of department faculty."

By contrast, Corson (1975) suggests that department heads are "static" if they concentrate their efforts solely on the administrative tasks described by Dressel. To be effective, Corson argued, department heads also should be engaged in development activities. The static department chairperson sees to it that such activities are taken care of; the leader-like chairperson, striving to enhance the reputation of the department, does more (Corson, 1975).

In later research, Tucker (1984) observed that the increasing complexities of operating institutions of higher education, along with shrunken budgets, have led deans and other university administrators to assign more and more tasks to department chairmen. Thus, it is in the best interests of colleges and universities to ensure that these chairpersons are as knowledgeable as possible regarding planning, management, and leadership techniques. Paradoxically, with few exceptions, chairmen are trained as educators in their respective professional areas or disciplines, not as administrators.

The personal characteristics, departmental activities, departmental goals, and environmental characteristics of department heads in schools of allied health are examined in this study. As a means of comparison, selected department

heads in colleges of liberal arts and sciences were included. Examples are department heads of English, psychology, chemistry, and biology departments. The college of arts and sciences is of interest as a unit for comparison because it houses allied health programs in many universities. Department heads of allied health programs have to compete with other department chairpersons within the unit for resources. Peterson (1976) pointed out that an allocation of resources means budgets, budgets means money, and it is in the handling of these resources that departments expect their chairpersons to be productive. Seig (1986) reported that allied health programs are expensive to operate on a per-student basis, train a smaller number of students, and offer courses less frequently per year than liberal arts programs. Yet allied health programs require a sizeable capital outlay to provide the specialized professional training offered to the student.

In this regard, schools of allied health professions may be more like a college of education than arts and sciences, i.e., a professional school formally accountable for its success in educating persons for professional service. Anderson (1976) cites these differences between the professional school and academic college: (1) the professional school is strictly accountable in a formal way for its success or lack of success in educating persons for

professional service; (2) there is licensure or certification of the neophyte after education and training; (3) there is accreditation of professional schools by peer groups; and (4) the organized professions continuously watch their professional schools.

Accordingly, one should expect to find substantial differences between the responses of allied health department heads and those of heads of academic departments on the emphasis allied health department heads give to organizational and development activities, to clarification of departmental goals, to concerns about accreditation, and to the recruitment of faculty and students. Since allied health departments administer professional preparation as opposed to strictly academic programs, evidence of professional concern might be expected in the emphasis the allied health department head places on the clinical rather than research expertise of faculty and students, on state licensing requirements as criteria for curriculum building, and on a concern for adequate university funding of a program that is both labor and capital intensive.

> . . . the institutional roles these individuals (allied health department heads) play may be even more complex than in other sectors of higher educational administration" (Dietrich, King, & Protos, 1980).

Organization of the Study

The study was divided into four chapters. In Chapter 1, the purpose of the study and the reasons for undertaking it are given, as well as the supporting literature. In Chapter 2, the research strategy, organization, and method used to examine the research questions are delineated. These include population, instrumentation, data collection, and analysis plans. In Chapter 3, the results of data analysis are presented and discussed. In Chapter 4, a summary, findings, and conclusions are presented.

CHAPTER II

DESIGN OF RESEARCH

In this chapter, attention is given to the methods employed in addressing the research questions identified in Chapter 1. The discussion is divided into five parts, each corresponding to the elements of a mailed survey of allied health departments, namely: (1) population of senior colleges and universities that offer two or more allied health programs accredited by CAHEA, (2) samples of allied health and other departments with which they were compared, (3) discussion of response bias, (4) descriptions of instruments used in the survey of departments, and (5) the procedures employed to generate, edit, encode, and analyze responses.

Target Population

For this study, interest was focused on the 133 senior colleges and universities, both public and private, that offer two or more CAHEA accredited allied health programs. A list of the 133 CAHEA institutions used for the sampling frame is in Appendix A. Included within this group are 85 public (state controlled) and 48 private (religious and independent) institutions. Eleven institutions offer only bachelor's degrees, 22 institutions offer bachelor's and master's degrees, and 88 institutions offer bachelor's, masters, and doctorate degrees. Twenty-six of the 133

institutions are affiliated with medical schools. Total college enrollments range from 507 at Columbia Union College, to 54,515 at the University of Minnesota Health Sciences Center. The oldest institution is 248 years old (University of Pennsylvania). The youngest is six years old (University of Texas School of Allied Health Sciences at Houston). Geographically, the institutions are evenly distributed across the United States: 30 Northeast, 38 Southeast, 36 Central, and 29 in the West. There are 513 CAHEA accredited allied health programs in the 133 institutions. The University of Alabama-Birmingham reported the greatest number of different programs (13) (American Medical Association, 1985, and The HEP 1985 Higher Education Directory).

Sample of Institutions

A letter was sent to the office of the president in each of the 133 institutions requesting the names, addresses and telephone numbers of department heads in biology, chemistry, education, English, psychology, and allied health professions. Responses were received from 72 institutions.

Thirty-six (36) institutions were selected randomly from the 72 responding institutions. Those are identified in Table 2.1. To determine the extent of sample bias, the characteristics of the 36 responding institutions were compared by Chi-square with those of the original 133

Table 2.1

Respondents

COLLEGE/UNIVERSITY	DEPARTMENTS ALLIED HEALTH	OTHERS	TOTAL
University of Alabama - Birmingham	8	3	11
Arkansas Tech University	2	2	4
Boise State University	2	2	4
University of Central Florida	6	1	7
Chicago State University	3	1	4
East Carolina University	4	4	8
University of Florida	5	4	9
Indiana State University - Northwest	2	2	4
University of Iowa	3	3	6
University of Kansas	8	0	8
Midwestern State University	4	4	8
State University of New York at Stony Brook	1	1	2
Northeast Louisiana University	4	4	8
University of Oklahoma	6	2	8
Wayne State University	5	4	9
Weber State College	9	4	13
Western Carolina University	3	4	7
Western Michigan University	4	3	7
University of Wisconsin - Madison	3	4	7
Youngstown State University	2	2	4
George Washington University	2	2	4
Gwynedd-mercy College	5	3	8
Howard University	4	2	6
Ithaca College	2	3	5
Quinnipiac College	6	4	10
University of Southern California - Los Angeles	0	2	2
Utica College of Syracuse	2	3	5
Brigham Young University	4	4	8
Gannon University	3	4	7
College of Saint Mary	1	2	3
Wheeling College	1	1	2
Loma Linda University	4	1	5
University of Mississippi Emory University	1	3	4
University of Chicago Medical School: Health Services	1	0	1
Indiana University-Purdue University, Indianapolis	4	2	6
Totals	124	90	214

institutions using five criteria as follows: (a) type of institution, (b) degree level, (c) student enrollment, (d) number of CAHEA programs, and (e) geographic location. As summarized in Table 2.2, there were no significant differences in the distributions of characteristics of the 133 institutions that make up the population and the sample of 36 institutions, either by (a) institutional type (Table 2.2A), (b) degree level (Table 2.2B), (c) student enrollment (Table 2.2C), (d) number of CAHEA programs (Table 2.2D), and (e) regional location (Table 2.2E). It was concluded, therefore, that there was an acceptable level of bias among sample institutions for the purposes of this study.

Sample of Departments

A questionnaire (copy included in Appendix B) was mailed to each of the 386 department heads identified earlier by the presidents of the 36 sample institutions. Included were 235 heads of allied health departments and 151 heads of English, biology, education, psychology, and chemistry departments. Of the 386, 226 or 58.5% were returned, 214 of which were fully useable. Of the 214, 124 were allied health department heads and 90 other heads. Although it appeared that the allied health departments were underrepresented among respondents, the differences were not statistically significant, as shown in Table 2.3.

Table 2.2

Characteristics of Sample and Population of Institutions

Characteristic	Population		Sample		X^2	df	p
	No.	%	No.	%			
n	133	100.0	36	100.0			
A. Type							
Public	85	63.9	22	61.1			
Private	48	36.1	14	38.9	.0955	1	.7573
B. Degree Level							
Undergraduate	14	10.5	3	8.5			
Master's	31	28.3	12	33.3			
Doctorate	88	66.2	21	58.3	1.3240	2	.4667
C. Enrollment							
<1,000	10	2.5	2	5.6			
1,000- 9,999	64	48.1	11	47.2			
10,000-19,999	29	21.8	10	27.8			
20,000-29,999	20	15.0	5	13.9			
30,000 and above	10	7.3	2	5.6	.7757	4	.9417
D. CAHEA Programs							
2-5	115	86.5	28	77.8			
5-8	14	10.5	6	16.7			
9-13	4	3.0	2	5.6	1.6735	2	.4341
E. Region							
Northeastern	30	22.6	8	20.6			
Southeastern	38	28.6	10	26.5			
Central	36	27.1	11	32.4			
Western	29	21.8	7	20.6	.3771	3	.9449

Table 2.3

Responses to Mailed Questionnaire

Departments	Mailed	%	Returned	%	Not Returned	%
Allied Health	235	100.0	132	56.2	103	43.8
Other	151	100.0	94	62.2	57	37.8
Total	386	100.0	226	58.5	160	41.5

$x^2 = 1.4009$ df = 1 p = .2366

Moreover, the response from the five different types of departments outside allied health was comparable to that from non-respondents, as shown in Table 2.4.

However, there was so much diversity among allied health departments that it was difficult, if not infeasible, to ascertain the comparability between responding and non-responding departments, as displayed in Table 2.5.

Instrumentation

The Departmental Environment Questionnaire, designed by Eleanor H. Terry (1984), from materials suggested by McLaughlin, Montgomery, and Malpass (1973), was used in this study. The questionnaire was divided into four discrete sections, each corresponding to the elements of departmental organization and administration of concern in this study. These four sections are discussed below.

Personal Attributes of Department Heads

The first section of the questionnaire included eight items describing the personal attributes of responding department heads. From the literature in Chapter 1, it was reasoned that allied health department heads might differ in training and experience from department heads of older, established departments.

Table 2.4

Responses and Non-Responses to Questionnaire From Five Non-Allied Health Departments

Departments	ENG	BIO	EDUC	PSY	CHEM	TOTAl
Responding	20	16	19	20	19	94
Non-Response	13	12	11	10	11	57
$x^2 = 0.8451$		df = 4		p = 0.9323		

Table 2.5

Allied Health Departments Responding and Not Responding to Questionnaire

Responding	Number	Non-responding	Number
Medical Record Administration	8	Medical Record Administration	8
Clinical Laboratory Sciences	21	Clinical Laboratory Sciences	6
Physical Therapy	11	Physical Therapy	6
Respiratory Therapy	6	Respiratory Therapy	4
Radiologic Sciences	9	Radiologic Sciences	6
Occupational Therapy	11	Occupational Therapy	3
Medical Assistants	1	Medical Assistants	9
Health Service Administrator	5		-
Dental Hygiene Program	2	Dental Hygiene Program	3
Physician Assistant Program	7	Physician Assistant Program	5
Surgeon's Assistant Program	1	Surgeon's Assistant Program	1
Nuclear Medicine Technology	1	Nuclear Medicine Technology	5
Medical Imaging and Therapy	1		-
		Radiation Therapy	4
Nursing	8	Nursing	6
Community & Environmental Health	3	Community & Environmental Health	6
Health Sciences	9		-
Cardio-Pulmonary Sciences	2	Cardio-Pulmonary Sciences	3
Communicative Disorders	5	Speech Pathology & Audiology	6
Dietetics & Nutrition	5	Dietetics & Nutrition	4
Rehabilitation Studies	1	Rehabilitation Counseling	1
Nurse Anesthesiology	1	Nurse Anesthesiology	2
Biometry	1		
Emergency Care & Rescue	1	Emergency Care & Rescue	4
Cytotechnology	1		
	-	Health Service Education	4
	-	Orthoptics	1
	-	Therapeutic Recreation	2
	-	Biostatistics/Epidemiology	1
	-	Alcoholism Training	1
Total	132		103

Activities of Department Heads

The second section of the questionnaire included thirty-two items describing the department heads' estimates of time devoted to activities associated with departmental management and development, (herein interpreted as a measure of the importance assigned to each individual activity or combination of activities.) From the literature in Chapter 1, it was reasoned that allied health department heads might be more significantly engaged in developmental than purely managerial activities, because of the youth of their departments and the complexity of their programs.

Goals Perceived by Department Heads

The third section of the questionnaire included ten items describing the department heads' perceptions of departmental goals and objectives, together with the head's perceptions of how their superiors (i.e. university officials) view the same goals and objectives, and the heads' perceptions of how their faculty might view these goals and objectives. From the literature in Chapter 1, it was reasoned that allied health department heads might be torn somewhat between expectations of their own faculty and those of other areas within the university in setting and articulating departmental goals.

Characteristics of Environment Surrounding Departments

The fourth section of the questionnaire included 14 items describing essential elements of the university environment in which the department functions. From the literature in Chapter 1, it was reasoned that allied health department heads would enjoy somewhat less independence from university authorities than other, established departments, and their faculties less status in the university.

Modifications in Instrumentation

Only minor changes were made in the Terry questionnaire before mailing to the 386 department heads in this study. These changes were:

1. The section using Holland's classification of departments as identifying data was deleted. In Holland's classification, the types of departments were classified as realistic, investigative, artistic, social, enterprising, conventional, and other. In this study, the departments were identified as allied health professions, education, English, psychology, biology, and chemistry.
2. In Section II, Departmental Activities, three questions pertaining to graduate students were removed. For the purpose of this study, baccalaureate level programs were of interest,

therefore, graduate student activities were not included.

3. "Percent of time spent on each activity during the year" was changed to "percent of time spent on each activity during an average week of approximately fifty hours." This was done to give a more "realistic" unit of time to measure importance of the activities to the department head.

Measuring Personal Characteristics

Part I of the Departmental Environment Questionnaire was designed to collect data on eight personal characteristics of the several department heads. These were: years devoted to college teaching, years in administration, years in present position, academic rank, tenure status, future career intentions, age, and sex.

1. To report the number of years devoted to college teaching, department heads were asked, "Including work at other institutions, how many years have you devoted to college teaching?" Respondents were to indicate the number of years.

2. To report the number of years experience in administration prior to present appointment, department heads were asked, "How many years experience did you have as an

administrator prior to your present appointment?" Respondents were to indicate the number of years.

3. To report the number of years in present position, department heads were asked, "How long have you been in your present position?" Respondents were to indicate number of years.

4. To report their academic rank, department heads were asked, "What is your current academic rank?" Respondents were given five choices: professor, associate professor, assistant professor, instructor, and other.

5. To report their tenure status, department heads were asked, "Are you tenured?" Respondents were to indicate yes or no.

6. To report their future career plans, department heads were asked, "In the next 3-5 years, which action do you consider most likely?" Respondents were given five choices:

a. I will retire
b. I will return to full-time teaching
c. I will remain in university administration
d. I will go to a full-time position in a non-academic environment
e. Other (explain)

7. To report their ages, department heads were asked, "In which age group do you belong?" Respondents were given

eight choices of age groups in five-year intervals: Under 30, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, and over 59.

8. To report their gender, department heads were asked to check if they were male or female.

Each of the questions covering personal characteristics of department heads was identified as similar to those used in numerous related studies (Terry, 1984). No additional tests of validity or reliability seemed warranted for these items in the study.

Measuring Departmental Activities

Part II of the Departmental Environment Questionnaire incorporated a list of departmental activities that the chairman may need to perform. This section was designed to collect data on 32 variables that describe departmental activities. Five of these activities were extracted from the literature on allied health, particularly Peterson (1976), and "Essentials for an Accredited Educational Program from the Medical Technologist" (NAACLS, 1986). The basis for selection of the other 27 items is described in Terry's 1984 study. According to Terry (1984)

> In 1970, Dressel, Johnson, and Marcus studied academic departments of 15 major universities and compiled a list of 30 activities that department heads routinely were called upon to perform. In

1973, McLaughlin, Montgomery, and Malpass added approximately 79 different tasks specified by Heimler (1967), O'Grady (1971), and others to the 30 tasks listed by Dressel. From this comprehensive set of activities, McLaughlin (1973) selected 27 to measure the roles of department chairmen in 38 large state and land-grant universities that awarded doctoral degrees. (p. 29)

These same items also were used to measure the roles of department heads in nine other major studies with similar research objectives. Terry (1984) further reported that

> McLaughlin, Montgomery, and Malpass (1973) studied the time requirements of the 27 activities along with the enjoyment associated with them. Montgomery, McLaughlin, and Smart (1974) used the activities to study the major roles that chairmen performed and the degree to which the emphasis placed on various activities, perceived goals, and job satisfaction were related to each of the chairmen's roles. Smart (1974) used the activities to test Holland's (1983) assumption that an individual's behavior "is determined by an interaction between his personality and characteristics of his environment" (p. 31).

McLaughlin, Montgomery, and Malpass (1975) grouped the activities into three major roles to examine selected characteristics and roles of department heads. McLaughlin and Montgomery (1975) divided the activities into six major types to examine the satisfaction and commitment of department heads. One of the purposes of Smart's (1976) study was to determine whether or not department chairmen in the six Holland environments devoted significantly different amounts of time to the performance of selected categories of professional tasks. McLaughlin, Montgomery, and Sullins (1977) investigated relationships between the level of decision-making in universities and goal priorities, personnel characteristics, duties performed, job satisfaction, and career intentions of department heads; and Matlock (1979) used the activities to study the role of department heads in selected Black colleges.

Terry used the activities to study the dimensionality of management tasks performed by department heads of emerging universities. In her study, each of 27 management tasks performed by department heads was classified as either "administrative" (patterned after Dressel's tasks) or "developmental" (patterned after Corson's tasks). Terry created four categories or "leadership types" of department heads in accordance with differences in the amount of time

devoted to "administrative" or "development" tasks. These were:

HH/HL/LH/LL, where

HH = High both on administrative and developmental tasks

HL = High on administrative and low on developmental tasks

LH = Low on administrative and high on developmental tasks

LL = Low on administrative and low on development tasks

To establish evidence for validity of this characterization of the 27 activities in her study,

> A panel of experts was selected to determine if activities could be characterized as "traditional/administrative" after Dressel or "developmental" after Corson. The panel consisted of five department heads and former department heads with more than forty years cumulative experience in higher education. They were selected from two universities . . . the panel adjudged that the items adequately represented the universe of administrative and related tasks of department heads . . . the instrument was considered to be valid for purposes of this study. (p. 33)

The same 27 activities, characterized as developmental and administrative, were used as departmental activities in this study and presented in Table 2.6.

Table 2.6

Departmental Activities with Administrative and Developmental Characterization

-Class-		-Original Terry Items-
DEV	1.	Initiating long-range programs, plans, and goals for the department
DEV	2.	Encouraging the professional development of faculty members within the department
ADM	3.	Managing of clerical and technical staff
ADM	4.	Presenting proposed budgets
ADM	5.	Administering the departmental budget
ADM	6.	Administering control of revenue and expenditures
DEV	7.	Providing informal faculty leadership
ADM	8.	Managing physical facilities and equipment
DEV	9.	Recruiting scholarly faculty
DEV	10.	Prodding colleagues to recruit and select promising graduate students
ADM	11.	Evaluating faculty performance to determine tenure, raises, and promotions
ADM	12.	Planning the curriculum, academic programs, course content, and teaching methods
DEV	13.	Encouraging faculty to obtain grants, gifts, and contracts
DEV	14.	Stimulating faculty to do research and publication
DEV	15.	Maintaining morals and reducing conflicts among faculty
ADM	16.	Advising students on academic and/or departmental matters
DEV	17.	Interacting with administration in behalf of faculty
DEV	18.	Listening to and encouraging ideas to enrich course offerings

Table 2.6 (Cont'd.)

ADM	19.	Assuring the maintenance of accurate student and other departmental records
ADM	20.	Representing the department in appropriate professional meetings and societies
ADM	21.	Planning and holding departmental meetings
ADM	22.	Providing for flow of information to faculty
ADM	23.	Participating in committee work within the college and university
ADM	24.	Assigning courses, research, and departmental duties to faculty
DEV	25.	Obtaining employment or acceptance in graduate school for students
ADM	26.	Coordinating activiites with outside groups
ADM	27.	Recruiting and admitting students into the program
		-Added Items-
ADM	28.	Arranging and coordinating the placement of students in outside instiutions for pratical experiences or internships
ADM	29.	Preparing for accreditation
ADM	30.	Maintaining student records
ADM	31.	Providing liaison between the educational program and the outside institutional administration
ADM	32.	Ensuring the medical relevance in students' educational experience

ADM = Administrative tasks (21)
DEV = Developmental tasks (11)

Source: Terry, E. H. (1984). The Dimensionally of Management Tasks Performed by Department Heads of Emerging Universities. Unpublished Ed.D. dissertation, Blacksburg, VA: Virginia Polytechnic and State University.

The five point scale employed with these activities was the same as that used by Terry, i.e. "A five point Likert-type scale was used to estimate the emphasis given by department heads in each of the activities . . a range of scores was selected based on the scaling method used by McLaughlin (1973)." These were:

a. none (0%)

b. some (1-2%)

c. a moderate amount (3-5%)

d. a great deal (5-10%)

e. a very great deal (over 10%)

Department heads were asked to circle the point on the five point scale that most nearly indicated the percent of time spent on each activity during an average week of approximately 50 hours.

The validity and reliability of these activities have been checked in Terry's study and nine other similar studies. Therefore, these activities were deemed to be valid for use in this study.

Internal consistency of responses on the 32 item scale was calculated by Cronbach alpha ($r = 0.7141$), a level sufficient for the purposes of this study.

However, there is always a basic risk with any "time study" involving estimates of time, particularly percent of time, given to listed activities. Respondents typically make

their estimates without regard to the sum total over all items. Consequently, the sum total of estimated time over all activities, at least by some respondents, may exceed 100%, i.e. exceeds the average of 50 hours per week used in this study. Smart (1974), in using this scale, addressed the problem without really solving it, by implying that the "average" in total estimated time was proportional to the summated time actually devoted to the activities. The same assumption is made in this study.

Measuring Institutional Variables

Part III of the Departmental Environment Questionnaire is divided into two sections: Departmental Goals, and Other Environmental Characteristics.

Departmental Goals

Ten of Terry's original 11 goals were selected for use in this study. According to Terry (1984),

> Originally, McLaughlin, Montgomery, and Malpass (1973) selected the eleven goal statements from a list of forty-seven organizational goals compiled by Gross and Grambsch (1974). They field tested their instrument at the University of Minnesota to obtain a measure of validity.

The eleven goal statements in McLaughlin's questionnaire were used in at least three other studies. Smart and McLaughlin (1974) investigated the relative importance that six academic departments attributed to five institutional goal dimensions. Montgomery, McLaughlin, and Smart, also (1974), used the goal statements to determine the degree to which perceived departmental goals, job satisfaction, and emphasis placed on duties of chairmen were related to each of the major roles of chairmen. Using McLaughlin's questionnaire, Matlock (1979) found that goal orientations at predominantly Black colleges differed from those in the McLaughlin, Montgomery, and Malpass (1974) study. These studies provided some evidence of construct validity for the eleven goal statements. Four department heads also were asked to pretest the Departmental Environment Questionnaire. They neither asked questions nor commented about the goal statements or the emphasis sought on that portion of the questionnaire. It was concluded, therefore, that the eleven goal statements were valid for the purpose of this study. (p. 53)

The ten Departmental Goals contained in the questionnaire are:

1. Producing new knowledge through research.
2. Graduating a well-versed student with a balanced education.
3. Developing an efficient organization through use of appropriate managerial decisions.
4. Teaching courses for students majoring in other departments.
5. Encouraging the personal and professional development of the individual faculty members.
6. Maintaining the goals and requirements of central administration (e.g., enrollment, grants, budget development).
7. Educating the student for future careers.
8. Providing the faculty and staff with a congenial place in which to work.
9. Improving the quality of the department relative to peer departments at other universities and within this institution, and
10. Maintaining a spirit of inquiry and academic freedom.

Department heads were asked to respond to each of the departmental goals as follows:

1. In column one of the questionnaire, they reported the amount of emphasis they believed their institutions (i.e.

college and university officers and faculty) placed on each of the ten goals.

2. In column two they reported how they (the department head) would like to see the emphasis placed.

3. In column three they reported how they believed their departmental faculty would like to see the emphasis placed.

The scaling of responses for the departmental goals was "the same scale used by McLaughlin, Montgomery, and Malpass (1973) with reasonable results in their earlier reported studies of department heads." (Terry, 1984) The ten goals were scaled in accordance with the amount of emphasis perceived by respondents to be placed on each goal:

a. little or none at all
b. some
c. a large amount
d. a great deal
e. a very great deal

Other Environmental Characteristics

Fourteen questions were asked the department heads in order to determine characteristics of the principally administrative or managerial environment in which the departments operated. Examination of these variables, it was

assumed, would offer some insight into the influence environmental characteristics have on department heads.

These fourteen variables are described fully in Terry's study (1984). For this study, the department heads were asked:

1. How would you best characterize decision-making in your department from the following descriptions?
   a. Most major decisions are made at the university level,
   b. Most major decisions are made at the college level,
   c. Most major decisions are made at the department level by the department chairman with the college and university administration usually having veto power,
   d. Most major decisions are made by appropriate groups of senior faculty within the department,
   e. Other (describe).
2. How much authority do you have in using your budget?
   a. complete authority,
   b. some authority,
   c. limited authority,
   d. no authority.

3. Do you have the flexibility to use the budget for providing the incentive raises for those who initiate course development and research?

   Yes _____ No _____

To determine the size of the department and experience of the faculty, each department head also was asked:

4. How many secretaries do you have in your department? Respondents were asked to give a number (how many).
5. How many FTE faculty do you have in your department? Respondents were asked to give a number (how many).
6. What is the average number of years experience of the faculty? Respondents were asked to give a number (average).
7. What percent of your faculty have a doctorate? Respondents were asked to give a number (percent).

To determine the service function of each department, department heads were asked,

8. What percent of students taking courses in your department are your own majors? Respondents were asked to give a number (percent).

To determine the origins of the chairmanship of the department, each department head was asked,

9. How were you selected as a department chairman?
   a. By the dean only,

b. By the dean in consultation with department faculty,

c. By the dean with a search committee,

d. By faculty committee,

e. Other (explain).

10. Were you selected to serve a specific length of time as chairman?

Respondents were asked to answer yes or no; if yes, how many years? _____ (number of years).

11. What percentage of your time do you estimate that you spend on the following?

_____ a. Teaching

_____ b. Administrative duties

_____ c. Departmental leadership

Respondents were to report a number (percentage of time) for a, b and c.

12. Were you chosen for the chairmanship from within the university, or were you brought in from outside the university?

Respondents were asked to check a or b

a. Chosen from within

b. Brought in from outside

To determine their propensity for change within the department, department heads were asked,

13. What percent of your departmental course offerings have changed within the past five years? Respondents were given five choices with 5% intervals: 5%, 10%, 15%, 20%, and more than 20%.

Survey Procedures

A questionnaire and letter were mailed on April 1, 1986, to each of 386 department heads identified earlier by the president of the sampled institutions. One hundred seventy questionnaires were returned within 2 weeks. A follow up letter and questionnaire were mailed to non-respondents on April 26, 1986. The mailing was discontinued on May 15, at which time 226 completed questionnaires had been returned. To increase percent response, telephone calls were made between May 1-10, 1986 to 55 of the non-responding allied health department heads and 28 other academic area department heads.

Several reasons were given for non-response. Among non-respondents identified with allied health, 33 stated that they were just program directors or coordinators, not department heads, six did not receive a questionnaire, nine misplaced their questionnaires, and seven were no longer with the sample institution.

Among other academic areas, seven did not receive a questionnaire, 15 stated that they "do not have time to reply

to all the questionnaires" that they receive, and six were no longer department heads.

Editing, Coding, and Encoding Data

There were 214 complete and fully usable questionnaires returned in the survey. Each questionnaire was identified by a four column code, including a code to identify the questionnaire (001-214), type of institution (1 = public, 2 = private), name of institution (01-36), type of department (1 = allied health, 2-6 = other departments). Each category of responses to the questionnaire also was assigned one or more columns creating a grand total of 91 column headings. The final format included 91 columns (each corresponding to a question on the questionnaire) and 214 observations or respondents, a completed matrix of 91 x 214.

The matrix was imported into the Number Cruncher Statistical System. Printouts of the imported matrix were compared with the original matrix, and edits completed before analysis. (NCSS, v 5.01, NCSS, Inc., Kaysville, UT)

Analysis Plan

The central research questions were addressed by a variation of multiple regression analysis. The intention of the analysis was twofold, namely:

a. To discern if (and how much) allied health department heads differ from other department heads in their responses to questions concerning their personal attributes, key departmental management/developmental activities, departmental goals and objectives, and informing elements of the university's environment in which the allied health and other departments operate.

b. To determine which of these responses or combinations of department heads' responses best predict the differences between allied health and other department heads.

The statistic chosen for analysis of data was the discriminant function. The question addressed in discriminant analysis is: Can a linear function of selected independent variables predict group membership with satisfactory confidence and precision, as in this study: between allied health departments and other departments within the sample universities?

A Technical Note About Discriminant Analysis

When the paleontologist examines bone fragments or shards from an ancient campfire, he tries to intuit from these incomplete data sets a picture of the whole from which these pieces derived. Moreover, he tries to decide into

which category or class of early man or early man's possession his mental picture properly falls.

Similarly, when a young lady contemplates a date with a new boy in her classroom, she tries to decide whether or not he is a good guy or a potential heart breaker on the basis of her previous experience and the several signs he gives out from time to time: a smile, a covert glance, his dress, how he walks, his speech.

In both cases -- trying to reconstruct from a hazy past or ambiguous present a reliable prediction of an otherwise uncertain future -- the statistical technique for addressing these sets of problems is discriminant analysis.

Steps in discriminant analysis include:

1. The classification of subjects or cases into one of two or more mutually exclusive groups based upon various characteristics of the subjects.
2. The determination of which characteristics are important for distinguishing among the groups or categories, and
3. The evaluation of the accuracy of the resulting classification.

In this study, the specific objectives were clear:

1. To see if one could predict the membership in one of two classes of department heads (allied health

and others) on the basis of 87 characteristics taken from their responses to a questionnaire.

2. To determine which of the 87 characteristics, if any, were important in distinguishing between the allied health and other department heads.
3. To determine the accuracy of the prediction based on the important characteristics, as compared to a prediction based solely on chance.

How It Works

Paraphrasing generously from the SPSS Advanced Statistics manual: Since the membership of the 214 department heads in this study is known, it was possible to form linear combinations of the 87 characteristics to serve as the basis for assigning each department head to one or the other of the two classes of departments. The coefficients for the linear combinations are so chosen that they result in the maximum separation between the two groups. Characteristics that maximize differences between allied health and other departments are recognized as the most powerful or important determinants or predictors. The accuracy of the prediction model can be estimated by comparing the predicted group membership (based on the characteristics that best separate the two groups) and the actual membership as reported on the questionnaires. It was

assumed that the various characteristics came from a multivariate normal distribution.

Some Limits on Interpretation

The linear discriminant equation works much like the multiple linear regression equation in which the x's in the equation are the values of the independent (predictor) variables and the B's are coefficients estimated from the data. The general discriminant equation is represented as

$$D = B_0 + B_1 X + B_2 X_2 + \ldots B_p X_p.$$

If the discriminant function is to distinguish accurately between allied health and other department heads, the two groups of department heads must differ in the value of D (discriminant function). Therefore, the coefficients (B's) are chosen so that the values of the discriminant function (D) differ as much as possible between the two groups of department heads, or for the discriminant scores the ratio of between-groups sum of squares and within-groups sum of squares is maximum. Any other linear combination of the variables will have a smaller ratio.

For this reason, the percentage of cases accurately classified by the discriminant function in this sample will over estimate the true performance of the population of department heads, just as r^2 tends to over estimate a model's fit in regression. Had sample size permitted in this study,

the sample would have been divided into halves, one half used to derive the discriminant function and the other to test it. The observed rate of misclassifications in the second sample half would better reflect the discriminant analysis's effectiveness in estimating the true performance of the population of department heads. Replication with other samples would provide an even better "test."

Selecting the Variables

As with multiple regression analysis, the number of observations in the sample limits the number of variables that may be entered into the discriminant analysis. Tatusoka (1988) and others, particularly Cohen and Cohen (1983), suggest a general but not absolute minimum of 20 cases or observations for each variable to be entered into the discriminant analysis equation. For this study, the 214 fully useable responses to the survey questionnaire would limit the number of variables finally to be entered into the discriminant analysis to about 10-11 of the 87 variables available. How then could 10 or 11 variables be selected from the 87 available from the questionnaire without distorting the results beyond practical use? Several steps were taken to achieve this.

1. First, the 87 variables were divided into four panels of variables, each corresponding to the four

sections of the modified Terry questionnaire. These were:

a. Personal Attributes of Department Heads (eight variables).

b. Amount of Time Devoted to Various Departmental Activities (32 activities/variables).

c. Departmental goals (emphasis given to each of 10 suggested goals, (1) as given by the department heads themselves, (2) as they believed the institutional authorities might emphasize, and (3) finally as they believed their respective faculties might emphasize, a total of 30 variables).

d. Other characteristics of the university environment believed to discriminate between allied health and other departments (17 variables).

2. Second, as in the Terry study after which this study was modeled, each variable was examined univariately to see what difference if any it might describe between the responses of allied health and other department heads in the sample of universities. Indeed, this study might well have been limited to univariate analyses, as in Terry's earlier study. Not every difference in responses of department

heads that proves to be statistically significant when each variable is taken one at a time, however, still proves to be significant when variables are taken (as more likely to be the case in real life) in various combinations. Moreover, some variables may combine with others to describe differences in responses of department heads that taken alone were not significant.

3. A principal components analysis (a primary form of factor analysis) was employed to reduce the number of variables in the 22 departmental activities of Panel 2, and in the 30 combinations of perceptions of departmental goals of Panel 3.
4. Each panel of variables then was entered separately into a discriminant analysis to determine which, if any of the variables, or combination of variables, best predicted the differences between the two classes of department heads.
5. Finally, the first and second ranked discriminants were taken from each of the four independent analyses and entered into a special selection model of "best" predictors. This was possible by reason of the fact that, as noted by Tatsuoka (1988), most of the distinctions between categories are accounted for by the first two discriminant functions in an

analysis. Lower ranked coefficients (while they may be significantly different from zero) have very little predictive power, hence may be set aside without substantive loss in the multivariate analysis. Accordingly, the special selection panel was analyzed to determine which -- of all the 87 variables and/or their various combinations -- best differentiated between allied health and other heads of departments.

Just how this was accomplished is described in the sections that follow:

Panel 1: Personal Attributes of Department Heads

The department heads responded to eight questions describing certain of their key personal and professional attributes. These included:

1. The number of years they had devoted to college teaching, years experience as an administrator prior to current appointment, and the number of years in their present position. Differences in mean years between allied health and other department heads were examined by one-way ANOVA, using the Number Cruncher Statistical System.
2. Other questions included their current academic rank, tenure status, retirement or other plans for

the proximal three to five years, gender, and their age (by group in five year intervals ranging from under 30 to 60 and over). Differences in distributions between allied health and other department heads were examined by the Chi-square statistic, using the Number Cruncher Statistical System.

Responses to all eight questions then were entered into the NCSS program for discriminant analysis. The extent to which the eight personal attribute variables accurately differentiated between the responses of allied health and other department heads was noted. The number of correct classifications and misclassifications, using only these eight variables, was evaluated by comparing the predicted classifications with those actually reported.

Panel 2: Administrative and Developmental Activities

In her study of department heads, Terry categorized department heads in accordance with their scaled responses to 18 administrative activities and 14 developmental activities that had been identified in the literature and then validated for her by a panel of experts. This was possible because the distribution of responses on the 32 items was readily dichotomized into high and low groups for each set of administrative and development activities, based

on the amount of time department heads devoted to each task. The four groups were:

a. Those who scored "high" (H) in the amount of time devoted both to administrative and development activities, and identified as (HH).
b. Those who scored "low" (L) both on administrative and developmental tasks, and identified as (LL).
c. Those who scored high on one and low on another of the two groups of departmental activities, and identified either as (HL) or (LH).

Terry used these four categories to organize her investigation of department heads, by looking for differences among the four types in personal attributes, departmental goals and objectives, and aspects of university environment that affect departmental organization and administration.

It was not possible to use her scale in the same way with the 214 respondents in this study as Terry accomplished in her study. The distribution of responses of allied health department heads on both the administrative and developmental items was nearly normal, as was the distribution of responses from other department heads. Dividing these distributions at the mean or median was infeasible. Consideration first was given to dividing each of the four distributions into three categories, namely: high, medium, and low, in accordance with the amount of time devoted to each activity.

This would have produced nine combinations of department heads (HH, HM, HL, MH, MM, ML, LH, LM, LL) with too few representatives in the cells for efficient analysis, particularly among the 90 non-allied health department heads.

A more viable alternative approach to Terry's scale was used. The 32 items were factor analyzed in an effort to identify the principal components underlying the distribution of responses to the items. This was accomplished with the principal components analysis of the Number Cruncher Statistical System (Hintze, 1987, pp. 139, NCSS 5.01 Manual). Following Pedhazur (1982) and others, two criteria were employed in selecting factors, namely: only the factors with an eigenvalue of 1.00 or more were retained, and variables from the 32 item scale with factor scores less than 0.5 on their respective factors were discarded.

In so doing, it was found that six of the 32 activities in the original Terry scale failed to load on a factor with a factor score of 0.5 or greater. In this context, this meant that the six named activities were not contributing significantly to the principal components of measurement of that scale. Of the six activities, four had been identified by Terry's panel as administrative (A) and two developmental (D). The activities were:

1. Managing the clerical and technical staff (A).
2. Managing physical facilities and equipment (A).

3. Listening to and encouraging ideas to enrich course offerings (D).
4. Assigning courses, research, and departmental duties to faculty (A).
5. Obtaining employment or acceptance in graduate school for students (D).
6. Preparing for accreditation (A).

At face value, these activities did not seem to be critical in differentiating administrative from developmental items, hence were discarded. The remaining 26 items appeared to constitute an integral test, with a Cronbach alpha of 0.6794, approaching that of the original 32 items of 0.7141.

Given that the 26 items produced a reliable scale, the 26 items were refactored. The principal components analysis produced four factors, each with an eigenvalue of 1.0 or more (see Table 2.7). The resulting factor scores were entered into the discriminant analysis to determine which, if any, accurately differentiated between allied health and other department heads.

The four factors and their derivation were as follows:

Factor 1: Planning and Development Factor

Six of the Terry developmental activities loaded 0.5 or more on this factor, i.e. responses to each of these six activities were correlated r = 0.5 or greater with the

Table 2.7

Departmental Activities Eigenvalues For
Four Independent Factors

Factor	Eigenvalue	Percent	Cumulative Percent
1	6.9843	26.86	26.86
2	3.5162	13.52	40.39
3	1.6141	6.21	46.59
4	1.5056	5.79	52.39

Source: Appendix D, Table 2.8

Factor 1: Planning and Developmental Factor
Factor 2: Academic Administration Factor
Factor 3: Financial and Personnel Administration Factor
Factor 4: University Relations Factor

underlying factor. Each spoke directly to a planning or development task (D) and suggested that the underlying factor might be labelled: planning and development. The six activities and their respective factor scores were:

Factor Scores: Planning and Development

0.6191 Initiating long-range programs, plans, and goals for the department (D)

0.6691 Encouraging the professional development of faculty members within the department (D).

0.6250 Recruiting scholarly faculty (D).

0.016 Prodding colleagues to recruit and select the most promising students (D).

0.6088 Encouraging faculty to obtain grants, gifts, and contracts (D).

0.6808 Stimulating faculty to do research and publish (D).

Factor 2: Academic Administration Factor

Ten of Terry's administrative activities loaded on this factor 0.5 or more. Each of the ten activities spoke to some aspect of academic administration with heavy emphasis upon student services. Accordingly, the factor was labelled "Academic Administration." The ten activities subsumed under this factor were:

Factor Scores: Academic Administration

.5632 Planning the curriculum, academic programs, course content, and teaching models (A).

.5413 Advising students on academic and/or departmental matters (A).

.6720 Assuring the maintenance of accurate student and

other departmental records (A).

.5630 Representing the department in the appropriate professional meetings and societies (A).

.5196 Coordinating activities with outside groups (A).

.7330 Recruiting and admitting students into the program (A).

.7310 Arranging and coordinating the placement of students in outside institutions for practical experiences or internships (A).

.7580 Maintaining student records (A).

.6077 Providing liaison between the educational program and the outside institutional administration (A).

.6980 Ensuring the medical relevance in student's educational experience.

Factor 3: Financial and Personnel Administration Factor

Four of Terry's administrative activities loaded 0.5 or more on a third, independent factor. Three of these dealt directly with some aspect of the departmental budget or financial affairs, and one with the evaluation of faculty for tenure, promotion, and annual salary adjustments. Accordingly, the factor was labelled, "Financial and Personnel Administration." The four administrative activities were included.

Factor Scores: Financial and Personnel Administration

-0.6900 1. Presenting proposed budgets.

-0.8523 2. Administering the departmental budget.

-0.7047 3. Administering control of revenue and expenditures.

-0.5900 4. Evaluating faculty performance to determine raises, and promotions.

Factor 4: University Relations Factor

The fourth factor was comprised by three of Terry's developmental activities and three administrative activities. Accordingly, it was difficult to label narrowly, as with the other factors. The predominant theme, however, seemed to be one of relations with other administrative and faculty bodies within the university. Accordingly, the factor was labelled, "University Relations." The five activities that loaded 0.5 or more on Factor 4 were included. A sixth variable that loaded 0.4933 seemed too significant to omit.

Factor Scores: University Relations

-.6526 Providing informal faculty leadership (D).

-.6789 Maintaining morale and reducing conflicts among faculty (D).

-0.5635 Interacting with the administration in behalf of departmental record (D).

(0.4933) Planning and holding departmental meetings (A).

-0.6572 Providing for the flow of information to the faculty to inform them of department, college and university activities and plans (A).

-0.5953 Participating in committee work within the college and university (A).

The complete table of eigenvalues from the factor analysis are shown in Appendix D, Table 2.8, and the complete

table of factor loadings for each of the four retained factors in Appendix D, Table 2.9.

The four factor scores, representing 26 of Terry's administrative and developmental activities then were entered into a discriminant analysis to determine which activities, if any, best predicted membership in the two classes of departments. The number of correct classifications and misclassifications using only these four factors was evaluated by comparing the predicted classifications with those actually reported.

Panel 3: Perceptions of Departmental Goals and Objectives

In her study, Terry selected 11 items describing the department heads' perception of departmental goals and objectives. The same goals were viewed in three ways, namely; how the department head perceived that his/her institutional superiors viewed the goals and objectives, how the department head perceived his/her faculty might view these goals and objectives, and finally the department head's own perceptions of the goals and objectives.

Terry attempted to relate each of the three perceptions offered by her sample of department heads for each of 11 departmental goals to her four types (HH, HL, LH, HH) of department heads. In so doing, she found little of significance to report. The point here is that her four

types differed only in isolated goal perceptions, not clusters of goals, as for example: most or all of the "institutional" perceptions.

It appeared to this researcher that there might be more to Terry's measure of departmental goals than she was able to report. Specifically, it was reasoned from the literature in Chapter 1 that allied health department heads might be torn in their views of departmental goals and objectives between those perceptions attributed to faculty (a metaphor for the professional aspects of the allied health programs) and those attributed to administrative superiors (metaphor for the institution's academic concerns for the allied health programs).

Since Terry's scale of departmental goals and objectives provided too many variables (3 x 10 = 30) to be entered directly into a discriminant analysis limited by 214 observations, the responses were factor analyzed in an effort to reduce the number of variables to a few underlying principal components. As before, the Number Cruncher Statistical System's principal components program was used. The same conventional criteria for retaining variables and factors were employed. As a result, five factors with an eigenvalue of 1.0 or more (see Table 2.8A) were retained. The individual factor scores are shown in Table 2.8B. Each of these is described below.

Table 2.8A

Department Goals Eigenvalues for
Five Independent Factors

Factor	Eigenvalue	Percent	Cumulative Percent
1	6.3539	26.47	26.47
2	2.8401	11.83	38.31
3	1.9892	8.29	46.60
4	1.7935	7.47	54.07
5	1.4079	5.87	59.94

Source: Appendix E, Table 2.11

Factor 1: Department and Faculty Improvement Goals
Factor 2: Teaching Service Courses
Factor 3: Institutional Emphasis
Factor 4: Research Emphasis
Factor 5: Types of Student Products

Table 2.8B

Departmental Goals - Rotated Factor Loadings

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Communality
Y41	0.1689	0.1340	-.2016	-.7784	0.0476	0.6947
Y42	0.3017	0.1582	0.0977	0.1900	-.7981	0.7987
Y43	0.7004	-.0689	-.0630	0.1270	-.2627	0.5844
Y44	-.0030	0.8979	-.0050	-.1137	-.0501	0.8216
Y45	0.6088	0.1042	-.2287	-.0885	-.2226	0.4911
Y47	0.1174	-.1857	-.3084	0.2962	-.6480	0.6510
Y50	0.6234	0.0448	-.2375	-.2616	-.1487	0.5377
F41	0.2994	0.1282	-.1300	-.7400	0.0939	0.6794
F42	0.2435	0.0403	0.0873	-.2434	-.7784	0.7337
F43	0.7586	-.0204	-0.515	0.1383	-.1649	0.5950
F44	-.0126	0.8772	-.0377	-.0748	-.0312	0.7785
F45	0.6779	0.0244	-.1136	-.1455	-.1266	0.5103
F47	0.0858	-.2474	-.2356	0.2760	-.6170	0.5809
F49	0.6029	0.0226	-.2027	-.3050	-.0316	0.4991
F50	0.6088	-.0451	-.1539	-.2911	-.1639	0.5073

Source: Questionnaire items 41-50, Appendix D, pp. 172.

Factor 1: Departmental and Faculty Improvement Goals

Seven of the departmental goals loaded 0.5 or more on this factor. Four were the department head's perceptions of how their faculty might view these goals and objectives (F), and three were how the department head himself/herself viewed the goals and objectives (Y). The specific goals are keyed to Table 2.8B. The goals and objectives were:

> Developing an efficient organization through use of appropriate managerial decisions (shared both by faculty and head). (Y43, F43)
>
> Encouraging the personal and professional development of the individual faculty members (shared both by faculty and head). (Y45, F45)
>
> Maintaining a spirit of inquiry and academic freedom (shared both by faculty and head). (Y50, F50)
>
> Improving the quality of the department relative to peer departments at at other universities and within this university (perceived by faculty alone). (F48)

Factor 2: Teaching Service Courses

Three different perceptions of the same departmental goal loaded 0.5 or more to form this factor, namely:

> Teaching courses for students majoring in other departments. (I44, Y44, F44)

Factor 3: Departmental Goals as Defined by the Institutional Emphasis on Goals

Five reported perceptions of departmental goals loaded 0.5 or more on this factor. All five were the department head's perception of how their superiors (i.e. institutional officials) viewed these goals.

Developing an efficient organization through use of appropriate managerial decisions. (I43)

Encouraging the personal and professional development of individual faculty members. (I45)

Providing the faculty and staff with a congenial place in which to work. (I48)

Improving the quality of the department relative to peer department at other universities and within this institution. (I49)

Maintaining a spirit of inquiry and academic freedom. (I50)

This could be interpreted to mean: those goals department heads believed that their superiors consider to be important.

Factor 4: Research Emphasis

Three different perceptions of the same goal loaded 0.5 or more on this independent factor. The goal was:

"Producing new knowledge through research"

Responding department heads reported that they believed that administration and faculty both agreed with their own personal perceptions of the importance of research. (I41, Y41, F41)

Factor 5: Type of Student Products

Four different perceptions of two departmental goals loaded 0.5 or more on this factor. There were two goals, one with three perceptions, namely: the department head's

perception of superior's view of the goals and the objectives, the department head's view of how their faculty might view the goals and the department head's own view of the goals and objectives. The other goal had two perceptions: that of the faculty and the department head. The goals were:

> Graduating a well-versed student with a balanced education. (Perceptions shared by administrators, faculty, and heads.) (I42, Y42, F42)
>
> Educating the student for future career. (Perceived by head and faculty) (Y47, F47)

The five factor scores, representing ten of Terry's departmental goals and objectives from three different perceptions, were entered into a discriminant analysis to determine which goals and objectives, if any, best predicted membership in the two classes of departments. The number of predicted classifications and misclassifications using only these five factors was compared to actual classifications.

The eigenvalues from the factor analysis are included in Appendix E, Table 2.11.

Panel 4: Environmental Characteristics

The department heads responded to 14 questions describing the characteristics of administrative and managerial environment surrounding the sample departments. The questions appear as Q51-Q64 in the questionnaire included in Appendix C. They are:

1. The number of secretaries (Q54), the number of FTE faculty in their departments (Q55), and the average number of years experience of the faculty (Q56). Differences in means in these areas were examined by one way ANOVA, using the Number Cruncher Statistical System.
2. Other questions included: characteristics of decision-making (Q51), amount of authority using budget (Q52), flexibility in using budget (Q53), percent of faculty with a doctorate (Q57), percent of students taking courses in department who are departmental majors (Q58), method of selection of department heads (Q59), length of time hired to serve as chairperson (Q60), percent of time teaching (Q61A), performing administrative duties (Q61B), and leadership (Q61C), how department head head was chosen (Q62), percent of courses changed during past five years (Q63), percent of inside department promotions (Q64). Differences in distributions between allied health and other department heads were examined by the Chi-square statistic, using the Number Cruncher Statistical System.

Responses to the 14 questions were entered into the Number Cruncher Statistical System program for discriminant analysis. One question (Q60C) was removed from analysis

because of the way the question was structured leaving a total of 16 variables to be considered. The extent to which the environmental characteristics variables accurately differentiated responses of allied health department heads from responses of other department heads was noted. The number of correct classifications and misclassifications, using only the 16 variables, was evaluated by comparing the predicted classifications with those actually reported.

Creating and Testing the Special Selection Model

To conclude the analysis, each of the four panels with reduced numbers of variables (or factor scores) was entered into the NCSS discriminant analysis. In determining the number of significant predictors to retain from each panel of variables, Tatsuoka's rule-of-thumb was used, specifically: to retain those determinants that accounted for 7% or more of the variance (r^2) between the two categories of department heads. (Note: the direct estimate of the "power" of a variable to discriminate between the two classes of department heads is Wilks-Lambda. This is the reciprocal of the value of summated variance or r^2 (1-L = r^2). For example: if a principal determinant has a Wilks-Lamda of .49, the equivalent amount of "explained variance" is 1-.49 =.51, or 51%. In other words, the amount of "explained" variance increases as the value of

Wilks-Lambda decreases. If a second determinant is entered and the combined Wilks-Lambda is .41, the total summated and explained variance is 1 - .41 or 59%. The contribution of the second determinant to the variance explained in this example is 59% - 51% or 8%. Using Tatsuoka's guideline, both the first and second determinants would be retained and identified as "powerful" discriminators. In this way, the most powerful predictors among the competing variables within each of the four panels of variables were determined.

To conclude the analysis, the one or two most powerful discriminators identified in each panel of variables were used to create a special selective model of "powerful predictors." This model was tested in the NCSS discriminant analysis program to determine finally which of the all the original 87 variables individually or in combination best predicted membership in the two classes of department heads in the study.

Chapter III

ANALYSIS OF DATA

In this chapter, the results of data analysis are presented. Data were analyzed in order to answer two principal research questions, namely:

1. In what ways, if any, do the responses of allied health department heads differ from those of heads of other academic areas in the same institutions, as for examples: education, English, biology, psychology, and chemistry?
2. Which variables or factors best discriminate between the responses of allied health chairpersons and those of heads of other academic areas?

The assumption was made in this study that the responses to a mailed questionnaire validly represented important characteristics of the responding department heads, hence provide potentially useful information about the department heads themselves, and perforce about the differences between the group of responding allied health department heads and other heads.

Two hundred fourteen completed questionnaires were analyzed. They represented 124 allied health department heads and 90 heads of other academic departments in a sample of 36 colleges and universities. The responses addressed 64

questions and provided information on 87 variables. These were grouped into four panels of variables, namely:

1. Personal Attributes (8 variables)
2. Departmental Activities (32 variables represented by 4 underlying factors)
3. Departmental Goals (30 variables represented by 5 underlying factors)
4. Other Institutional Environmental Characteristics (17 variables).

As described in detail in Chapter 2, each panel of variables was examined first by univariate analysis, and the results noted, as in the antecedent study by Eleanor Terry (1984). Variables or factor scores in each panel then were entered into a discriminant analysis to determine which variables or combinations thereof best distinguished between the responses of allied health and other department heads. Finally, those variables found to be the most powerful predictors of differences between the two groups of department heads were entered into a special selection panel for discriminant analysis. The results of the univariate and multivariate analyses of each of the four panels of variables or factors follow.

Differences in Personal Characteristics of Department Heads

Univariate Analysis

A clear majority (56%) of the 124 allied health heads are women, while 80% of the 90 other responding department heads were men (Table 3.1a). Allied health heads also tended to be younger. Their median age was 44.9 years, that of other heads, 49.7 years. Nearly a third (31%) of the allied health heads, as opposed to 3.3% of other heads, were under age 40 (Table 3.1b). The vast majority (76%) of heads of academic departments held the rank of full professor (Table 3.1c) and were tenured in a faculty position (Table 3.1d). By contrast, barely one in five (22%) allied health heads held the rank of full professor at the time of this study and over one-third (38%) were untenured. These differences in rank and tenure status cannot be explained in conventional terms of teaching and/or administrative experience. Although heads of other departments on the average reported nearly 21 years of teaching experience compared to 14 years for allied health heads (Table 3.1e), both had sufficient years of teaching experience to warrant promotion in rank at most institutions. Moreover, allied health heads on the average reported more years than other heads in administration prior to their present positions (Table 3.1e) as well as more years of experience in their present positions (Table 3.1e). When asked about their future plans for the proximate three to

Table 3.1a

Gender of Department Heads by Allied Health and Other Department

Departments	Male	Female	Total	
Allied Health	55	69	124	(Count)
	44.4	55.6	100.0	(Row %)
	43.3	79.3	57.9	(Column %)
	25.7	32.2	57.9	(Table %)
Other	72	18	90	(Count)
	80.0	20.0	100.0	(Row %)
	56.7	20.7	42.1	(Column %)
	33.6	8.4	42.1	(Table %)
Total	127	87	214	
	59.3	40.7	100.0	
	100.0	100.0	100.0	
	59.3	40.7	100.0	

$X^2 = 27.4635$ df = 1 p = 0.000

Table 3.1b

Age of Department Heads by Allied Health and Other Departments

	Age Groups								
Department	30-34	35-39	40-44	45-49	50-54	55-59	>59	Total	
Allied Health	91	29	22	24	16	15	91	124	(Count)
	7.3	23.4	17.7	19.4	12.9	12.1	7.3	100.0	(Row %)
	90.0	93.5	55.0	51.1	41.0	51.7	50.0	57.9	(Table %)
Other Departments	1	2	18	23	23	14	9	90	
	1.1	2.2	20.0	25.6	25.6	15.6	10.0	100.0	
	10.0	6.5	45.0	48.9	59.0	48.3	50.0	42.1	
Totals	10	31	40	47	39	29	18	214	
	4.7	14.5	18.7	22.0	18.2	13.6	8.4	100.0	
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	

$x^2 = 26.9056$ df = 6 p = 0.002

Table 3.1c

Faculty Rank Held by Department Heads by Allied Health and Other Departments

Department	Full	Associate	Assistant	Instructor	Other	Total	
Allied Health	27	55	30	5	7	124	(Count)
	21.8	44.4	24.2	4.0	5.6	100.0	(Row %)
	28.4	76.4	90.9	100.0	77.8	57.9	(Column %)
	12.6	25.7	14.0	2.3	3.3	57.9	(Table %)
Other Depart-ments	68	17	3	0	2	90	
	75.6	18.9	3.3	0.0	2.2	100.0	
	71.6	23.6	9.1	0.0	22.2	42.1	
	31.8	7.9	1.4	0.0	0.9	42.1	
Total	95	72	33	5	9	214	
	44.4	33.6	15.4	2.3	4.2	100.0	
	100.0	100.0	100.0	100.0	100.0	100.0	
	44.4	33.6	15.4	2.3	4.2	100.0	

$x^2 = 63.8283$ df = 4 p = 0.000

Table 3.1d

Tenured Status of Department Heads by Allied Health and Other Departments

Department	Tenured	Non-Tenured	Total	
Allied Health	77	47	124	(Count)
	62.1	37.9	100.0	(Row %)
	47.2	92.2	57.9	(Table %)
Other Depart-ments	86	4	90	
	95.6	4.4	100.0	
	52.8	7.8	42.1	
Total	163	51	214	
	76.2	23.8	100.0	
	100.0	100.0	100.0	

$x^2 = 32.1618$ df = 1 p = 0.0000

Table 3.1e

Years of Experience of Department Heads

Variable	All	Allied Health	Other Departments	F-Ratio	p
YRSTEACH	16.89439	14.08387	20.76667	51.58	0.0000
YRSADMIN	4.276963	5.0425	3.222222	7.76	0.0000
YRSPOSIT	6.733785	7.333306	5.907778	3.62	0.0591

five years, nearly two-thirds of the allied health heads said that they intended to remain in their positions, with less than 10% intending to return to full time teaching (Table 3.1f). By contrast, only 44% of other heads expressed an intention to remain in their chair, while 40% intended to return to full time teaching, suggesting that some academic departments limit the time expected for their heads to serve. Nearly 10% of the allied health heads indicated that they expected to leave university work for some full-time non-academic position.

Multivariate Analysis

The eight personal characteristics were entered into the discriminant analysis program of the Number Cruncher Statistical System 5.01. Of the eight variables, six accounted for a sufficient proportion of the differences in responses of the two groups of department heads to be considered to be statistically significant (that is: where the F-value was significantly different from zero at the .05 level of significance). Excluded were: tenure status and plans for the future. Although all eight variables were significant when taken one at a time, the contribution of two of the variables (tenure and future plans) did not figure significantly in accounting for the differences between the department heads when the combined effects of the several variables were considered. The total variance (r^2) between

Table 3.1f

Future Plans of Department Heads

Departments	Will Retire	Will Return To Full-Time Teaching	Will Remain In University Administration	Will Accept Full-Time NonAcademic Position	Other	Total	
Allied Health	10	12	80	12	10	124	(Count)
	8.1	9.7	64.5	9.7	8.1	100.0	(Row %)
	55.6	25.0	66.7	92.3	66.7	57.9	(Column %)
	4.7	5.6	37.4	5.6	4.7	57.9	(Table %)
Other Depart-ments	8	36	40	1	5	90	
	8.9	40.0	44.4	1.1	5.6	100.0	
	44.4	75.0	33.3	7.7	33.3	42.1	
	3.7	16.8	18.7	0.5	2.3	42.1	
Total	18	48	120	13	15	214	
	8.4	22.4	56.1	6.1	7.0	100.0	
	100.0	100.0	100.0	100.0	100.0	100.0	
	8.4	22.4	56.1	6.1	7.0	100.0	

$x^2 = 31.9341$ df = 4 p = 0.000

the groups of respondents accounted for by the combination of six variables was estimated from the overall Wilk's Lambda of .5832 to be .4168. These results are summarized in the NCSS variable selection report in Table 3.2.

How well do the six independent variables fit into a linear combination to predict membership in the two groups of administrators? The mathematics of the determination appear in the linear discriminant functions summarized in Appendix E, Table 3.1. With equal chances, one normally would expect the 214 department heads to be classified correctly 50% of the time, i.e. either as an allied health administrator or head of other department. At the same time, one normally would expect a 50% error or misclassification, as well. The discriminant analysis correctly classified 97 of the 114 allied health heads and 76 of the 90 other heads. This provides an accuracy of prediction of 80.85%, and a reported reduction in classification error of 61.7%. (See Table 3.3.)

Which of the six variables could be deemed "most powerful predictors?" Looking again at the R^2-Ad column of Table 3.2, it may be seen that two of the six variables independently accounted for 0.07 or 7% or more of the variance in responses of the department heads, hence -- according to Tatsuoka's rule of thumb cited in Chapter 2 -- could be selected as "principal predictors." From the data

Table 3.2

Personal Attributes - Variable Selection Report

Classification Variable: Type of Department (Allied Health and Other Academic Departments)

IN	Variable	R^2-ad	F-Val	F-Prob	IN	Variable	R^2-ad	F-Val	F-Prob
Yes	YRSTEACH	0.064	14.2	0.0002	Yes	YRSADMIN	0.066	14.5	0.0001
Yes	YRSPOSIT	0.103	23.8	0.0000	Yes	RANK	0.042	9.1	0.0025
Yes	AGE	0.020	4.1	0.0417	Yes	SEX	0.072	16.0	0.0001
No	TENURE	0.017	3.6	0.0594	No	FUTURE	0.008	1.6	0.2066

Overall Wilk's Lambda 0.5832 x^2 = .4168

Table 3.3

Accuracy of Classification Using Six Personal Attributes

Departments	Predicted				Actual	
	Allied Health		Other Departments			
	Number	%	Number	%	Number	%
Allied Health	97	78.2	27	21.8	124	100.0
Other Departments	14	19.6	76	80.9	90	100.0
All	111	51.4	103	48.6	214	100.0

Percent Reduction in classification error: 61.7

in Table 3.2, two of the variables so qualify, namely: Years in the present position with r^2 of 0.103 and Sex (Gender) with r^2 of 0.072. (In an alternate analysis, two additional variables were included as possible "principal determinants" because their r^2 values at 0.066 and 0.064 were very close to the arbitrary cutoff. These were: Years in teaching and Years in this position. The results, as shown in Appendix Table 3.12 and 3.13, by their inclusion.) Accordingly, the two principal determinants were included in a final special selection panel in an effort to find the most powerful combination of predictors from the original 87 variables.

Differences in Time Devoted to Departmental Activities

The department heads were asked to estimate the amount of time they devoted in an "average work week of 50 hours" to each of 32 activities typically performed by department heads. Differences in responses of the 124 allied health heads and 90 heads of other departments to each of the 32 activities were explored first by univariate statistics and then by discriminant analysis.

Univariate Analysis

As may be seen in Table 3.4A, the mean time per week on ten activities reported by allied health heads was significantly greater than reported by other heads in their institutions. Each and all of the 10 activities were

Table 3.4A

Departmental Activities

Differences in the Mean Time (Hours) Per Week

Activity*	All	Allied Health	Other Departments	F	p
Q9	2.8364	2.7822	2.9111	0.90	0.34
Q10	2.8785	2.8225	2.9555	0.97	0.32
Q12	2.3878	2.3225	2.4777	1.67	0.19
Q13	2.8644	2.8145	2.933	0.71	0.39
Q14	2.6915	2.7338	2.6333	0.48	0.48
Q15(D)	3.4626	3.3548	3.6111	3.49	0.06
Q17(D)	2.1682	2.0161	2.3777	7.05	0.00
Q18(D)	2.1728	2.2741	2.0333	2.65	0.10
Q19	2.5934	2.4274	2.8222	9.93	0.00
Q20	3.3130	3.5483	2.9888	16.50	0.00
Q21(D)	2.3224	2.1774	2.5222	6.76	0.01
Q22(D)	2.5093	2.4193	2.6333	2.38	0.12
Q23(D)	2.9392	2.7661	3.1777	7.28	0.00
Q24	3.3971	3.5967	3.1222	9.98	0.00
Q25(D)	3.2757	3.2419	3.3222	0.36	0.54
Q27	2.5981	2.8387	2.2666	17.88	0.00
Q28	2.9112	3.2016	2.5111	27.97	0.00
Q29	2.7429	2.8225	2.6333	2.40	0.12
Q30	3.0560	3.0080	3.1222	0.67	0.41
Q31	3.2012	3.1935	3.2333	0.08	0.78
Q34	2.2336	2.3629	2.0555	6.17	0.01
Q35	2.5887	2.9032	2.1555	27.27	0.00
Q36	2.1588	2.5161	1.6666	26.86	0.00
Q38	2.2196	2.5000	1.8333	23.01	0.00
Q39	2.6542	2.9435	2.2555	23.18	0.00
Q40	2.1355	2.7419	1.3000	116.90	0.00

*Key to Activities, Q9-Q40, Table 3.4B, page 90.

classified in accordance with Terry (1984) as "administrative" as opposed to "developmental" tasks, as may be seen in Table 3.4B, they seemed to reflect a substantive interest by department heads of allied health in student affairs, external relations, and what most students of administration might classify as "administrivia", i.e. necessary but thankless tasks of record keeping and reporting. The ten activities are:

Q20: Planning the curriculum and academic programs.

Q24: Advising students on academic matters.

Q27: Assuring maintenance of departmental records.

Q28: Representing the department in the appropriate professional meetings and societies.

Q34: Coordinating activities with outside groups.

Q35: Recruiting and admitting students into the program.

Q36: Arranging and coordinating the placement of student in outside institutions for internships.

Q38: Maintaining student records.

Q39: Providing liaison between the educational program and outside institutional administration.

Q40: Ensuring the medical relevance in students' educational experience.

By contrast, heads of other departments in the sample institutions reportedly gave more time to faculty related tasks, four of which Terry had defined as "developmental". These were:

Q17: Recruiting scholarly faculty. (D)

Table 3.4B

Key to Departmental Activities on Table 3.4A

Q9	Initiating long range programs, plans, and goals for the department
Q10	Encouraging the professional development of faculty member within the department
Q12	Presenting proposed budget
Q13	Administering the departmental budget
Q14	Administering control of revenue and expenditures
Q15	Providing informal faculty leadership
Q17	Recruiting scholarly faculty
Q18	Prodding colleagues to recruit and select promising graduate students
Q19	Evaluating faculty performance to determine tenure, raises, and promotions
Q20	Planning the curriculum, academic programs, course content, and teaching methods
Q21	Encouraging faculty to obtain grants, gifts, and contracts
Q22	Stimulating faculty to do research and publications
Q23	Maintaining morale and reducing conflicts among faculty
Q24	Advising students on academic and departmental matters
Q25	Interacting with administration in behalf of faculty
Q27	Assuring the maintenance of accurate student and other departmental records
Q28	Representing the department in appropriate professional meetings and societies
Q29	Planning and holding departmental meetings
Q30	Providing for flow of information to faculty
Q31	Participating in committee work within the college and university
Q34	Coordinating activities with outside groups
Q35	Recruiting and admitting students into the program
Q36	Arranging and coordianting the placement of students in outside institutions for practical experiences or internships
Q38	Maintaining student records
Q39	Providing liaison between the educational program and the outside institutional administration
Q40	Ensuring the medical relevance in students' educational experience

Q19: Evaluating faculty performance to determine tenure, raises, and promotion.

Q21: Encouraging faculty to obtain grants, gifts, and contracts. (D)

Q23: Maintaining morale and reducing conflicts among faculty. (D)

It should be noted, when ANOVA is used to explore differences between two groups on 32 individual items, one reasonably could expect significant differences to occur merely by chance in 5% of these test of difference. However, significant differences ($p < .05$) were determined in 12 of the 32 items, clearly exceeding the likelihood of a chance occurence. Accordingly, it seems safe to assume that the differences reported here are real, not merely apparent.

Multivariate Analysis

As described earlier in Chapter 2, the 32 activities were factor analyzed, thereby reducing the number of variables to 26, grouped into four independent, underlying factors. The factors were labelled:

a. Factor 1-A: A Planning & Development Factor (C100). Includes six of Terry's developmental activities as follows:

Q9 Initiating long-range programs, plans, and goals for the department

Q10 Encouraging the professional development of faculty members within the department

Q17 Recruiting scholarly faculty

Q18 Prodding colleagues to recruit and select the most promising students

Q21 Encouraging faculty to obtain grants, gifts, and contracts

Q22 Stimulating faculty to do research and publish

b. Factor 2-A: An Academic Administration Factor (C101) Includes ten of Terry's "administrative" activities on which allied health heads reportedly devoted more time than their counterparts in other departments (See again Table 3.4A). These are:

Q20 Planning the curriculum, academic programs, course content, and teaching models

Q24 Advising students on academic and/or departmental matters

Q27 Assuring the maintenance of accurate student and other departmental records

Q28 Representing the department in the appropriate professional meetings and societies

Q34 Coordinating activities with outside groups

Q35 Recruiting and admitting students into the program

Q36 Arranging and coordinating the placement of students in outside institutions for practical experiences or internships.

Q38 Maintaining student records

Q39 Providing liaison between the educational program and the outside institutional administration

Q40 Ensuring the medical relevance in students educational experience

c. Factor 3-A: A Financial & Personnel Administration Factor (C103) Includes four of Terry's administrative activities that deal directly with the departmental budget or financial affairs, as follows:

Q12 Presenting of proposed budgets

Q13 Administering the department budget

Q14 Administering control of revenue and expenditures

Q19 Evaluating faculty performance to determine tenure, raises, and promotions.

d. Factor 4-A: A University Relations Factor (C102) Includes six departmental activities that tend to describe the departments' relationship to the rest of the university. They are:

Q15 Providing informal faculty leadership

Q23 Maintaining morale and reducing conflicts among faculty

Q25 Interacting with the administration in behalf of departmental record

Q29 Planning and holding departmental meetings

Q30 Providing for the flow of information to the faculty to inform them of department, college, and university activities and plans

Q31 Participating in committee work within the college and university

The four factors were entered into the NCSS discriminant analysis program. Three of the four factors, as may be seen in Table 3.5, contributed significantly to the prediction of

Table 3.5

Departmental Activities - Variable Selection Report

Classification Variable: Type of Department (Allied Health and Others)

IN	Variable*	R^2-Ad	F-Val	F-Prob	IN	Variable*	R^2-Ad	F-Val	F-Prob
YES	C100	0.019	4.1	0.0430	YES	C101	0.305	92.3	0.0000
YES	C102	0.053	11.7	0.0006	NO	C103	0.007	1.6	0.2119

Overall Wilk's Lambda = 0.6598 r^2 = 0.3402

*Factor 1-A C100 Planning & Development
*Factor 4-A C102 University Relations
*Factor 2A C101 Academic Administration
*Factor 3A C103 Financial and Personnel Administration

differences between the two types of department heads. These were: Factor 1-A The Planning and Developmental Factor (C100), Factor 2-A The Academic Administration Factor (C101), and Factor 4-A The University Relations Factor (C102). The Budget and Personnel Factor (Factor 3-A, C103) did not figure significantly in the prediction.

The three factors combined to account for 34.02% of the variance in the responses of the two groups of heads, somewhat less overall than the combined predictive effects of the six personal attribute variables. Nonetheless, linear discriminant functions reported in Appendix E, Table 3.2 were sufficient to reduce the classification error of a chance classification by 50.5%. The result was: the three factors combined to correctly classify 89 of the 123 or 71.8% of the allied health heads and 72 of the 90 or 80% of the other heads, a combined rate of accuracy of 79.91%, a result considerably better than a classification by chance alone. These results are summarized in Table 3.6.

Which of these predictors was worth including in a special selection panel of "powerful determinants". Referring again to Table 3.5, of the three factors whose discriminant values were statistically significant, (i.e. with F-values significantly different than zero), only one was reported to have an independent r^2 value greater than 0.07, the criterion for inclusion in the selection model. This was Factor 2-A

Table 3.6

Departmental Activities

Accuracy of Classification Predicted

Department	Allied Health Number	%	Other Departments Number	%	All Number	%
Allied Health	89	71.8	35	28.2	124	100.0
Other Departments	18	20.0	72	80.0	90	100.0
All	107	50.0	107	50.0	214	100.0

Percent reduction in classification error: 50.5

(C101) the Academic Administration factor, comprised by ten of Terry's administrative activities that dealt principally with student related affairs. Interestingly, the independent r^2 value for Factor C101 was nearly as great as the total r^2 value for the combined factors C100, C102, and C103. Accordingly, Factor 2-A (C101) Academic Administration was included in the special selection model for later analysis.

Differences in Perceptions of Departmental Goals

Each department head was asked to respond to each of ten commonly pursued goals of university departments in three different ways, namely:

1. The amount of emphasis (5 point scale) that (s)he believed his institution would place on each departmental goal;
2. The amount of emphasis that (s)he believed his departmental faculty would place on each such goals, and finally
3. The amount of emphasis that (s)he personally believed should be placed on each goal.

Univariate Analysis

Each of the thirty responses from each department head was examined by one-way ANOVA, giving a value of 1 to "Little (emphasis) or none at all" and 5 to "A very great deal" of emphasis. Differences in the means of the two groups are

reproduced in Table 3.7A. Of the nine significant differences, it is recognized that one or two might be different simply by chance, i.e. a function of the 30 repetitions in the application of ANOVA. The likelihood that all nine are chance occurrences is extremely remote.

Institutional Emphasis on the Ten Goals

The two groups of department heads differed on only one of the ten goals when asked to respond as they believed their "institution" would. This is identified in Table 3.7B as I44 (Institutional Question 44): Emphasize given to the goal of "Teaching courses for students majoring in other departments." Clearly, heads of other academic departments believe the institution to be more concerned about "service courses" than allied health heads. Probably this reflects a difference in the nature of enrollments in the two classes of departments: most students taking Allied Health courses are majors. Whereas students in other departments may elect those courses without majoring in the particular subject.

At any rate, this result runs contrary to the common sensical expectation cited in Chapter 1, namely that allied health chairs would more likely than their counterparts in other departments report that their institutional superiors would place emphasis on a goal such as Q46: Maintaining the goals and requirements of the central administration (e.g. enrollment, grants, budget, development). It is clear that

Table 3.7A

Departmental Activities

Differences in the Means of the Two Groups of Department Heads

Goal	All	Allied Health	Other Departments	F	p
Y41	3.2710	3.0322	3.6000	14.40	0.00
Y42	4.4252	4.3951	4.4666	0.38	0.53
Y43	3.6915	3.8306	3.5000	5.70	0.01
Y44	2.6495	2.2822	3.1555	32.82	0.00
Y45	4.0467	4.0080	4.1000	0.54	0.46
Y46	3.3551	3.4354	3.2444	2.64	0.10
Y47	4.2149	4.4838	3.8444	27.77	0.00
Y48	4.0280	3.9688	4.1111	1.38	0.24
Y49	4.0794	4.0403	4.1333	0.54	0.46
Y50	4.2149	4.0967	4.3777	5.74	0.01
F41	2.9719	2.7419	3.2888	13.01	0.00
F42	4.2897	4.3145	4.2555	0.21	0.64
F43	3.1822	3.2661	3.0666	1.75	0.18
F44	2.4299	20.967	2.8888	31.57	0.00
F45	3.9158	3.9596	3.8555	0.54	0.46
F46	2.7850	2.8306	2.7222	0.63	0.42
F47	4.1728	4.4677	3.7666	33.34	0.00
F48	4.1635	4.0725	4.2888	3.06	0.08
F49	3.7990	3.7661	3.8444	0.31	0.57
F50	4.1962	4.0645	4.3777	6.07	0.01

Source: Key to Goal Statements Table 3.7B

Table 3.7B

Key to Departmental Goals

	I Institutional Emphasis	Y Your Emphasis	F Emphasis Faculty Would Like
41. Producing new knowledge through research.	a b c d e	a b c d e	a b c d e
42. Graduating a well versed student with a balanced education.	a b c d e	a b c d e	a b c d e
43. Developing an efficient organization through use of appropriate managerial decisions.	a b c d e	a b c d e	a b c d e
44. Teaching courses for students majoring in other departments.	a b c d e	a b c d e	a b c d e
45. Encouraging the personal and professional development of the individual faculty members.	a b c d e	a b c d e	a b c d e
46. Maintaining the goals and requirements of the central administration (e.g., enrollment, grants, budget, development).	a b c d e	a b c d e	a b c d e
47. Educating the student for future career.	a b c d e	a b c d e	a b c d e
48. Providing the faculty and staff with a congenial place in which to work.	a b c d e	a b c d e	a b c d e
49. Improving the quality of the department relative to peer departments at other universities and within this institution.	a b c d e	a b c d e	a b c d e
50. Maintaining a spirit of inquiry and academic freedom.	a b c d e	a b c d e	a b c d e

the mean responses of the two groups of heads on this item are not significantly different. It is equally clear, however, that of all the means of the ten goals (I41-I50), I46 appears to be the greatest. It would appear that both classes of departments report that their institutions would place greater emphasis on that goal than any of the others.

Department Head's Own Emphasis on the Ten Goals

When responding for themselves, the heads differed significantly on five goals. Allied Health heads placed greater mean emphasis on Y47: Educating the student for future career and on Y43: Developing an efficient organization through use of appropriate managerial decisions. Were the sample larger, differences might have been significant on Y46 Maintaining the goals and requirements of central administration. With an F-value significant only when the value of $p = 0.1$ or greater, the apparent differences on this goal were ignored.

By contrast, the heads of other departments placed greater mean emphasis on Y44 Teaching of service courses to non-majors, and on two classical concerns of academic departments, namely: Y41 Producing new knowledge through research and Y50: Maintaining a spirit of inquiry and academic freedom.

Faculties' Emphasis on the Ten Departmental Goals

The views expressed by department heads on behalf of their respective faculties did not differ materially from their own. Allied Health heads reported as though their faculties placed greater emphasis on career education (Y47: Educating the student for future career) than counterparts in other departments. Other heads reported greater faculty emphasis on service courses (Y44), productive research (Y41), and academic freedom (Y50).

Multivariate Analysis

As described in detail in Table 2.8B in Chapter 2, the 30 responses to institutional goals were entered into the principal components analysis program of NCSS. Five underlying factors were identified. These were:

1. Factor 1-G (C104) labelled "Departmental and Faculty Improvement Goals", including seven responses for self and faculty around four goals, namely: Y43/F43 Developing an efficient organization, Y45/F45 Encouraging personal and professional development of faculty, Y50/F50 Maintaining a spirit of inquiry and academic freedom, and F/49 Improving quality of department relative to others.
2. Factor 2-G (C105) labelled "Teaching Service Courses", including three perceptions of the same

goals: I44/Y44/F44 Teaching courses for students majoring in other departments.

3. Factor 3-G (C108) labelled "Institutional Emphasis on Goals," including five goals all reflecting an institutional emphasis: I43, I45, I48, I49, I50.
4. Factor 4-G (C106) labelled "Research Emphasis", including three perceptions of the same goal: I41/Y41/F41 Producing new knowledge through research.
5. Factor 5-G (C107) labelled "Type of Student Product", including five perceptions on two goals reflecting on the kind of student to be graduated by the institution, namely: I42/Y42/F42 Graduating a well-versed student with a balanced education, and Y47/F47 Educating the student for future career.

The five factor scores were entered into the discriminant analysis program of NCSS. As may be seen in Table 3.8, three of the five factor scores contributed significantly to the prediction between the two classes of departments. The three factor scores were: Factor 2-G (C105) "emphasis given to teaching service courses," Factor 4-G (C106) "emphasis given to research," and Factor 5-G (C107) "emphasis given to the kind of student to be produced." Two factor scores did not figure in the prediction model. These were Factor 1-G (C104) with emphasis given departmental and

Table 3.8

Departmental Goals - Variable Selection Report

Classification Variable: 97 Type of Department

IN	Factor	R^2-AD	F-Val	F-Prob
YES	#2-G	0.221	59.5	0.0000
YES	#4-G	0.092	21.3	0.0000
YES	#5-G	0.050	11.1	0.0009
NO	#1-G	0.000	0.1	0.7750
NO	#3-G	0.001	0.3	0.6056

Overall Wilk's Lambda 0.6955 r^2 = .3045

Factor 2-G = Teaching service courses
Factor 4-G = Research
Factor 5-G = Type of student product
Factor 1-G = Emphasis given departmental and faculty improvement
Factor 3-G = Emphasis given institutional concerns

faculty development, and Factor 3-G, with emphasis given to institutional concerns.

The reader will recall from Table 3.7A, certain similarities in results from the univariate analyses. Heads of academic departments other than allied health emphasized the teaching of service courses, as did the institution, as well as research, and production of well-versed students in a balanced program. Allied health heads emphasized the professional preparation of their students for a career. Indeed, the combination of these seemingly opposing goals (liberal arts and career education) in the multivariate analysis may have masked important differences between the heads as shown in the univariate results. Moreover, the combined weight of the three factor scores accounted for only 30.45% of the variance in the prediction between the two groups, considerably less than either of the previous two panels.

Nonetheless, using only the three factor scores enables one to improve the accuracy of classification of the respondents into the two departments over mere chance classification. The mathematics is shown in Table 3.3 in the Appendix. But in Table 3.9, the discriminant analysis correctly classified 94 of the 124 Allied Health heads and 69 of the 90 heads of other departments, a combined total of

Table 3.9

Departmental Activities

Accuracy of Classification Predicted

Departments	Allied Health Number	%	Other Departments Number	%	All Number	%
Allied Health	94	75.8	30	24.2	124	100.0
Other Departments	21	23.3	69	76.7	90	100.0
All	115	53.7	99	46.3	214	100.0

Percent reduction in classification error: 52.3

163 or 76.17% correct classifications, a reduction in classification error of 52.3%.

Would any of the three factor scores qualify as a principal predictor? Reviewing Table 3.8, it can be seen that two of the factors exceed an independent r^2 of 0.7. These are: Factor 2-G (C105) with emphasis on teaching service courses, and Factor 4-G (C106) with emphasis on research. Interestingly, Factor 5-G (C107) concerning the type of graduate to be produced, although significant in the univariate analysis in differentiating responses of Allied Health and other heads, and significantly different from zero in the multivariate analysis, was not a principal predictor in the multivariate analysis.

Accordingly, the service course factor (Factor 2-G/C105) and the research factor (Factor 4-G/C106) were entered into the special selection panel for final analysis.

Differences in Administrative and Managerial Environment

The 214 responding department heads also described 16 other aspects of their departments and the environment in which they operated in 1986. These were:

- Q51 Degree of discretion in decision-making that resides in the department
- Q52 Extent of department head's authority in using his/her budget
- Q53 Flexibility to use budget to provide faculty incentives

Q54 Number of secretaries in department

Q55 Number of FTE faculty in department

Q56 Average number of years experience of the faculty

Q57 Percent of faculty holding a doctorate

Q58 Percent of non-majors taking courses in his/her department

Q59 Extent of faculty involvement in selection of department head

Q60 Percent of heads appointed for an indefinite term

Q61a Percent of time head devotes to teaching

Q61b Percent of time head devotes to administrative duties

Q61c Percent of time head devotes to departmental leadership

Q62 Percent of heads chosen from outside the university

Q63 Percent change in course offerings during past five years

Q64 Percent of professors and associates who previously held rank of assistant professor in the department

Each of these was examined, either by one-way ANOVA or Chi-square, depending on the level of measurement. The results are summarized in Table 3.10 and 3.11.

Univariate Analysis

From the ANOVA examinations in Table 3.10, it is clear that Allied Health departments are smaller (Q56), have fewer secretaries (Q54), have less faculty experience (Q56), hold fewer doctorates (Q57), and have promoted fewer professors

Table 3.10

Mean Differences in Departments by Administrative and Managerial Environment

Variable	All	Allied Health	Other Departments	F	p
Q54	2.2560	1.5689	3.2027	8.36	0.00
Q55	12.537	6.7306	20.538	94.13	0.00
Q56	11.046	9.0387	13.812	48.54	.00
Q57	52.806	27.256	88.008	234.70	0.00
Q58	64.336	83.894	37.390	123.10	0.00
Q61A	31.660	32.647	30.300	0.57	0.45
Q61C	41.004	42.217	39.333	1.26	0.26
Q61B	21.579	22.069	20.904	0.42	0.00
Q63	3.1775	3.5161	74.293	16.84	0.00
Q64	59.185	48.220	74.293	31.28	0.00

Source: Key to Questions in Text

Q54 Number of secretaries in your department
Q55 Number of FTE faculty in your department
Q56 Average number of years experience of the faculty
Q57 Percent of faculty holding a doctorate
Q58 Percent of student taking courses in your department and your own majors
Q61A Percent of time spent of teaching
Q61B Percent of time spent on administrative duties
Q61C Percent of time spent on department leadership
Q63 Percent of departmental course offerings have changed during the past five years
Q64 Percent of faculty promoted within the the department

Table 3.11

Differences Between Heads on Key Categorical Questions Concerning Administrative and Managerial Environment

	Question	X^2	df	p
Q53	Authority to use budget	8.9122	1	0.0000
Q59	Manner head was selected	22.7233	4	0.0001
Q60	Indefinite appointment	35.7881	1	0.0000
Q62	Brought from outside	20.5395	1	0.0000

Source: Key to Question in Text
Appendix Tables 3.4, 3.5, 3.6, 3.7

Q53 Do you have the flexibility to use the budget for providing the incentive raises for those who initiate course development and research?
Q59 How were you seleted as a department chairman?
Q60 Were you selected to serve a specific length of time as chairman?
Q62 Were you chosen for the chairmanship from within the university or were you brought in from outside the university?

up through the ranks (Q64). By contrast, courses in Allied Health departments enroll mostly their own majors (Q58), and have undergone more curriculum change in the five years prior to 1986 (Q63). The absence of non-majors in their classes, perhaps, explains the Allied Health faculty's' and heads' concern about service courses, a seeming preoccupation of departments other than allied health and of the university administration generally.

From the composite Chi-square Table 3.11, it is evident that a much greater proportion of Allied Health heads were brought into the university from the outside (Q62), selected by their dean with limited consultation with faculty (Q59), and were named for an unspecified period of time (Q60). Nonetheless, a greater proportion of Allied Health heads report some limits on their authority to use their departmental budget for faculty incentives.

Multivariate Analysis

Despite their numbers, the 16 environmental variables were entered into the discriminant analysis program of the NCSS. Six of the 16 variables contributed significantly to the prediction of members in the two classes of departments: allied health and others. As presented in Table 3.12, these were:

Q55 Number of FTE faculty in the department

Q57 Percent of the faculty holding the doctorate

Table 3.12

Administrative and Managerial Environment - Variable Selection Report

Classification Variable: Type of Department

IN	Variable	R^2-Ad	F-Val	F-Prob	IN	Variable	R^2-Ad	F-Val	F-Prob
Yes	Q55	0.193	49.6	0.0000	Yes	Q57	0.206	53.7	0.0000
Yes	Q58	0.070	15.5	0.0001	Yes	Q61C	0.020	4.2	0.0415
Yes	Q62	0.019	4.0	0.0449	Yes	Q63	0.030	6.4	0.0114
No	Q51	0.008	1.6	0.2010	No	Q52	0.000	0.0	0.8640
No	Q53	0.005	1.1	0.2991	No	Q54	0.003	0.6	0.4303
No	Q56	0.016	3.3	0.0684	No	Q59	0.002	0.5	0.4876
No	Q60	0.002	0.3	0.5558	No	Q61A	0.002	0.4	0.5536
No	Q61B	0.005	1.1	0.2910	No	Q64	0.006	1.3	0.2489

Overall Wilk's Lambda 0.3377 r^2 = .6623

Questions identified in text

Q58 Percent of non-majors taking courses in the department

Q61c Time head devotes to departmental leadership

Q62 Percent of heads selected from outside

Q63 Percent change in courses since 1981

These six variables combined to account for 66.23% of the variance in the prediction of differences in group membership, a considerably greater amount than that experienced in any of the three preceding panels of variables.

Moreover, the combined variables enabled the discriminant analysis to be very accurate in classifying respondents into the two classes of departments. The underlying discriminant functions are reported in Appendix Table 3.8. In text Table 3.13, 110 or 88.7% of the allied health department heads were correctly classified, and 85 or 94.5% of the other heads, based on these six variables alone, a combined rate in accuracy of 91.12%. The percent reduction in misclassifications over mere chance predictions was reported to be 82.2%.

Which of these six variables may be considered to be principal predictors? Looking again at Table 3.11, three of the six variables have independent r^2 values in excess of 0.07, the cutting score established for such selections. These are: Q55 Size of departmental faculty, Q57 Per cent

Table 3.13

Accuracy of Classification Based on Six Environmental Variables

Department	Predicted: Allied Health Number	Predicted: Allied Health %	Predicted: Other Departments Number	Predicted: Other Departments %	Actual Number	Actual %
Allied Health	110	88.7	14	11.3	124	100.0
Other Departments	5	5.5	85	94.5	90	100.0
All	115	53.7	99	46.3	214	100.0

Percent reduction in classification error: 82.2

faculty with doctorate, and Q58 Per cent of non-majors taking courses in the department. It can be recalled from the univariate analysis that the Allied Health departments were smaller, had fewer faculty with the doctorate, and had fewer non-majors taking their classes.

These three variables were entered into the special selection panel for final analysis.

Using a Special Selection of Variables to Predict Membership

In a final multivariate analysis, the principal or most powerful predictor variables selected from each of the four panels of variables were entered into the discriminant analysis program of the NCSS in order to identify the most efficient variables among the original 87 in the survey. Selection, the reader will recall, was based on an independent r^2 value > .07. These were:

Q3 Length of service in present position.

Q8 Sex of department head.

Q55 FTE faculty in the department.

Q57 Percent faculty with doctorate.

Q58 Percent of non-majors taking courses in department.

#101 Factor 2-A: the academic administration factor underlying departmental activities.

#105 Factor 2-G: The teaching of service course goal.

#106 Factor 4-G: The research goal.

The eight principal predictors were entered into the NCSS program for discriminant analysis with the following results. As shown in Table 3.14, five of the eight principal predictors combined to explain 65.41% of the variance in the prediction of membership in the two classes of department heads. These were:

Q55 Number of FTE faculty in department.

Q57 Percent of faculty holding a doctorate.

Q58 Percent of students taking courses who are your own majors.

C101 Factor 2-A time devoted to academic administration.

C105 Factor 2-G emphasis given to the teaching of service courses.

Although they were principal predictors in their own panel of variables, sex, years in position, and emphasis given to the research goals of the department did not figure significantly in the final multivariate prediction of membership in the two classes of department heads. Moreover, there appears to be some redundancy in the emphasis given by the analysis to Q58 Per cent of student majors taking courses in your department and Factor 2-a (C105) Emphasis given to the teaching of service courses for non-majors.

Nonetheless, the five significant factors combined to explain 65.41% of the variance in the final prediction. See again Table 3.13. Moreover, as summarized in Table 3.15, they enabled the analysis to correctly classify 86.29% of the

Table 3.14

Eight "Principal Predictors" in a Special Selection - Variable Selection Report

Classification Variable: Type of Department

IN	Variable	R^2-Ad	F-Val	F-Prob	IN	Variable	R^2-Ad	F-Val	F-Prob
Yes	Q55	0.122	29.0	0.0000	Yes	Q57	0.154	38.0	0.0000
Yes	Q58	0.062	13.8	0.0002	Yes	Factor 2A	0.027	5.7	0.0171
Yes	Factor 2G	0.033	7.0	0.0080	No	YRSPOSIT	0.001	0.2	0.6247
No	SEX	0.002	0.5	0.4802	No	Factor 5G	0.000	0.1	0.7828

Overall Wilk's Lambda = 0.3459 r^2 = .6541

Questions identified in text

Table 3.15

Accuracy of Prediction

Special Selection Panel of Five Principal Predictions

	Predicted				Actual	
Department	Allied Health Number	%	Other Departments Number	%	Number	%
Allied Health	107	86.29	17	6.1	124	100.0
Other Departments	5	5.6	85	94.5	90	100.0
All	112	52.6	102	47.4	214	100.0

Percent reduction in classfication error: 79.4

Source: Table 3.14

allied health respondents and 94.5% of the other heads, or a combined rate in accuracy of 89.72%, with a reduction in classification error of 79.4%. The discriminant functions leading to this level of accuracy in classification are reproduced in Appendix Table 3.9.

As impressive as the prediction developed from the special selection model might be, it should be noted that the results are only marginally different than the panel of environmental variables (see again Table 3.13) in classifying allied health respondents, with marginally less reduction in classification error overall.

Nonetheless, it may safely be stated that the differences between allied health and other departments and their heads, within the limitations of this study, may be defined accurately by these five variables acting in combination. For program planning or other purposes, the results of the univariate analyses provide additional information.

Summary

Clearly, as evident in Table 3.16, each of the five panels of variables increased accuracy of prediction over mere chance. The most profound differences between allied health and other department heads in the 36 sample institutions resided in the size of their department, the

Table 3.16

Accuracy of Classification: Comparison of Five Panels of Predictors

Panel of Variables	Classified		Mis-Classified		All	
	#	%	#	%	#	%
Six Personal Attributes	173	80.85	41	19.15	214	100.0
Three Factor Scores of Departmental Activities	161	79.91	53	20.09	214	100.0
Three Factor Scores of Departmental Goals	163	76.17	51	23.83	214	100.0
Six Administrative and Managerial Environment Variables	195	91.12	19	8.88	214	100.0
Special Selection Panel of Five "Best Predictors"	192	89.72	22	10.28	214	100.0

credentials held by their faculties, and the insularity of their departments from the mainstream of university concerns. The meaning and possible implications of these basic differences are discussed in the next chapter.

CHAPTER IV

SUMMARY, DISCUSSION, AND CONCLUSION

A summary of results of the analysis together with a discussion of findings, and a conclusion are presented in this chapter.

Education in allied health professions has been a formal part of higher education since 1950. Programs for preparation of allied health personnel now may be found in most of the nation's leading colleges and universities. In their development, these programs have followed much the same evolutionary path established earlier by the professions of medicine and nursing.

In their formative years, both medical and nursing programs, with notable exceptions, developed largely independent of the established colleges and universities of their day. In the case of medicine, programs proliferated and were of such poor quality that "one view was that the 1910 Flexner Report was more than a public blast at educationally unsavory medical schools operated by indifferent faculty proprietors solely for profit. It was seen as a specific proposal to change medical education so that it is based on inductive, scientific research within high prospects for successful application to medical practice" (Vevier, 1987). The Flexner Report led ultimately to the integration of

preparation programs for physicians in the leading colleges and universities in each State, where they reside today.

Similarly, "Nursing education has engaged in a long and arduous struggle in moving from apprenticeship training, physician dominated and controlled by hospitals, into the mainstream of higher education" (McGuire, 1983). Only since 1909, have nursing programs become integrated into the established programs of senior colleges and universities. Lacking the prestige of medicine, however, some schools of nursing continue to be operated as independent or proprietary institutions, usually associated with a hospital (McGuire, 1983).

Programs for the preparation of medical technologists, radiographers, nuclear medicine technologists, respiratory therapists, occupational therapists, and medical record administrators largely began as one and two year professional programs (much like nursing) in proprietary schools, two year junior or community colleges, or in association with a hospital (National Commission of Allied Health Education, 1980). In only the past two decades (with notable exceptions) have such programs been established and undertaken seriously by the senior colleges and universities in the several states. One suspects that bringing these professional preparation programs into the halls of academia created problems, both for the conventional academics as well

as the professionals who wished to prepare allied health practitioners.

Part of the natural tension between conventional academicians and professionals in allied health stems from the fact that much of the professional content in the preparation of allied health personnel is prescribed or implied by state government and program accrediting agencies (for certification or licensing requirements), not left as other more academic programs to the discretion of academics within the academic community. Universities have encountered this before, and continue to countenance such directives from state government in teacher education as well. Nonetheless, the friction seems to be there, and one suspects that it shapes at least in part the roles played by allied health personnel in the university community.

Today, 377 allied health programs in four year colleges or universities are identified by CAHEA. In an effort to find out more about department heads in these programs, a survey was conducted in 1986 in a sample of 36 of these universities. Fully useable responses were received from 114 allied health and 90 other department heads, representing 60% of those departments of those institutions. Bias due to sampling error and non-responses was recognizable, however, and care must be exercised in generalizing the results of the study beyond the 36 sampled institutions.

Eleanor Terry's questionnaire, using materials developed and validated earlier by McLaughlin, Montgomery, and Malpass, was adapted for the study. The questionnaire included 87 questions or variables, grouped into four key categories: personal attributes of department heads, amount of time the department heads devoted to key administrative and developmental activities, the department heads' perceptions of the goals pursued by their respective departments, and characteristics of the academic environment in which the departments operated.

The useable responses were encoded and entered into a matrix for analysis, using the Number Cruncher Statistical System. The original variable list included 87 variables, comprised by eight measures of personal attributes, 32 departmental activities, 30 perceptions of departmental goals, and 17 environmental factors.

The original variable list was reduced by appropriate univariate or multivariate statistical tests. The reduced list of variables for each of the four panels of variables was entered into a discriminant analysis in an effort to address two principal research questions, namely:

a. Which variables, or combinations of variables, if any, differentiate between the responses of health department heads and those of other department heads within the same institutions?

1. Differences in personal attributes?
2. Differences in time allocated to different departmental activities?
3. Differences in perceptions of departmental goals?
4. Differences in the academic environment in which their departments function?

b. Which variables, individually or collectively, best predict membership of the several department heads in the two classes of departments: allied health and other departments within the same institutions?

Based on these analyses, the 214 department heads were found to be quite different in a number of ways. Allied health department heads are younger, principally female, with less years in college teaching, who would like to remain in university administration for the next three to five years. They spend more time on administrative tasks, external relations, and give more credence to their institution's definition of departmental goals than their own or those of their faculties. The allied health departments are smaller than the other departments with which they were compared, have fewer faculty who hold a doctorate, and far fewer FTE faculty. Heads of other departments (e.g. biology, education, psychology, English) are older, mostly male, and have more years in college teaching. Ninety-five percent are

tenured professors. Their departments are larger with more FTE faculty, and more faculty who hold a doctorate.

When these variables were entered into a special selection model and analyzed by discriminant analysis, five were identified as the most powerful predictors of differences in the two classes of department heads. These were:

a. Percent of faculty holding a doctorate (Q57),
b. Number of FTE faculty in the department (Q55)),
c. Percent of students in departmental courses who are departmental majors (Q58),
d. Emphasis given to teaching service courses (as opposed to courses for departmental majors (Factor 2-G), and
e. Emphasis given to academic administrative activities (Factor 2-A).

Discussion

Petrie and Alpert (1983) used a "linear model" to describe the university's structure . . . as a set of autonomous academic departments and professional schools, each represented by a separate rectangle and tied together by its institutional identity, geographic location, administration support services, and board of trustees. In this study, allied health departments and other departments

were compared to determine how similar or dissimilar they are to traditional academic departments. This comparison is needed to assess how well allied health is fitting within university settings.

The most powerful determinant of difference between allied health and other academic areas is the percent of faculty that hold the doctorate (Q57). Allied health has such a diversity of disciplines and basic academic requirements that no specifically identified areas exist for an allied health professional to earn a doctorate. Many allied health professionals seek degrees in related areas of academic interest. There is a limited number of universities with curriculum designed to enhance the degree level of allied health professionals. A position paper by the American Society of Medical Technology (May, 1987) on Doctorate Education in Clinical Laboratory Sciences revealed that there are fourteen doctoral programs in allied health disciplines (not including nursing). There are two doctoral programs in Clinical Laboratory Science, two in Occupational Therapy, and ten in Physical Therapy (Seibert, 1987). Aside from the desire to work in an academic setting, there is little incentive to complete a doctoral program. The shortage of personnel in all of the allied health professions provides excellent employment opportunities for an allied

health professional with a baccalaureate or a master's degree, and salaries are competitive.

A second powerful determinant is the number of full time equivalent faculty in the allied health department (Q55). Allied health education in colleges and universities typically is offered at the upper division (junior, senior) level. Because its emphasis is on clinical preparation, it is only able to serve a limited number of students. The number of students is often dictated by the amount and availability of clinical and fiscal resources, and standards imposed by various accrediting agencies. A great deal of one-on-one individualized instruction is performed in most allied health education programs, and a 1:5 to 1:10 instructor/student ratio may be required.

The third and fourth powerful determinants are closely related. Allied health departments principally enroll their own majors (Q58), while other departments serve a broad variety of students, many or even most of whom are non-majors (Factor 2-G). Accordingly, the course structure in allied health departments focuses exclusively on content for departmental majors, hence their emphasis on career rather than academic education. Heads of other departments, with their diverse population of students, understandably join with university administration in their emphasis on strength of service courses, since it is the service courses in the

university that enroll the greater number of students. Course offerings are limited to specific disciplines for students majoring in an allied health profession. Academic service courses, such as those required in English, psychology, biology and chemistry typically are not a significant part of the allied health professional curriculum. Offering courses needed only by a limited number of students majoring in allied health areas make the overall cost of each program higher than many traditional academic majors.

The fifth most powerful determinant of differences between allied health department chairpersons and other academic department chairpersons is the emphasis placed on administrative activities (Factor 2-A). Allied health chairpersons reported that they spend a disproportionate percent of their time performing administrative as opposed to developmental tasks. Much of this administrative emphasis may be justified by the professional nature of the curriculum and labor intensive structure of allied health programs. Allied health department heads face a continuing need to secure new laboratory supplies and equipment and the space to accommodate them. Allied health programs also must earn accreditation by an appropriate accrediting agency before graduates of the program are able to take a certification examination and enter into practice/work in the profession.

Achieving and maintaining that accreditation requires heavy commitment of administrative time. Allied health chairpersons spend a significant part of their time planning curriculum, advising students on academic and/or departmental matters, preparing for accreditation, representing the department in the appropriate professional meetings and societies, maintaining accurate student and other departmental records, ensuring the medical relevance in students' educational experience, and arranging and coordinating the placement of students in outside institutions for practical experiences or internships. These academic and administrative tasks are essential for a successful educational program in the allied health professions.

Chairpersons in traditional academic areas spend a greater proportion of their time on developing activities. They spend a significant amount of their time recruiting scholarly faculty; evaluating faculty to determine tenure, raises, and promotions; encouraging faculty to obtain grants, gifts and contracts; and stimulating faculty to do research and publish.

A significant but not powerful determinant of the differences between allied health department chairpersons and other department chairpersons is in the emphasis allied health chairpersons believe that their institutions (i.e.,

administrative superiors) place on various departmental goals. Allied health department heads seem to rely more heavily than department heads of academic departments on institutionally defined goals for their department, rather than their own, or their faculty's judgment. Many allied health professionals enter college or university teaching after years of working in a hospital-based allied health program as an instructor or coordinator. The overall goals and missions of hospitals and universities are different. When an allied health professional enters an academic institution, he or she may place more emphasis on institutionally defined goals in an effort to properly "fit-in." Many allied health professional schools or departments, are young, their chairpersons are 55.6% females, 44 years of age or younger, who have an average of 14.1 years of teaching experience. Other academic areas are older and well established, with 80% male chairpersons, 45 years or older, and an average of 20.8 years of academic experience. Once the allied health professional has entered into the academic world, in addition to routine duties and responsibilities, there is the expectation that he or she will seek promotion, rank, and tenure. Less than one-fourth (22%) of allied health chairpersons are classified as "professor" and only one-eighth (11%) hold a tenured faculty position, while in other academic areas, over three-fourths

(76%) are classified as "professor" and almost all (95.6%) are in tenured faculty positions.

Conclusion

The 214 responding department heads confirm that the empirical differences between heads of allied health and other departments are consistent with the intuitive or common sensical model described in Chapter 1, namely; departments are clearly more professional and not as academic as other departments such as education, English, psychology, chemistry and biology in their respective colleges and universities.

It is not at all clear that these diverse departments as yet enjoy the same status and acceptance within their institutions as the older, well established academic departments. Judging from the way allied health department heads view their positions, it is not at all certain that this condition is self-correcting. Perhaps, in order for allied health department to acquire "academic respectability" (Selker & Vogt, 1978), a more aggressive posture and role might be assumed by deans and faculties of allied health education programs with the cooperation of allied health professional organizations and agencies that recommend standards for educational programs in allied health, to enact clear standards by which the allied health department heads can lead their institutions to accept.

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Appendix A

Number of CAHEA-Accredited Programs by Occupation 1976–1988

	1976	1978	1980	1982	1984	1985	1986	1987	1988
Anesthesiologist's Assistant (1987)*	0	0	0	0	0	0	0	0	2
Cardiovascular Technologist (1985)	0	0	0	0	0	0	0	0	0
Cytotechnologist (1962)	102	96	74	69	61	58	51	47	47
Diagnostic Medical Sonographer (1979)	0	0	0	6	21	24	31	34	34
Electroencephalographic Technologist (1973)	8	12	15	19	20	20	18	16	15
Emergency Medical Technician-Paramedic (1978)	0	0	0	9	19	20	28	35	58
Histologic Technician/Technologist (1970)	27	38	47	50	47	43	41	41	40
Medical Assistant (1969)	99	125	141	167	162	168	171	176	171
Medical Illustrator (1987)	0	0	0	0	0	0	0	0	4
Medical Laboratory Technician - Associate Degree (1971)	38	83	105	187	221	225	214	216	212
Medical Laboratory Technician - Certificate (1967)	153	116	99	73	57	56	47	46	44
Medical Record Administrator (1943)	38	40	51	57	55	54	53	52	53
Medical Record Technician (1953)	58	68	78	85	86	85	87	93	97
Medical Technologist (1936)	696	679	652	639	615	584	516	509	464
Nuclear Medicine Technologist (1969)	90	141	153	138	143	141	128	115	106
Occupational Therapist (1935)	43	51	50	56	56	61	63	64	67
Ophthalmic Medical Technician/ Technologist (1975)	0	3	3	6	8	9	9	9	11
Perfusionist (1980)	0	0	0	6	13	19	18	20	20
Physician Assistant (1971)	52	50	54	53	52	52	48	48	49
Radiation Therapy Technologist (1968)	63	91	92	98	98	101	104	100	99
Radiographer (1944)	915	828	795	790	760	744	701	672	667
Respiratory Therapist (1962)	147	165	175	204	220	232	235	242	253
Respiratory Therapy Technician (1972)	55	155	173	188	178	182	169	165	162
Specialist in Blood Bank Technology (1971)	62	64	57	63	64	59	49	42	36
Surgeon's Assistant (1974)	2	3	4	3	3	3	3	3	3
Surgical Technologist (1972)	18	62	80	96	103	102	99	98	101
Total:	2,741	2,951	2,962	3,113	3,062	3,042	2,883	2,843	2,815

*Number in parentheses after each occupation is the year *Essentials* were first adopted.

Source: Allied Health Education Directory, American Medical Association. Chicago, Illinois, 17th Edition.

Appendix B

The 133 CAHEA Institutions

INSTITUTIONS	GOVERNANCE	YEAR FOUNDED	HIGHEST DEGREE	POPULATION	NUMBER OF CAHEA PROGRAMS
*University of Alabama in Birmingham Birmingham, Alabama	State	1966	Doctorate	13,854	13
University of South Alabama Mobile, Alabama	State	1963	Doctorate	9,411	4
Tuskegee Institute Tuskegee, Alabama	Independent	1881	Master's	3,440	2
University of Arizona Tuscon, Arizona	State	1885	Doctorate	30,669	3
Arkansas State University State University, Arkansas	State	1909	Master's	7,615	2
*Arkansas Tech University Russeville, Arkansas	State	1909	Master's	3,267	2
University of Arkansas Medical Sciences Little Rock, Arkansas	State	1879	Doctorate	1,817	5
California State University Dominguez Hills Carson, California	State	1970	Master's	8,978	2
Cypress College Cypress, California	State	1966	Baccalaureate	12,502	3
*Loma Linda University Loma Linda, California	Seventh Day Adventists	1905	Doctorate	5,157	9

*University of Southern California Los Angeles, California	Independent	1880	Doctorate	29,411	3
University of Colorado Health Sciences Center Denver, Colorado	State	1924	Doctorate	1,385	2
*Quinnipiac College Hamden, Connecticut	Independent	1909	Master's	3,631	5
University of Hartford West Hartford, CT	Independent	1877	Doctorate	9,936	2
*George Washington Univ. Medical Center Washington, DC	Independent	1821	Doctorate	19,150	4
*Howard University Washington, DC	Independent	1867	Doctorate	11,445	5
University of the District of Columbia Washington, DC	State	1975	Master's	14,105	2
Florida A & M University Tallahassee, FL	State	1887	Master's	5,377	2
Florida International University Miami, FL	State	1965	Master's	13,620	2
*University of Central Florida Orlando, Florida	State	1963	Doctorate	14,180	4
University of Florida Gainesville, Florida	State	1853	Doctorate	34,252	4

*Emory University School of Medicine Atlanta, Georgia	United Methodist	1836	Doctorate	8,228	4
Georgia State University Atlanta, Georgia	State	1913	Doctorate	21,254	2
Medical College of Georgia Augusta, GA	State	1828	Doctorate	1,977	9
*Bosie State University Boise, Idaho	State	1932	Master's	11,092	3
*Chicago State University Chicago, Illinois	State	1867	Master's	7,389	3
Northwestern University Medical School Chicago, IL	Indeptendent	1851	Doctorate	15,704	2
Southern Illinois University Carbondale, IL	State	1869	Doctorate	23,236	2
*University of Chicago Medical School North Chicago, Illinois	Independent	1912	Doctorate	825	2
University of Illinois at Chicago Chicago, IL	State	1965	Doctorate	21,003	5
University of Southern Indiana Evansville, IN	State	1965	Baccalaureate	3,664	2
Ball State University Muncie, IN	State	1918	Doctorate	18,490	3
Butler University					

Indianapolis, IN	Independent	1855	Master's	4,030	4
Indiana University Bloomington, IN	State		Doctorate	31,526	2
*Indiana State University - Northwest Gary, Indiana	State	1921	Master's	4,897	2
*Indiana University School of Medicine Indianapolis, Indiana	State	1864	Doctorate	3,251	7
*University of Iowa Iowa City, Iowa	State	1847	Doctorate	28,948	3
*University of Kansas Medical Center Kansas City, Kansas	State	1905	Doctorate	1,765	7
Washburn University Topeka, Kansas	State	1865	Doctorate	6,031	5
Wichita State University Wichita, Kansas	State	1892	Doctorate	16,636	3
University of Kentucky Lexington, Kentucky	State	1865	Doctorate	23,073	3
University of Louisville Louisville, Kentucky	State	1798	Doctorate	19,714	5
Morehead State University Morehead, Kentucky	State	1906	Master's	6,337	2
Eastern Kentucky University Richmond, Kentucky	State	1906	Master's	13,041	7
*Northeast Louisiana University					

Monroe, Louisiana	State	1931	Doctorate	11,075	2
Louisiana State University Medical Center New Orleans, LA	State	1931	Doctorate	2,553	3
Columbia Union College Takoma Park, MD	Seventh Day Adventist	1904	Baccalaureate (5 yrs)	507	3
University of Maryland Professional Schools Baltimore, MD	State	1807	Doctorate	4,800	4
Northeastern University Boston, Massachusetts	Independent	1898	Doctorate	38,926	7
Eastern Michigan University Ypsilanti, Michigan	State	1849	Baccalaureate	21,289	2
Ferris State College Big Rapids, Michigan	State	1884	Baccalaureate	11,008	7
Mercy College of Detroit Detroit, Michigan	Roman Catholic	1941	Master's	2,106	6
*Wayne State University Detroit, Michigan	State	1868	Doctorate	29,775	4
*Western Michigan University Kalamazoo, Michigan	State	1903	Doctorate	20,580	2
University of Minnesota Science Center Minneapolis, Minnesota	State	1851	Doctorate	64,515	4
*University of Mississippi Medical Center Jackson, Mississippi	State	1955	Doctorate	1,733	6
Avila College					

Kansas City, Missouri	Roman Catholic	1916	Master's	1,876	2
University of Missouri Medical Center Columbia, Missouri	State	1839	Doctorate	24,763	7
St. Louis University St. Louis, Missouri	Roman Catholic	1818	Doctorate	24,763	5
Washington University St. Louis, Missouri	Independent	1853	Doctorate	10,700	2
*College of Saint Mary Omaha, Nebraska	Roman Catholic	1923	Baccalaureate	1,141	2
Creighton University Omaha, Nebraska	Independent	1878	Doctorate	5,682	3
University of Nebraska Medical Center Omaha, Nebraska	State	1869	Doctorate	2,564	5
University of Nevada at Las Vegas Las Vegas, Nevada	State	1955	Doctorate	11,452	2
Farleigh Dickinson University Madison, New Jersey	Independent	1958	Doctorate	4,974	2
College of Medicine and Dentistry of New Jersey Newark, New Jersey	State	1956	Doctorate	1,883	3
Kean College of New Jersey Union, New Jersey	State	1855	Master's	12,984	2
University of Albuquerque Albuquerque, NM	Roman Catholic	1920	Baccalaureate (5 yrs)	1,808	2

University of New Mexico Albuquerque, NM	State	1889	Doctorate	24,056	3
Daemen College Amherst, New York	Independent	1947	Baccalaureate (5 yrs)	1,683	2
Downstate Medical Center SUNY Brooklyn, NY	State	1858	Doctorate	1,414	3
Long Island University Brooklyn, NY	Independent	1926	Doctorate	6,899	2
*Ithaca College Ithaca, New York	Independent	1892	Master's	5,111	2
Columbia University New York, New York	Indepenbent	1754	Doctorate	16,091	2
New York University New York, NY	Independent	1831	Doctorate	32,460	5
*State University of New York at Stony Brook Stony Brook, New York	State	1957	Doctorate	14,741	3
*Utica College of Syracuse University Utica, New York	Independent	1946	Baccalaureate	2,345	2
State University of New York Upstate Medical Center Syracuse, NY	State	1858	Doctorate	927	8
University of North Carolina Chapel Hill, NC	State	1789	Doctorate	22,071	2
Duke University Medical Center					

Durham, NC	Independent	1838	Doctorate	9,794	3
*Western Carolina University Cullowhee, North Carolina	State	1889	Master's	6,361	2
*East Carolina University Greenville, North Carolina	State	1907	Doctorate	14,510	3
Bowman Gray School of Medicine of Wake Forest University Winston-Salem, NC	Baptist	1834	Doctorate	4,795	2
University of North Dakota Grand Forks, North Dakota	State	1884	Doctorate	10,905	5
Ohio State University Columbus, Ohio	State	1870	Doctorate	53,438	2
Bowling Green State University Bowling Green, Ohio	State	1910	Doctorate	18,900	3
University of Cincinnati Cincinnati, Ohio	State	1819	Doctorate	34,921	2
Shawnee State University Portmouth, Ohio	State	1975	Baccalaureate	2,110	4
*Youngstown State University Youngstown, Ohio	State	1908	Master's	15,590	3
*University of Oklahoma Health Sciences Center Oklahoma City, Oklahoma	State	1900	Doctorate	2,378	8
University of Oregon Portland, Oregon	State	1974	Doctorate	1,430	2
*Gannon University Erie, Pennsylvania	Roman Catholic	1933	Master's	4,135	4

*Gwynedd-Mercy College Gwynedd Valley, PA	Independent	1948	Baccalaureate	2,180	7
Hahnemann Medical College Philadelphia, PA	Independent	1848	Doctorate	1,987	5
Medical College of Pennsylvania Philadelphia, PA	Independent	1850	Doctorate	539	2
Temple University Philadelphia, PA	State-Related	1888	Doctorate	29,643	4
Thomas Jefferson University Philadelphia, PA	Independent	1824	Doctorate	1,870	5
University of Pittsburgh Pittsburgh, PA	State-Related	1787	Doctorate	29,358	3
University of Pennsylvania Philadelphia, PA	Independent	1740	Doctorate	22,317	2
Mansfield University of Pittsburgh Mansfield, PA	State	1854	Master's	2,476	2
University of Puerto Rico San Juan, Puerto Rico	State	1950	Doctorate	2,676	5
Medical University of South Carolina Charleston, SC	State	1824	Doctorate	1,857	10
The University of Tennessee Center for the Health Sciences Memphis, TN	State	1911	Doctorate	2,026	5
Meharry Medical College Nashville, Tennessee	Independent	1876	Doctorate	747	2

Vanderbilt University Nashville, Tennessee	Independent	1873	Doctorate	8,715	8
East Tennessee State University Johnson City, TN	State	1927	Master's	4,858	5
Lamar University Beaumont, TX	State	1923	Doctorate	13,526	3
Baylor University Medical Center Dallas, TX	Independent	1905	Doctorate	652	3
Texas Woman's University Denton, Texas	State	1901	Doctorate	7,827	2
Galveston College - The University of Texas Galveston, Texas	State	1966		1,937	5
University of Texas Dallas, TX	State	1943	Doctorate	1,322	3
University of Texas Medical Branch at Galveston Galveston, TX	State	1881	1st Professional	1,655	5
Baylor College of Medicine Houston, TX	Independent	1903	Doctorate	902	3
University of Texas School of Allied Health Sciences Houston, Texas	State	1982	Doctorate	2,676	6
Incarnate Word College San Antonia, Texas	Roman Catholic	1881	Master's	1,357	2
University of Texas					

at San Antonio San Antonio, TX	State	1959	Doctorate	2,326	4
Southwest Texas State University San Marcos, TX	State	1899	Master's	16,397	
*Midwestern State University Wichita Falls, Texas	State	1922	Master's	4,817	2
*Brigham Young University Provo, Utah	Latter-Day Saints	1875	Doctorate	29,695	2
*Weber State College Ogden, Utah	State	1889	Master's	10,361	7
University of Utah Salt Lake City, Utah	State	1850	Doctorate	24,364	4
University of Vermont Burlington, Vermont	State	1972	Baccalaureate	1,125	4
University of Virginia Medical Center Charlottesville, VA	State	1819	Doctorate	17,118	2
Virginia Commonwealth University Richmond, VA	State	1837	Doctorate	20,031	5
Norfolk State University Norfolk, VA	State	1935	Master's	7,286	2
Seattle University Seattle, Washington	Roman Catholic	1891	Doctorate	4,508	3
University of Washington Health Sciences Center Seattle, Washington	State	1861	Doctorate	34,468	3

West Virginia University Morgantontown, WVA	United Methodist	1867	Doctorate	21,337	4
*Wheeling College Wheeling, West Virginia	Roman Catholic	1954	Master's	990	3
Alderson Broaddus College Phillippi, WVA	American Baptist	1871	Baccalaureate	827	2
University of Charleston Charleston, WVA	Independent	1888	Master's	2,039	2
*The University of Wisconsin-Madison Madison, Wisconsin	State	1849	Doctorate	44,230	5
University of Wisconsin- Milwaukee Milwaukee, Wisconsin	State	1955	Doctorate	26,119	5

*36 Institutions in sample

Appendix C

Departmental Environment

Questionnaire

DEPARTMENTAL ENVIRONMENT QUESTIONNAIRE

IDENTIFYING DATA

NAME OF INSTITUTION:_____

Name of Department:_____

I. PERSONAL CHARACTERISTICS

1. Including work at other institutions, how many years have you devoted to college teaching?

   _____

2. How many years experience did you have as an administrator prior to your present appointment?

   _____

3. How long have you been in your present position?

   _____

4. What is your current academic rank?

   _____a. Professor
   _____b. Associate Professor
   _____c. Assistant Professor
   _____d. Instructor
   _____e. Other (explain)_____

5. Are you tenured?

   Yes_____ No_____

6. In the next 3-5 years, which do you consider most likely?

   _____a. I will retire
   _____b. I will return to full-time teaching
   _____c. I will remain in university administration
   _____d. I will go to a full-time position in a non-academic environment
   _____e. Other (explain)_____

7. In which age group do you belong?

   _____under 30 _____30-34 _____35-39 _____40-44

   _____45-49 _____50-54 _____55-59 _____over 59

8. Sex:

   Male_____ Female_____

II. DEPARTMENTAL ACTIVITIES

Below is a list of departmental activities which the chairman may need to perform. Please circle the answer that most nearly indicates the percent of time spent on each activity during an average week of approximately fifty hours.

a. none (0%)
b. some (1-2%)
c. a moderate amount (3-5%)
d. a great deal (6-10%)
e. a very great deal (over 10%)

Response (circle one)		
a b c d e	9.	Initiating long-range programs, plans, and goals for the department.
a b c d e	10.	Encouraging the professional development of faculty members within the department.
a b c d e	11.	Managing of the clerical and technical staff.
a b c d e	12.	Presenting of proposed budgets.
a b c d e	13.	Administering the departmental budget.
a b c d e	14.	Administering control of revenue and expenditures.
a b c d e	15.	Providing informal faculty leadership.
a b c d e	16.	Managing physical facilities and equipment.
a b c d e	17.	Recruiting scholarly faculty.
a b c d e	18.	Prodding colleagues to recruit and select the most promising students.
a b c d e	19.	Evaluating faculty performance to determine tenure, raises, and promotions.
a b c d e	20.	Planning the curriculum, academic programs, course content, and teaching methods.
a b c d e	21.	Encouraging faculty to obtain grants, gifts, and contracts.
a b c d e	22.	Stimulating faculty to do research and publish.
a b c d e	23.	Maintaining morale and reducing conflicts among faculty.
a b c d e	24.	Advising students on academic and/or departmental matters.

a b c d e 25. Interacting with the administration in behalf of departmental record.

a b c d e 26. Listening to an encouraging ideas to enrich course offerings.

a b c d e 27. Assuring the maintenance of accurate student and other departmental records.

a b c d e 28. Representing the department in the appropriate professional meeting and societies.

a b c d e 29. Planning and holding departmental meetings.

a b c d e 30. Providing for the flow of information to the faculty to inform them of department, college, and university activities and plans.

a b c d e 31. Participating in committee work within the college and university.

a b c d e 32. Assigning courses, research, and departmental duties to faculty.

a b c d e 33. Obtaining employment or acceptance in graduate school for students.

a b c d e 34. Coordinating activities with outside groups.

a b c d e 35. Recruiting and admitting students into the program.

a b c d e 36. Arranging and coordinating the placement of students in outside institutions for practical experiences or internships.

a b c d e 37. Preparing for accreditation.

a b c d e 38. Maintaining student records.

a b c d e 39. Providing liaison between the educational program and the outside institutional administration.

a b c d e 40. Ensuring the medical relevance in student's educational experience.

III. INSTITUTIONAL VARIABLES

A. Departmental Goals. Below are eleven departmental goals. Using the following responses, in column 1 indicate the emphasis placed on each departmental goal by your institution. In column 2, indicate how you, as department chairman, would like to see the emphasis placed, and in column 3, indicate how you feel your faculty would like to see the emphasis placed.

a. Little or none at all
b. Some
c. A large amount
d. A great deal
e. A very great deal

	Institutional Emphasis	Your Emphasis	Emphasis Faculty Would Like
41. Producing new knowledge through research.	a b c d e	a b c d e	a b c d e
42. Graduating a well versed student with a balanced education.	a b c d e	a b c d e	a b c d e
43. Developing an efficient organization through use of appropriate managerial decisions.	a b c d e	a b c d e	a b c d e
44. Teaching courses for students majoring in other departments.	a b c d e	a b c d e	a b c d e
45. Encouraging the personal and professional development of the individual faculty members.	a b c d e	a b c d e	a b c d e
46. Maintaining the goals and requirements of the central administration (e.g., enrollment, grants, budget, development).	a b c d e	a b c d e	a b c d e

	Institutional Emphasis	Your Emphasis	Emphasis Faculty Would Like
47. Educating the student for future career.	a b c d e	a b c d e	a b c d e
48. Providing the faculty and staff with a congenial place in which to work.	a b c d e	a b c d e	a b c d e
49. Improving the quality of the department relative to peer departments at other universities and within this instit institution.	a b c d e	a b c d e	a b c d e
50. Maintaining a spirit of inquiry and academic freedom.	a b c d e	a b c d e	a b c d e

B. Other Environmental Characteristics.

51. How would you best characterize decision-making in your department from the following descriptions?

_____a. Most major decisions are made at the university level

_____b. Most major decisions are made at the college level

_____c. Most major decisions are made at the department level by the department chairman with the college and university administration usually having veto power

_____d. Most major decisions are made by appropriate groups of senior faculty within the department

_____e. Other (describe)_____

_____

52. How much authority do you have in using your budget?

_____a. complete authority
_____b. some authority
_____c. limited authority
_____d. no authority

53. Do you have the flexibility to use the budget for providing the incentive raises for those who initiate course development and research?

Yes_____ No_____

54. How many secretaries do you have in your department?

_____

55. How many FTE faculty do you have in your department?

_____

56. What is the average number of years experience of the faculty?

_____

57. What percent of your faculty have a doctorate?

_____

58. What percent of students taking courses in your department are your own majors?

_____

59. How were you selected as a department chairman?

_____a. By the dean only
_____b. By the dean in consultation with department faculty
_____c. By the dean with a search committee
_____d. By faculty committee
_____e. Other (explain)_____

60. Were you selected to serve a specific length of time as chairman?

Yes_____ No_____ If yes, how many years?_____

61. What percentage of your time do you estimate that you spend on the following?

_____a. Teaching
_____b. Administrative duties
_____c. Departmental leadership

62. Were you chosen for the chairmanship from within the university, or were you brought in from outside the university?

____a. Chosen from within
____b. Brought in from outside

63. What percent of your departmental course offerings have changed during the past five years?

____5% ____10% ____15%

____20% ____more than 20%

64. What percent of your professors and associate professors were previously assistant professors in your department?

____

****

Thank you for your cooperation in completing the questionnaire. Please return it in the envelope provided.

****

☐ Check here if you wish to receive a copy of the findings for the entire group of universities.

Name _____

Department _____

Institution _____

Address _____

City/State _____ Zip Code

****

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Appendix D

Table 2.8

Departmental Activities

Eigen Value Summary

Factor	Eigenvalue	Percent	Cumulative Percent
1	6.9843	26.86	26.86
2	3.5162	13.52	40.39
3	1.6141	6.21	46.59
4	1.5056	5.79	52.39
5	1.4086	5.42	57.80
6	0.9918	3.81	61.62
7	0.9208	3.54	65.16
8	0.8777	3.38	68.53
9	0.8645	3.32	71.86
10	0.7599	2.92	74.78
11	0.7260	2.79	77.57
12	0.6885	2.65	80.22
13	0.5675	2.18	82.41
14	0.5507	2.12	84.52
15	0.4790	1.84	86.37
16	0.4575	1.76	88.13
17	0.3994	1.54	89.66
18	0.3837	1.48	91.14
19	0.3708	1.43	92.56
20	0.3480	1.34	93.90
21	0.3386	1.30	95.21
22	0.3079	1.18	96.39
23	0.2725	1.05	97.44
24	0.2464	0.95	98.39
25	0.2218	0.85	99.24
26	0.1981	0.76	100.00

Source: Factor Analysis (NCSS) of 26 Departmental Activities

The principal components analysis produced four factors with an eigenvalue of 1.0 or more that were retained.

Factor 1: Planning and Developmental Factor
Factor 2: Academic Administrative Factor
Factor 3: Financial and Personnel Factor
Factor 4: University Relations Factor

Table 2.9

Departmental Activities
Rotated Factor Loadings

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Communality
Q9	0.6191	0.1175	-.2095	-.0151	0.4412
Q10	0.6691	-.0042	-.0219	-.2294	0.5007
Q12	0.2306	0.0848	-.6900	-.0735	0.5419
Q13	0.0891	0.0674	-.8523	-.2051	0.7809
Q14	0.1247	0.1266	-.7047	-.2184	0.5759
Q15	0.1654	0.0695	0.0218	-.6526	0.4586
Q17	0.6250	0.0030	-.2381	-.6526	0.4586
Q18	0.5015	0.4194	-.2149	-.1075	0.4853
Q19	0.4510	-.0743	-.5900	-.1992	0.5968
Q20	0.1401	0.5632	0.1057	-.2402	0.4056
Q21	0.6088	0.0414	-.0927	-.4251	0.5617
Q22	0.6808	0.0011	-.0848	-.4049	0.6345
Q23	0.2337	-.0379	-.1553	-.6789	0.5412
Q24	-.3610	0.5413	-.1573	-.4295	0.6326
Q25	0.2753	0.1935	-.2418	-.5635	0.4892
Q27	-.1895	0.6720	-.1239	-.3031	0.5948
Q28	0.1454	0.5630	-.0618	-.2789	0.4198
Q29	0.0835	0.2944	-.3161	-.4933	0.4369
Q30	0.1988	0.2400	-.1435	-.6572	0.5496
Q31	0.0301	0.1826	-.2206	-.5953	0.4373
Q34	0.2717	0.5196	-.0301	-.1046	0.3556
Q35	-.0819	0.7330	-.2081	-.0932	0.5960
Q36	0.0050	0.7310	-.0928	0.0381	0.5445
Q38	-.1117	0.7580	-.0579	-.0889	0.5983
Q39	0.2237	0.6077	0.0263	-.2118	0.4648
Q40	0.0922	0.6980	0.0131	0.1880	0.5312

Source: Variables Questionnaire, Appendix C, Departmental Activities, pp. 160-161.
Factors - Table 2.8

Key: Variables Q9-Q40, see Table 2.10

Table 2.10

Key to Departmental Activities on Table 2.9

Q9	Initiating long range programs, plans, and goals for the department
Q10	Encouraging the professional development of faculty member within the department
Q12	Presenting proposed budget
Q13	Administering the departmental budget
Q14	Administering control of revenue and expenditures
Q15	Providing informal faculty leadership
Q17	Recruiting scholarly faculty
Q18	Prodding colleagues to recruit and select promising graduate students
Q19	Evaluating faculty performance to determine tenure, raises, and promotions
Q20	Planning the curriculum, academic programs, course content, and teaching methods
Q21	Encouraging faculty to obtain grants, gifts, and contracts
Q22	Stimulating faculty to do research and publications
Q23	Maintaining morale and reducing conflicts among faculty
Q24	Advising students on academic and departmental matters
Q25	Interacting with administration in behalf of faculty
Q27	Assuring the maintenance of accurate student and other departmental records
Q28	Representing the department in appropriate professional meetings and societies
Q29	Planning and holding departmental meetings
Q30	Providing for flow of information to faculty
Q31	Participating in committee work within the college and university
Q34	Coordinating activities with outside groups
Q35	Recruiting and admitting students into the program
Q36	Arranging and coordianting the placement of students in outside institutions for practical experiences or internships
Q38	Maintaining student records
Q39	Providing liaison between the educational program and the outside institutional administration
Q40	Ensuring the medical relevance in students' educational experience

Table 2.11

Departmental Goals

Eigen Value Summary

Factor	Eigenvalue	Percent	Cumulative Percent
1	6.3539	26.47	26.47
2	2.8401	11.83	26.47
3	1.9892	8.29	46.60
4	1.7935	7.47	54.07
5	1.4079	5.87	59.94
6	1.3182	5.49	65.45
7	1.2235	5.10	70.53
8	0.8831	3.68	74.21
9	0.8021	3.34	77.55
10	0.7673	3.20	80.75
11	0.6557	2.73	83.48
12	0.5646	2.35	85.83
13	0.4632	1.93	87.76
14	0.4565	1.90	89.66
15	0.4324	1.80	91.46
16	0.3540	1.48	92.94
17	0.3299	1.37	94.31
18	0.2978	1.24	95.55
19	0.2644	1.10	96.66
20	0.2106	0.88	97.53
21	0.1937	0.81	98.34
22	0.1662	0.69	99.03
23	0.1276	0.53	99.57
24	0.1044	0.43	100.00

Source: Factor Analysis (NCSS) of 30 Departmental Goals
The principal components analysis produced five factors with an eigenvalue of 1.00 or more that were retained.

Factor 1: Departmental and Faculty Improvement Goals
Factor 2: Teaching Service Courses
Factor 3: Institutional Emphasis
Factor 4: Reserach Emphasis
Factor 5: Type of Student Product

Table 2.12

Departmental Goals

Rotated Factor Loadings

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Communality
Y41	0.1689	0.1340	-.2016	-.7784	0.0476	0.6947
Y42	0.3017	0.1582	0.0977	-.1900	-.7981	0.7987
Y43	0.7004	-.0689	-.0630	0.1270	-.2627	0.5844
Y44	-.0030	0.8979	-.0050	-.1137	-.0501	0.8216
Y45	0.6088	0.1042	-.2287	-.0995	-.2226	0.4911
Y47	0.1174	-.1857	-.3084	0.2962	-.6480	0.6510
Y50	0.6234	0.0448	-.2375	-.2616	-.1487	0.5377
F41	0.2994	0.1282	-.1300	-.7400	0.0939	0.6794
F42	0.2435	0.0403	0.0873	-.2434	-.7784	0.7337
F43	0.7386	-.0204	-.0515	0.1383	-.1649	0.5950
F44	-.0126	0.8772	-.0377	-.0748	-.0312	0.7785
F45	0.6779	0.0244	-.1136	-.1455	-.1266	0.5103
F47	0.0858	-.2474	-.2356	0.2760	-.6170	0.5809
F49	0.6029	0.0226	-.2027	-.3050	-.0316	0.4991
F50	0.6088	-.0451	-.1539	-.2911	-.1639	0.5073

Source: Variables I41-F50 Questionnaire Items 41-50, Appendix C
Factors 1-5 Table 2.11

Key: Variables Table 2.13

Table 2.13

Key to Departmental Goals on Table 2.12

1 = Institutional emphasis
Y = Your Emphasis (Department Head)
F = Faculty emphasis (Department Head perceptions)

41. Producing new knowledge through research
42. Graduating a well versed student with a balanced education
43. Developing an efficient organization through use of appropriate management decisions
44. Teaching courses for students majoring in other departments
45. Encouraging the personal and professional development of the individual faculty member
46. Maintaining the goals and requirements of the central administration (e.g., enrollment, grants, budget, development)
47. Educating the student for future career
48. Providing the faculty and staff with a congenial place in which to work
49. Improving the quality of the department relative to peer departments at other universities and within this institution
50. Maintaining a spirit of inquiry and academic freedom

Appendix E

Appendix Table 3.1

Personal Attributes

Linear Discriminant Function

Classification Variable: C97

Group	Allied Health	Other Departments
CONSTANT	-14.74799	-13.68712
YRSTEACH	.3480994	.4882225
YRSADMIN	0.046648	-.1112917
YRSPOSIT	0.044553	-.1330708
RANK	3.626616	2.989149
AGE	1.179951	1.498771
SEX	6.558243	4.987531

Source: Text page 84; a linear combination of six personal attributes to predict membership in the two groups of administrators

Key: C97 = two groups of administrators: (1) Allied Health, (2) Other Departments

Personal Attributes

YRSTEACH = How many years devoted to college teaching?
YRSADMIN = How many years as an administrator prior to present appointment?
YRSPOSIT = How long have you been in your present position?
RANK = What is your current academic rank?
AGE = To what age group do you belong?
SEX = Male or female?

Appendix Table 3.2

Departmental Activities

Linear Discriminant Functions

Group	Allied Health	Other Departments
CONSTANT	-.1771849	-.3633565
C100	-.1492937	-.1976664
C101	.6700839	-.9632261
C102	.2412701	-.3446316

Source: Text page 91 ; The mathematics of a linear combination of three factors of departmental activities to predict membership in the two groups of administrators.

Key: C100 = Factor 1-A: A Planning and Development Factor
C101 = Factor 2-A: An Academic Administration Factor
C102 = Factor 4-A: A University Relations Factor

Appendix Table 3.3

Departmental Goals

Linear Discriminant Function

Classification Variable: C97 Type of Department
(Allied Health and Others)

Group	Allied Health	Other Departments
CONSTANT	-.1573727	-.2987360
FACTOR #2-G	-.5399786	.7439703
FACTOR #4-G	.3232991	-.4454348
FACTOR #5-G	-.2330189	.3210473

Source: Text page 102-103; The mathematics of a linear combination of three factors of departmental goals that predicted membership in the two groups of administrators.

Key: Factor #2-G: Teaching Service Courses
Factor #4-G: Research Emphasis
Factor #5-G: Type of Student Product

Appendix Table 3.4

Cross Tabulation Results

Department	Origin of Appointment Within	Outside	Total
Allied Health	70	54	124
	56.5	43.5	100.0
	47.6	80.6	57.9
	32.7	25.2	57.9
Other Depart-ments	77	13	90
	85.6	14.4	100.0
	52.4	19.4	42.1
	36.0	6.1	42.1
Total	147	67	214
	68.7	31.3	100.0
	100.0	100.0	100.0
	68.7	31.3	100.0

$x^2 = 20.5395$ df = 1 p = 0.0000

Source: Text page 111; Cross tabulation of differences between the origin of appointment of department heads in allied health and other department heads.

Key: Q62 Were you chosen for the chairmanship from within the university or were you brought in from outside the university?

Appendix Table 3.5

Cross Tabulation Results

	Manner in Which Department Head Selected					
Department	1	2	3	4	5	Total
Allied Health	26	30	41	11	16	124
	21.0	24.2	33.1	8.9	12.9	100.0
	74.3	42.3	73.2	78.6	5.1	57.9
	12.1	14.0	19.2	5.1	7.5	57.9
Other Depart-ments	9	41	15	3	22	90
	10.0	45.6	16.7	3.3	24.4	100.0
	25.7	57.7	26.8	21.4	57.9	42.1
	4.2	19.2	7.0	1.4	10.3	42.1
Total	35	71	56	14	38	214
	16.4	33.2	26.2	6.5	17.8	100.0
	100.0	100.0	100.0	100.0	100.0	100.0
	16.4	33.2	26.2	6.5	17.8	100.0

x^2 = 22.7233 df = 4 p = 0.0001

Source: Text page 111; Cross tabulation of differences between the manner in which department heads are selected.

Key: Q59 How were you selected as a department chairman?

1 = Dean Only
2 = Dean in consultation with faculty
3 = Dean with a search committee
4 = Faculty committee
5 = Other (e.g. elected department chair)

Appendix Table 3.6

Department Head Named for Specific Period

Department	Yes	No	Total
Allied Health	24 19.4 31.6 11.2	100 80.6 73.0 46.7	124 100.0 57.9 57.9
Other Departments	52 57.8 68.4 24.3	38 41.1 27.0 17.3	90 100.0 42.1 42.1
Total	76 35.5 100.0 35.1	138 64.0 100.0 64.0	214 100.0 100.0 100.0

$x^2 = 35.7881$ df = 1 p = 0.0000

Source: Cross tabulation of differences between which group of department heads were named for a specific period of time.

Q60 Were you selected to serve a specific length of time as chairman?
Yes ___ No ___

Appendix Table 3.7

Authority to Use Budget

Department	Complete	Some	Total
Allied Health	37	87	124
	29.8	70.2	100.0
	46.3	65.4	57.9
	17.3	40.7	57.9
Other	43	41	90
	47.8	51.1	100.0
	53.8	51.1	42.1
	20.1	21.5	42.1
Total	80	134	214
	37.4	62.1	100.0
	100.0	100.0	100.0
	37.4	62.1	100.0

$x^2 = 8.9122$ df = 1 p - 0.0000

Source: Cross tabulation of differences between responses of department heads in the two groups (Allied Health and OThers) on the authority to use budget.

Q52 How much authority do you have in using your budget?
Complete Authority ___ Some Authority ___

Appendix Table 3.8

Environmental Characteristics

Linear Discriminant Functions

Classification Variable: C97

Group	1	2
CONSTANT	-14.2187	-13.88509
Q55	-0.085343	0.071729
Q57	0.075627	.1340568
Q58	0.094582	0.062165
Q61C	.1138146	0.086534
Q62	6.490806	5.39124
Q63	1.391623	.9593006

Source: Text page 113 ; The mathematics of a linear combination of six environmental characteristics to predict membership in the two groups of administrators.

C97 = Type of department head -- Allied Health or Other
Q55 How many FTE faculty do you have in your department?
Q57 What percent of your faculty have a doctorate?
Q58 What percent of students taking courses in your department are your own majors?
Q61C What percentage of time is spent on departmental leadership?
Q62 Were you chosen for the chairmanship from within the university, or were you brought in from outside the university?
Q63 What percentage of your departmental course offerings have changed during the past five years?

Appendix Table 3.9

Principal Predictors

Linear Discriminant Functions

Group	Allied Health	Other Departments
CONSTANT	-6.156785	-9.034982
Q55	0.043766	.1643177
Q57	0.079145	.1309752
FACTOR 2-A	-.1117896	0.080868
FACTOR 2-G	0.028809	.7595261

Source: Text page 115; The matematics of a linear combination of five significant factors that predict membership in the two groups of administrators.

Q55 Number of FTE faculty in department.
Q57 Percent of faculty holding a doctorate.
Q58 Precent of students taking courses who are your own majors.
Factor 2-A: Time devoted to academic administration
Factor 2-G: Emphasis given to the teaching of service courses

Appendix Table 3.10

Variable Selection Report

Classification Variable: C97

IN	Variable	R^2-Ad	F-Val	F-Prob	R^2-X's	IN	Variable	R^2-Ad	F-Val	F-Prob	R^2-X's
Yes	Q55	0.122	29.0	0.0000	0.2600	Yes	Q57	0.154	38.0	0.0000	0.5380
Yes	Q58	0.062	13.8	0.0002	0.4353	Yes	Factor 2A	0.027	5.7	0.0171	0.3787
Yes	Factor 2G	0.033	7.0	0.0080	0.2585	No	YRSTEACH	0.009	1.8	0.1745	0.2429
No	YRSADMIN	0.033	2.2	0.0080	0.0492	No	YRSPOSIT	0.001	0.2	0.6247	0.0697
No	RANK	0.000	0.0	0.8911	0.3157	No	SEX	0.002	0.5	0.4802	0.2606
No	Factor 3A	0.001	0.1	0.7146	0.0391	No	Factor 3G	0.000	0.1	0.7828	0.0460

Overall Wilk's Lambda 0.3459 x^2 = .6541

Appendix Table 3.11

Linear Discriminant Functions

Classification Variable: Type of Department

Group	Allied Health	Other Departments
CONSTANT	-6.156785	-9.034982
Q55	0.043766	-.1643177
Q57	0.079145	.1309752
Q58	-.1117896	0.080868
FACTOR 2-A	1.100791	.3872778
FACTOR 2-G	0.028809	.7595261

Appendix Table 3.12

Accuracy of Prediction

Special Selection Panel (r^2 = .04)

Department	Allied Health Number	%	Other Departments Number	%	All Number	%
Allied Health	107	93.9	17	6.1	124	100.0
Other Departments	5	5.6	85	94.4	90	100.0
All	112	52.6	102	47.4	214	100.0

Percent prediction in classification error: 79.4

Vita

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