

THE DEVELOPMENT OF A SCALE TO MEASURE CAREER ATTITUDES
OF ALLIED HEALTH STUDENTS

A Dissertation
Presented to
the Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Joy L. Boone
August 1976

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Abstract

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This study was concerned with the measurement of allied health students' career attitudes. Since attitudes are generally assumed to influence behavior, the development of an attitude scale was undertaken to assist allied health educators in analyzing possible causes of attrition, measuring student attainment of broad affective educational objectives and counseling individual students. The purposes of this research were to: (a) develop a scale to measure the construct of allied health students' attitudes toward their own profession, (b) test the scale by using allied health students enrolled in the senior year of baccalaureate education, (c) analyze factors of the obtained scale results, (d) develop subscales which will increase the utility of the scale, and (e) establish descriptive norms on the revised scale.

The population for the study was senior students enrolled in accredited baccalaureate allied health programs for (a) assistant to the primary care physician, (b) medical record administration, (c) medical technology, (d) occupational therapy, and (e) physical therapy. Seniors in the randomly selected programs were asked to volunteer for

participation in the study. Copies of the scales were mailed to participants in the pilot and dissertation studies.

A theoretical model was developed which hypothesized the following attitude dimensions:

1. Motivation to Participate in Professional Organizations.
2. Satisfaction with the Professional Role and Tasks.
3. Regulation by Peers Within the Profession.
4. Calling to the Field Based on the Value to Society.
5. Commitment to Lifelong Practice in the Profession.

In a pilot study, the scale, consisting of 75 statements, was administered to 201 allied health senior students in four professions. These data were analyzed using alpha factor analysis with varimax rotation procedure. A total of 25 factors were recovered and only two factors from the theoretical model were supported as a result of this analysis:

1. Motivation to Participate in Professional Organizations, and,
2. Satisfaction with Professional Role and Tasks. This factor was renamed Satisfaction with Career Choice.

The Allied Health Career Attitude Scale was revised to consist of 30 items which supported these hypothesized two factors. The scale was administered to 556 subjects in four disciplines. No students from assistant to the primary care physician programs participated in this phase of the study. The data were factor analyzed by the alpha and incomplete

principal components solutions rotated to the varimax criterion. The hypothesized two factor structure did not emerge. Five factors were isolated. Agreement was shown in the alpha and incomplete principal components analyses on factors one, two, four, and five. Factors one and two were those which had been hypothesized.

A one-way analysis of variance was calculated to show differences between the four subgroups on the five factors. The F ratios for factors one, two and three differed at the .0001 level of significance.

The incomplete principal components solution was used to calculate factor scores for scoring the scale, using a multivariate scaling model. Percentile rank norms for the 556 subjects as a group and the four subgroups were developed.

As a result of the findings in this study, it was recommended that in future research the Allied Health Career Attitude Scale be revised to seek support for the factors (subscales) by eliminating items with high loadings on factors three, four, and five. If another factor analysis confirmed these factors as independent and discrete, a simplified scoring method could be developed to allow use of the scale by classroom teachers who have no access to a computer. Further research needs to be conducted to explain and confirm the differences between attitudes of allied health students on the first three factors: Satisfaction with Career Choice, Motivation to Participate in Professional Organizations, and Commitment to Lifelong Practice in the Profession.

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The Problem and Definition of Problem

Introduction

The groups of professions which deal with health occupy a position of great importance in American society. Society values these groups by according them high levels of prestige, status, power and financial remuneration. Martin Rosenfeld has written that "health is the second largest single industry in the United States" (McTernan & Hawkins, 1972, p. 15).

The profession of medicine itself has long been considered one of the highest of professions--that is, possessing the characteristics of a true profession. Since the early 1900's, the amount of scientific knowledge about health has rapidly increased. "A large number of special occupations have arisen around the application of the new scientific knowledge" (Carr-Saunders, 1966, p. 4). These special, medically related occupations have patterned themselves in the "medical model" and have sought to develop the characteristics of true professions. Allied health, in the broadest sense, covers all professional, technical and supportive workers in patient care, public health, and health research, as well as personnel engaged in environmental health activities (McTernan & Hawkins, 1972). Within this broad base of health workers are highly specialized health workers whose training at accredited schools includes a

minimum of one year of intensive didactic and clinical education which usually follows basic studies in the liberal arts. Often a degree, certificate and/or licensure are required in order to practice the profession. The growth and development of these occupations have been in the direction of professionalization.

Richard H. Hall (1969) has developed a model of professionalization in which the array of attributes of professionalization are divided into two types--structural and attitudinal. Structural attributes become part of the social structure in the form of professional training schools and organizations. Structural attributes are acquired sequentially in the process of professionalization. The stages according to Wilensky (1964) are:

1. Creation of a full time occupation.
2. The establishment of a training school.
3. Formation of professional associations.
4. Formation of a code of ethics.

Attitudes are generally assumed to influence behavior, thus, professional attitudes should be correspondingly related to professional behavior as well as the manner in which work is perceived. The attitudinal attributes of professionalization that appear to be crucial to all professions are (Hall, 1969):

1. The use of the professional organization as a major reference.
2. A belief in service to the public.
3. Belief in self regulation.

4. A sense of calling to the field.
5. Autonomy.

The attitudinal attributes of a specific profession are learned by individuals in the profession primarily in the professional training schools and secondarily in association with other members of the profession. Ideally, the professional should develop a highly positive attitude (appetition) toward all aspects of his own profession. If individuals have negative attitudes (aversion) toward their own profession, a result may be a high rate of attrition in professional schools, dissatisfaction by practitioners and a lack of life-long commitment to practice in the profession. The large percentage of women in the allied health professions increases the need for emphasis on attainment of positive attitudes toward their professions. From a review of research, it was concluded by Etzioni (1969) that women, especially married women, are far less committed to work careers than are most men of comparable attainments.

Statement of the Problem

The purposes of this research were to: (a) develop a scale to measure the construct of allied health students' attitudes toward their own profession, (b) test the scale by using students enrolled in the senior year of baccalaureate education in five selected allied health professions, (c) analyze factors of the obtained scale results, (d) develop subscales which will increase the utility of

the test, and (e) establish descriptive norms on the revised scale.

Need for the Study

Four principle reasons supported the need for this study. First, despite thorough screening of academic credentials prior to admission to professional training programs, the attrition rates are higher than desired by educators. Collegiate nursing program attrition rates for the last several decades are roughly 40% annually (American Nursing^{ed} Association, 1967). It has been suggested that attitudinal factors rather than academic factors account for these rates (Warnecke, 1973).

Second, although educational objectives concerning attitudes have many similarities between allied health professional schools, no standardized attitudinal measurement scale has been found in a search of the literature. From the attributes of a profession, Hall (1969) developed a Professional Inventory to measure the degree to which an individual believes his profession has progressed toward becoming a true profession. Other attitudes such as commitment to practice the profession and satisfaction with the profession as a personal career are not measured by this inventory.

Third, measurement of allied health student attitudes toward various aspects of their own profession can provide descriptive data for the faculty which can be used in

revision of specific attitudinal objectives, teaching methods and curricular evaluation.

Fourth, a scale may be used to measure individual student attitudes in order to prepare individualized instructional programs to develop or modify attitudes or as a counseling tool in understanding individual attitudes.

Definitions of Terms

For the purpose of this study, the following definitions are provided:

Attitude--"A mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all situations with which it is related" (Allport, 1967, p. 8).

Attitude measurement--The assessment of an individual's response to a set of situations--usually a set of statements (items) about the attitude object (Green, 1954).

Allied health--Professional, technical and supportive workers in patient care, public health and health research as well as personnel engaged in environmental health activities (McTernan & Hawkins, 1972, p. xi).

Profession--An occupation based on specialized intellectual study and training, the purpose of which is to supply skilled service or advice to others for a definite fee or salary (Carr-Saunders, 1966, p. 4).

Professionalization--A dynamic process whereby many occupations can be observed to change certain crucial

characteristics in the direction of a profession (Vollmer & Mills, 1966, pp. vii-viii).

Professionalism--The attitude or ideology found in many occupations which are in the process of professionalization (Hall, 1969, p. 78).

Delimitations of the Study

The population for this study was senior allied health students enrolled in baccalaureate programs (except military programs) in the United States. A random sample of programs was drawn from five allied health professions which are accredited by the American Medical Association. These professions were: (a) assistant to the primary care physician (physician's assistant), (b) medical record administration, (c) medical technology, (d) occupational therapy, and (e) physical therapy. The seniors enrolled in the selected programs were asked to volunteer for participation in the research.

Review of the Literature

The Affective Domain--Attitudes

Travers (1972) has summarized the basic theoretical positions on attitudes and attitude learning. Those relevant to this topic are excerpted here.

Attitudes emerge in a primitive form in the early years of life, manifesting themselves as tendencies to approach or withdraw from particular classes of objects. The terms attitude, interest, values, and approach and withdrawal tendencies cannot be clearly differentiated. (p. 330)

Attitudes are generally considered to be complex and such a view has led to productive research. (p. 330)

A major component [of attitudes] is the cognitive component . . . the mass of beliefs . . . on which attitude is based. A second component is the affective component . . . the tendency of the attitude to be represented by positive and negative feelings. This is the component of attitude that is commonly measured by attitude scales. . . . Most psychologists deplore the lack of research in the third component of attitudes, namely, the action component, but such research has not been extensively undertaken largely because it is difficult to carry out. (p. 330)

Attitudes function very much like concepts, in that they help to simplify transactions in a very complex world. (p. 331)

Changes produced in attitudes tend to disappear as time goes by, partly because there is some forgetting of the factual information involved. (p. 333)

Several techniques designed for preventing attitudes from being changed have been studied. The most effective . . . is to arm the individual with arguments . . . supportive of his beliefs and . . . that could be used against any counterarguments that the individual might encounter. . . . An important condition that produces stability of attitudes is what is referred to as commitment. (p. 333)

The objectives of education and instruction have been categorized into a taxonomy of cognitive, affective and psychomotor domains (Bloom, 1956). The affective part of the taxonomy includes likes, dislikes, attitudes, values and beliefs. Teachers often prepare affective instructional objectives preparatory to instruction and measurement of educational outcomes (Kibler, Cegala, Barker & Miles, 1974). Kibler et al. (1974) propose a loosely organized hierarchy within the affective domain. Acceptance of and preference for values by the learner which are sufficiently consistent and stable to have taken on the characteristics of an attitude are the lowest level of the hierarchy. Deep involvement, conviction and certainty toward a value take on the connotation of commitment in the highest level of the hierarchy showing real motivation to act out a behavior. Several learned values may be organized into an internally consistent system by which the learner is recognized and described by others and which underlie his total philosophy.

Conceptualization, definition and measurement are inextricably linked in research. Attitude may be conceptualized by five approaches, according to Lemon (1973). These conceptualizations are based on the definitions of the terms given by the investigator, the research operations involved and the form of generalizations which are made. The first position demands that conceptualization be linked absolutely with the measurement process and allows consideration only of the relationship between a single response and its antecedents.

The term attitude is then used to describe the pattern of stimulus-response contingencies. Secondly, almost the opposite, is the paradigmatic approach which involves selection of one response to a particular antecedent (perhaps a score of an attitude scale). All other antecedents are then defined in terms of their relationship to the paradigmatic stimulus and response. Much experimental work in the social sciences has been based on this conceptualization. In the third and most common pattern, attitude is conceived as a mediating construct which relates social situations or factors to behavior. The definition of attitude by Allport (1967) illustrates this inference. A subpattern of attitudes as mediators may be postulated by first labeling a response to a set of stimuli which in turn gives rise to a corresponding stimulus feedback which elicits the requisite responses. The fifth conceptualization is that behavior will not be predictable from knowledge of the relationships between the individual aspects of the social situation and response. The interactionist school in sociology would stress the importance of meaning of a situation to the individual. The positivistic standpoint and perhaps the phenomenological positions try to encompass all possible relationships and interrelationships--implying an enormous number to be measured.

The Measurement of Attitudes and Values

Basically, measurement consists of gathering observations about people's behavior and assigning numbers to these

observations according to certain rules. The rules and procedures will depend upon the investigator's theoretical assumptions of the nature of the attitude to be measured, the relationship it has to behavior, and upon its relationship to the rules which are used to assign numbers to these behavioral observations (Lemon, 1973).

The general process of attitude measurement, according to Lazarsfeld and Barton (1951), can be grouped into four stages. The investigator must first form an image of the nature of the concept to be measured. Next, the relevant dimensions of the concept must be specified to serve as a basis for measurement. The next stage involves the translation of these theoretical ideas into practice by finding or developing indicators which represent the theoretical concepts guiding his research. The strategy he adopts will determine the nature of the concept his observations represent. The final stage postulated by Lazarsfeld and Barton is the combination of scores from these indicators which will represent the attitude.

Attitudes characteristically provoke behavior that is favorable or unfavorable (affirmative or negative) toward the object or class of objects with which it is related. This double polarity in direction is often regarded as a distinguishing feature (Allport, 1967). Many attitudes, however, cannot be thus classified--such as detached, impersonal or judicial attitudes. The unidimensional view of polarity indicates the need for the qualitative nature of

some attitudes. Allport suggests that the difficult matter of measurement of the qualitative aspects of attitudes may be lessened or avoided by reducing attitudes to small components or fragments. An example is the avoidance of a general measurement such as attitude toward bridge-playing in favor of specific measurement for or against conversation during the play of the game.

Shaw and Wright (1967) compiled data on 176 attitude scales which they deemed useful for research purposes according to minimal criteria. The minimum properties of an attitude scale that were used were reliability (yielding consistent results) and validity (measuring what it purports to measure). Other desirable characteristics were equality of units, unidimensionality, and a zero point. "Reliable and valid scales can be constructed by the methods developed by Thurstone, Likert, Guttman, Coombs, and Lazarsfeld, and by variations of these methods" (Shaw & Wright, 1967, p. 32). Since a variation of the Likert method has been chosen by this researcher, this method, as described by Shaw and Wright (pp. 24-25) will be abstracted here.

The scaling technique of Likert requires a large number of monotone items, i.e., items having the characteristic that the more favorable the attitude toward the attitude object, the higher the expected score on the item. A five-category rating system is used: strongly approve, approve, undecided, disapprove, and strongly disapprove. Categories are scored by assigning values of 5, 4, 3, 2, and 1,

respectively, with reversed scoring for negatively worded items. These items are given to a sample of the target population. Item scores are then correlated with the total score and items that correlate highly with the total score are selected for the final scale. Intercorrelations are assumed to be due to a single common factor. The Likert procedure yields moderately reliable scales, depending on the particular scale under construction. No attempt is made to ensure equality of units and probably should be considered as ordinal scales. Unidimensionality is sometimes inferred from high item correlations with the total score but this could result from two or more equally potent factors. The "undecided" category is often considered a zero point but this score could be achieved by either checking all "undecided" responses or a combination of "agree-disagree" responses. The interpretation of Likert scores is based upon the distribution of sample scores; i.e., a score has meaning only in relation to scores earned by others in the sample drawn from the target population.

According to Gronlund (1965), the two chief methods for evaluating student attitudes are direct observation and attitude scales. He indicated that scales are primarily useful where the individual has little reason for distortion of the results and is willing to make his feelings known, such as in self-understanding or research.

Attitudes Toward an Occupation

"It makes some difference in a man's performance of his work whether he believes wholeheartedly in what he's doing or feels that in important respects it is a fraud, whether he feels convinced it is a good thing or believes that it is not really of much use after all" (p. 119). This statement by Becker and Geer (1958) referred to attitudes developed by students toward the profession of medicine and implied the influence of attitudes upon work performance--or more generally--behavior. Indeed, most definitions of the term "attitude" entail affective and behavioral components but obviously there is not a perfect correlational relationship between attitude and behavior. According to Shaw and Wright, common characteristics of attitude definitions are "an existing predisposition to respond to social objects which, in interaction with situational and other dispositional variables, guides and directs the overt behavior of the individual" (1967, p. 2).

A major focus in the life of adults is an occupation which is a social role performed by adult members of society that directly or indirectly yields social and financial consequences (Hall, 1969). The sociologist Talcott Parsons (1954) stated that "work activities have become fundamental to all aspects of the human condition, and the kind of work that a man does has come to affect all significant aspects of his life and how he views himself" (p. 34). The process of identification and the nature of identity are a concern of

social psychologists. Foote (1951) pointed out that individuals identify themselves--answer the question "Who am I?"-- in terms of the names and categories of the groups in which they participate. By applying these labels to themselves, they learn who they are and how they ought to behave, acquire a self and a set of perspectives in terms of which their conduct is shaped. Foote proposed a theory of motivated behavior based on identification with and commitment to a role or roles.

For the purpose of analyzing the process of work identification in students, Becker and Carper (1966) conducted lengthy interviews with 51 male graduate students in physiology, philosophy and mechanical engineering at a large state university. Comparison of the three groups revealed four major elements of work identification: (a) occupational title and associated ideology, (b) commitment to task, (c) commitment to particular organizations or institutional positions, and (d) significance of one's position in the larger society. This research confirmed many other studies which have found individual differences in the kinds of commitment to careers in differing contexts.

Holland has conducted extensive research on a theory of career choice. He indicated that the person making a vocational choice searches for vocational situations which will fit or match his personality. In 1966, he summarized the assumptions underlying his theory of vocational choice. Five of these are:

- 1) The choice of a vocation is an expression of personality. . . . (p. 2)
- 2) Interest inventories are personality inventories. . . . (p. 3)
- 3) Vocational stereotypes have reliable and important psychological and sociological meanings. . . . (p. 5)
- 4) The members of a vocation have similar personalities and similar histories of personal development. . . . (p. 5)
- 5) Because people in a vocational group have similar personalities, they will respond to many situations and problems in similar ways, and will create characteristic interpersonal environments. (p. 6)

Numerous scales have been developed to measure occupational attitudes and occupational characteristics of different categories of workers. Seventy-seven of these scales were reviewed and evaluated by Robinson, Athanasiou, and Head (1969). Of the scales, though, none were applicable for use with students or potential employees in the allied health professions since the attitudes measured make reference to prior experience or practice in the occupation. These researchers attempted to assist other researchers by a critical interpretation of the literature and methodology of each of the scales according to acceptable and desirable standards of test construction.

The Professions and Professional Attitudes

Today almost every occupation calls itself a profession or is striving to become more like one. It is more meaningful, according to Vollmer and Mills (1966), to use the concept of "professionalization" which refers to the dynamic process whereby many occupations can be observed to change certain crucial characteristics in the direction of a

profession. These crucial characteristics are the structural, attitudinal and behavioral attributes which have been earlier discussed as proposed by Hall (1969) and Wilensky (1964). It is discernable in these and many other writings that an attempt is being made to move from a simple description of the established or ideal professions of law, medicine and the clergy toward a more general model. The model has utility as an ideal type against which various occupational groups and their members can be "measured." There is circularity in these definitions; the professional is defined in terms of characteristics attributed to the profession, and the professions in terms of the personal attributes ascribed to the persons who are in professions. Also, the concept of a profession is described as a unidimensional phenomena to which a varying number of characteristics are ascribed. The "most professional" professions are assumed to fit the model by displaying either/or the highest number of these attributes or the strongest measure of them. Empirical studies, though, have shown that professions and professionals may be highly diverse in their attitudinal and behavioral characteristics (Hall, 1969; Salvo, 1972). The structural requisites, due to their nature, are constant for all members of the occupational group. Variation in the extent to which behavioral and attitudinal attributes approximate the professional ideal have been hypothesized and measured but no literature was found which attempts to explain the causes of these variations. It seems logical to assume that personality

characteristics, quality and content of professional education and training, work environment and interpersonal relationships with colleagues may explain and be correlated with these variations.

The professions and subprofessions were first described in depth in the writing of Carr-Saunders and Wilson in 1933. The established professions were treated as a model toward which occupations could emulate.

The distinguishing attributes of professions have been summarized by many authors for many purposes. An example of one by Earnest Greenwood (1972) is given. A profession has systematic theory, authority, community sanction, ethical codes, and a culture. He cautioned that these are not the exclusive monopoly of professions and supports the theoretical professional continuum. The professions at one end possess the maximum degree of these attributes. Greenwood did not clearly differentiate attitudinal attributes but indicated that professionals value knowledge of the theory underlying practice, believe that the client has no knowledge of this theory and must rely on professional judgment, must control their own training institutions and standards of practice, are publicly committed to the social welfare, and must share their technical knowledge with each other and perform services primarily for psychic satisfactions rather than monetary compensations. To succeed in his chosen profession, the neophyte must make an effective adjustment to his professional culture, which consists of its norms, values and symbols.

Straus (1963) summarized the values of professionals into four categories:

1. The professional claims that his occupation requires expertise, that is, specialized, academically earned knowledge and skills. He seeks to restrict entry into his profession to those who can demonstrate proficiency. In many cases, control of the training process is sought.

2. The professional claims autonomy which is the right to decide how his function is to be performed and to be free from lay restrictions.

3. The professional feels a commitment to his calling. He identifies more with members of his profession rather than his employing organization. Merton (1949) referred to this orientation as "cosmopolitan" rather than "local." Winning esteem in the eyes of fellow professionals is more desirable than advancement in his own company.

4. The professional feels a responsibility to society for maintaining work standards; thus he supports professional self-discipline and codes of ethics.

Straus cautioned that each of these professional values conflicts with a bureaucratic value. Conflicts arise with management and those employees in a bureaucracy who have strong professional attitudes.

In a review of a wide variety of studies from different countries, Lipset and Schwartz (1966) illustrated a number of hypotheses concerning attitudes of professionals. These hypotheses ultimately related to political conservatism or

radicalism of professionals. Some of these hypotheses pertain to satisfaction with a profession and are summarized here:

1. By virtue of the specialized and prolonged training and the high level of commitment associated with professional occupations, professionals are more likely to feel frustrated when faced with limited job opportunities.

2. Those who have been forced to enter second-choice occupations are more likely to show higher degrees of discontent than those who have reached their original aspirations.

3. Large-scale discrepancies between professional values and the realities of the work situation lead to generalized social discontent (pp. 229-310).

Lipset and Schwartz proposed these hypotheses to account for some conditions which may produce discontent among professionals--most of whom exhibit a high degree of job satisfaction in work environments.

In very early studies of occupational level and job satisfaction, Super (1939) concluded that among 273 men, there is a decreasing percentage of satisfied workers as one descends the white collar scale from professional (85.6%) to semi-skilled (47.2%). More recently, Inkles (1960) confirmed this relationship between job satisfaction and position in the occupational hierarchy show that this is true across national lines in western industrialized nations.

F. J. C. Seymour (1963) has written that the attitudinal ideals of professionalism, as promoted by the professional

associations, can be a very positive force in bringing about behavioral changes within professions. He recognized that occupational attitudes must become an integral part of the individual's behavioral makeup and must be genuine. He called for research to determine whether professionalism can be promoted consciously and still enhance work performance or whether occupational change must be based on developments which are arrived at without conscious deliberation.

Hall (1969) developed attitude subscales for each of the professional attitudinal attributes (listed on pages 2 and 3) and administered the 50 item Professional Inventory to 328 subjects from populations of physicians, nurses, social workers and eight non-health related occupations. Hall found that it was incorrect to assume concomitant variation between structural and attitudinal components of professionalization. Nurses and social workers were high scorers in their sense of calling to the field but nurses scored the least autonomous of the groups. This latter finding Hall found to be not surprising given the position of nurses in the hospital setting and their rather distinctive subordination to the medical staff. Hall concluded, in addition to the lack of correlation between structural and attitudinal variables, that the attitudinal variables of belief in service and a sense of calling may be desirable but actually have little to do with the process of professionalization. The other attitudinal attributes (professional organization as a major reference, self-regulation and autonomy) appeared to give the

group power and protection from outside constraints and are thus central to professionalization. Hall's data showed that even among established professions, members and subgroups of members vary in the degree to which they conform to both aspects of the professional model. This variation was attributed to the work environment since subgroups of professionals were employed in different kinds of organizations.

The Professional Inventory was administered to 566 engineers, physicists and chemists in research by William Snizek (1972). Using data from Hall's original groups in addition to the groups of scientists, Snizek employed rotated factor matrices to determine the degree of empirical "fit" of the items used to measure each of the five theoretical dimensions of professionalism. Approximately half of the fifty items had less than an acceptable factor loading on their theoretical dimensions. It was concluded that the difficulties lie with its items rather than sampling idiosyncrasies. Suggestions were made for extensive item content modification.

Attitudes Toward Allied Health Occupations by Others

The prestige granted an occupation which is in transition of professionalization is a desired objective. Many assume that the more professional a group becomes, the more likely it is to be recognized as having prestige by the public and concerned others. Obviously, this assumption has limits in a hierarchical ranking system.

The occupational prestige differences within the medical and allied health professions were studied by Shortell (1974). It was assumed that prestige accorded a particular health occupation is a sensitizing influence which affects the behavior of those in the occupation and those with whom they interact. The research studied the relationship between doctor-patient relationships and prestige. It was proposed that those medical specialties where the professional had an active role with a passive client would receive higher prestige rankings than those with a guidance-cooperation or mutual participation relationship. Forty-one medical and allied health specialties were ranked by 117 physicians, 66 patients, and 118 graduate business students on a self-administered questionnaire. All three groups of respondents assigned significantly higher prestige to the activity-passivity medical specialties than the guidance-cooperation or mutual participation specialties. The allied health occupations were ranked but not classified according to their client relationship types. Several caveats were offered concerning size and selection of the sample and the research design. However, there were high correlations (significant at $P = <.001$) between the ranking of the three groups. Table 1 shows the rank order given non-physician specialties by the three groups. Lower numbers indicate higher prestige ranks. All physician specialties were ranked higher than non-physician specialties. Only the rankings given non-physician specialties are included in this table.

Table 1

Prestige Ranking of Non-Physician Specialties
by M.D.'s, Patients, and Students
(Shortell, 1974, p. 4)

Non-Physician Specialty	Rank by M.D.'s (N=117)	Rank by Patients (N=66)	Rank by Students (N=118)
Dentist	24	21	21
Dir. of Nursing Service	25	27	25
Hospital Administration	26	28	22
Registered Nurse	27	18	26
Pharmacist	28.5	25	33
Hospital Controller	28.5	32	28
Medical Social Worker	30	39	36
Physical Therapist	31	33	32
Occupational Therapist	32	35	34
Inhalation Therapist	33	29	29
Medical Technologist	34	31	37
X-Ray Technician	35	30	39
Psychiatric Technician	36	34	35
Osteopath	37	37	31
Practical Nurse	38	38	38
Nurse Aide	39	40	41
Podiatrist	40	36	30
Chiropractor	41	41	40

The prestige of medical specialties was the topic of research by Hartmann (1936). The public (a sample of 250 adults) was asked to rank a list of 25 professionals within the medical field. It was concluded that the easily understood and well recognized occupations stand either near the top or the bottom of the list.

Non-physician health occupation groups have objected to being called "paramedical" or "ancillary" personnel by physicians. Bowing to these pressures toward autonomy with a policy statement, the American Medical Association, Council

on Medical Education, Subcommittee on Terminology, followed it with a statement which tends to be almost a disclaimer:

The 1970 House of Delegates adopted the policy "that the terms 'ancillary' and 'paramedical' no longer be used in AMA statements, and that the term 'allied' be used in their stead." Regardless of the appropriateness of the terms in some instances where personnel are clearly concerned with supplementing the work of medical personnel and are subordinate to physicians, the connotations are understandably disturbing to many health disciplines who have come to merit an increasingly important role in providing health care services to the extent that they are more truly allied with, rather than subordinate or secondary to, medicine in meeting the needs of patients. (Council on Medical Education of the American Medical Association, 1974, p. 38)

Avoiding a decision about the term "profession," this committee has to date only defined the terms allied health manpower, allied medical manpower and health services.

Allied Health Attitudes

The measurement of attitudes toward one's own future career and employment situation involve a wider range and scope than the measurement of attitudes of professionalism in one's own occupation. The literature revealed, though, that studies called "attitude toward the profession of--" usually involved opinion regarding professionalization of that group. Similarly, literature on job or career satisfaction was oriented toward a specific work environment in which the individual is (or has been) employed rather than the more abstract concept of "my career attitude."

The studies which follow cast doubt on the premise that the allied health occupations can be considered "true" professions. The structural characteristics of allied health

as a profession are present and visible in the form of active and viable professional organizations, training institutions, standards and codes of ethics. The attitudes of certain students and practitioners reflect ambivalence and role conflict which seems to result in attrition from educational programs and a lack of lifelong commitment to the role.

The origin of the term "semi-professions" has been attributed to Carr-Saunders and Wilson and was further described by Etzioni (1969) as a group of new professions whose claim to the status of doctors and lawyers is neither fully established nor fully desired. Their training is shorter, their right to privileged communication is less established, there is less of a specialized body of knowledge and they have less autonomy from supervision than the established professions. Practically all are employed in organizations and many are female. Conflict is often perceived between normative principles and cultural values. Etzioni believed that the semi-professionals aspire to full-fledged professional status as an alternative to the status of the non-professional employee. Three occupations were given as examples of semi-professions--social workers, nurses and teachers. One of the four questions for research posed by Etzioni (1969, p. xvi) was "What typical attitudes to clientele, management, service ideology do they hold to?" Although the term semi-professions was not well defined, it appears that most, if not all, of the baccalaureate level allied health professions could be thus categorized and

the question of attitudes of semi-professionals needs an answer.

Excerpted from the Census of the Population: 1970 (U.S. Bureau of the Census, 1973, p. 1-739), the data in Table 2 show that the allied health professions have predominately female employees.

Table 2
Sex of Health Occupations Employees

Group	Male	Female
Physicians, dentists, and related practitioners	493,081	45,665
Registered nurses, dietitians, and therapists	53,152	891,831
Health technologists and technicians	78,946	180,893

From the same census, females employed in health services have a lower median age (38.9 years) than males in the same category (42.1 years), possibly implying that females leave these fields at an earlier age than males (pp. 1-815--1-817).

Mark Quinones (1974) attributed the "aura of professionalism" in the allied health field to the confusion resulting from extraordinary growth in recent years to the numbers of allied health occupational categories. In response to the desire for recognition from fellow workers on the health team, this attitude emerged. Historically, work roles in the health/medical fields have been structured

with the highest status and "professional" title going to doctors, nurses, and several key categories with the remainder constituting the "non-professionals." Conflicts in role attitudes and behaviors were described within the work setting which, within large medical institutions, is usually a bureaucracy.

The Professional Inventory (Hall, 1969) was used in a cross sectional study to analyze the development of professional attitudes among freshman and senior diploma student nurses (Friedman, 1971). The sample was 264 students from three schools. Significant differences were found for the dimension of sense of calling to the field with senior mean scores being lower. This finding was consistent with prior research which reports that seniors were less idealistic than freshmen. Despite some trends of seniors toward professionalization, it was concluded that nursing education in diploma schools resulted in a failure in professionalization.

In another research study involving nursing attitudes, Hogan (1972) found that completion of a bachelor's degree in nursing may very well increase registered nurses' professional attitudes toward nursing. A semantic differential and Likert-type professionalism scale was used to gather the data from over 300 registered nurses of varying educational backgrounds and work experiences. Professional attitudes, however, diminished upon the first work experience following graduation but increased again if the registered nurse remains employed for more than one or two years following graduation.

The dimension of autonomy seems least likely to be congruent with the pattern of allied health attitudes. In the Friedman study (1971) reported earlier, the measurement on this dimension showed no significant differences between freshman and senior nursing students. More recently, 103 female occupational therapists in Wisconsin were interviewed concerning their attitudes toward increased general and specific role autonomy in the field (Lehmann, 1973). About two-thirds agreed that a simple increase in autonomy (independence) was desirable. Toward a more specific autonomy question, the two-thirds disagreed that the occupational therapist should provide services without the referral or prescription of a physician. Older therapists (>35 years) tended to disagree, significant at the .01 level, that independence from the physician's referral is desirable.

Role conflict may be predicted in allied health educational programs. It is during this period that the female student must reconcile and effect viable combinations of conflicting roles of wife and career woman.

Davis and Olesen (1966) gathered descriptive data of a variety of types from fifty beginning student nurses. Although the professions usually draw upon and support a fairly high degree of personal commitment to the work, students in female dominated professions such as nursing collective experience identity stresses in resolution of the career-marriage dilemma. The majority of these students in the study (86%) ranked "home and family" over "work and

career." Many students anticipated that at the medical center campus they would have a unique opportunity to meet medical students and other young men training for the health professions. Upon arrival at school, they become aware and must adjust to the isolation of professional orbits in which they study, practice their newly learned skills, and socialize.

In a study of non-intellectual factors related to attrition from a collegiate nursing program, Warnecke (1973) compared characteristics of 95 dropouts to 260 non-dropouts. By means of Guttman scaling and factor analysis, three problem areas which the school must help the student solve were identified. These were to:

1. Develop a commitment to the content of the professional role,
2. Provide a definition of the nursing role that is compatible with both the values of professional nursing and the orientation of the students, and
3. Relate the occupational role to the primary roles of wife and mother.

It was hypothesized that successful socialization to the program and the profession would occur to the extent that the student successfully solves these problems. Warnecke concluded, in part, that non-intellectual factors were better able to differentiate between dropouts and non-dropouts than was ability as measured by achievement tests. It was undetermined whether weak motivation was characteristic from

entrance into the program or was a result of the experiences in the program.

A comprehensive study of the characteristics of male registered occupational therapists was undertaken by Jantzen (1973) in 1970. A mailed questionnaire resulted in replies from 80.8% of the active registrants. Almost all of the male therapists (3.9% of the membership) participated in the study. The typical male therapist (mode) was ten years older than the female therapist. Whereas 32% of the females were unemployed, only 4% of the males were unemployed. However, proportionately fewer men than women remain employed in occupational therapy positions. Proportionately two and one-half times more men than women held graduate degrees. Male therapists with graduate degrees were less likely to work in occupational therapy positions than were those with bachelor's degrees only. This study of a female dominated occupation seemed to show an exception to Etzioni's proposition that men are more committed than women who have comparable educational attainments. An analysis of the reported job titles of men no longer working in occupational therapy indicated that a degree in this field may serve as a means of entry into another health field rather than as a commitment to occupational therapy as a health career field itself.

Roehm (1966) conducted research on attitudes and behaviors of nursing graduates of associate degree, diploma, and baccalaureate programs leading to registered nurse status. Of the three levels of schools in Indiana, 824 graduates were

surveyed by questionnaire the year following their graduation. There was an indication that practitioners from all three of the programs seemed satisfied not only with their beginning position but with nursing as a career. Diploma nurses perceived conflict to a greater degree than the associate or baccalaureate degree nurses by their expression of decreased job satisfaction and tendency to use more forceful coping patterns.

There was evidence to support substantive changes in beliefs and attitudes of allied health students during their educational period and opposing evidence as well. The more central an attitude is to one's total personality structure, the less likely it is to show variation. The following study measured quite central personality characteristics and showed that over a three month period there were no significant changes in these characteristics.

The changes in beliefs held by occupational therapy students before and after the first field experience were studied by Greenstein (1975). Most occupational therapy curricula, and many other allied health curricula, seek to systematically coordinate didactic classroom learning with clinical experiences. In the junior and senior years, the practicum or preclinical courses bridge the classroom instruction and full-time field experiences. For this reason, it was hypothesized that no significant change in the beliefs of occupational therapy students would occur as a result of the first full-time field experience. The student entering field

experience is expected to be prepared so that beliefs will not be sharply altered during these experiences. Twenty-eight seniors from one curriculum responded to the pretest and post-test instruments which measured authoritarianism, dogmatism, and manipulative tendencies. The hypothesis was upheld and no significant changes in beliefs were measured in this very limited study.

Other kinds of attitudes, as might be anticipated, can reflect changes. A broad range of student attitudes toward nursing and nursing education was found by Willman (1961) by means of 24 incomplete sentences given to freshman, junior, and senior levels in three diploma and three degree schools of nursing. Motivation for the diploma students appeared to be related to achievement of success in vocational preparation; degree students appeared to be motivated by altruistic and religious reasons. Attitude change was reflected by responses at the three levels. Freshman indicated naivete, insecurity, inexperience, and self-oriented concerns. Juniors expressed general discontent and disillusionment with nursing and nursing education along with a more realistic conception of the profession and the role as well as a genuine concern about improvement of the educational program and school standards.

A trend in the allied health fields has been the development of assistant level occupations, in part to cope with manpower shortages and to maximize the efficiency of highly trained personnel. Reactions to this trend by

practitioners and educators have perhaps been discussed more than documented. The attitudes of students in either level toward this trend remain largely uninvestigated.

A study was undertaken to develop an inventory to measure dental student attitudes toward expanded duties of dental assistants (Dorfman, Kreit, & Podshadley, 1971). Two forms of a Likert-type inventory were developed to measure the construct. University of California junior and senior dental students were overwhelmingly in favor of expanding the duties of the dental assistant. The 62 seniors displayed a significantly more favorable attitude than the 59 juniors. Significant positive correlation was found between autonomy on the Omnibus Personality Inventory and positive attitudes toward expanded duties. The lack of anxiety scale from the same test showed significant correlation with favorable positive attitudes toward expanded duties.

Morgan (1974) reviewed research on cognitive and affective dimensions of health related education. She found correlations between scores or grades in academic work and certain cognitive tests but noted a lack of data on predictors of success in clinical, internship and professional performance. One of her conclusions was that:

Analysts need to examine career satisfaction, to determine if certain characteristics discriminate between those who remain in and perform successfully in a health related field and those who drop out or continue but are dissatisfied with the work. (Morgan, 1974, p. 19)

The research studies reported in this work concentrate on the personality characteristics of groups of allied health baccalaureate students and practitioners. No attitudinal studies are included.

Summary of Review of the Literature

Several conclusions may be drawn from this review which was selected from vast literature in sociology, education, psychology and the health occupations. No literature was found which dealt directly with the measurement of career attitudes of allied health students except professionalism measures. The literature revealed some measures of job and career satisfaction for use after graduation based on experience in the field. Measures of commitment and belief of the value of one's career have been used only as components of total professionalism scores. The wording and theoretical basis of scales developed for a specific health profession limited use to that profession.

The research on attitudes of allied health personnel and students reflect the prominent concern about the issue of professionalization in these occupations. Darrel J. Mase has stated,

As we prepare individuals for allied health positions, we must give careful consideration to a profound redefinition of professionalism. (McTernan & Hawkins, 1972, p. xiv)

Dr. Mase implied that the term professionalism may have new and unique dimensions in allied health which differ from the

model established by a description of the medical profession. These attitudes, broader than professionalization attitudes, are based on characteristics of allied health practitioners and will be described in the development of the theoretical model.

The Theoretical Model

Five hypothesized factors to measure the construct of allied health student attitudes toward their own profession have been derived from those used by Hall (1969) and Snizek (1972). Hall's Professional Inventory is limited for use in this study because it is intended to measure only the attitudinal attributes of professionalism. Hall's factors, though, and the scale items which measure them, may be modified to measure the broader construct of attitude toward an allied health profession.

Factor One--Motivation to Participate in Professional Organizations

Hall's factor was titled "Use of the professional organization as a major reference." Both the formal organization and the informal colleague groupings can be the major source of ideas and judgment for the allied health professional to do his work. By attending professional meetings, reading journals and participating in the work of the organization, the practitioner becomes strongly influenced by the professional standards and increases his ties and loyalty to the profession. This is pertinent to the allied health student, who should develop this colleague consciousness. For those still enrolled in the educational programs, though, the attitude may be more accurately called "Motivation to participate in professional organizations." Many allied

health students, limited in time and money, delay full participation until employed in the field but many have strong motivation. It is this motivation that will be measured by the revised items in this factor.

Factor Two--Satisfaction with the Professional
Role and Tasks

Hall measured the factor of "A belief in service to the public." Very few items fit into this factor in Snizek's analysis of the Professional Inventory. The full-fledged professionals realize that they are indispensable and beneficial to the public, but allied health practitioners, particularly students, are slow to develop this belief--partly based on awareness of the status rankings (relative to physicians) given them by the public. The useful items from this factor will be combined with those useful items from Hall's factor four, "A sense of calling to the field."

Factor two will be renamed "Satisfaction with the professional role and tasks" and new items will be developed. This factor is derived from theories and research on vocations which show that career satisfaction results when the roles and tasks of an occupation are compatible with the needs of those in the occupation. The student should view his own allied health profession as having a broad range and hierarchy of roles and tasks since, as he matures and gains expertise in his specialty, he can assume more complex responsibilities. He should show pride in his chosen field and feel comfortable discussing it with laymen.

Factor Three--Regulation by Peers Within the Profession

Hall's factor, called "Belief in self-regulation," represents a practitioner's endorsement of colleague control. This belief, frequently found in the allied health fields, is based on the special skills and knowledge required within the field which renders one's peers better able to judge professional performance than the layman. There should be variability in strict adherence to this attitude by allied health students, since some professions are, in theory and practice, very closely structured to others (an example is nuclear medicine technologist and radiation therapy technologist). The factor title has been slightly changed and the items will be slightly modified.

Factor Four--Calling to the Field Based on the Value to Society

"A sense of calling to the field" was the attitude Hall described as dedication and devotion to the work itself rather than performance of the work for monetary gain. This idealism, suited to the true professional who has more than enough income to meet his survival needs, is not often found in the moderately paid allied health practitioner. The review of the literature showed that most allied health professionals are women who are salaried by health organizations where policies on fees for services are often established by others. This factor, which combines items from Hall's factors two and four, has been renamed "Calling to the field based on the value to society." The allied health student

has been attracted to his field partly because the role and tasks are viewed as compatible with his needs. Also, though, in the process of his education, he should develop the attitude that his own specialty has been founded to fulfill a unique function in the overall pattern of health care to the public. Devotion to the field, then, is strengthened by this realization of one's value to society.

Factor Five--Commitment to Lifelong Practice
in the Profession

Hall's factor five, "Autonomy," involved the attitude that the professional ought to make his own decisions about his work without interference from the state, organizations, or any others outside his field. Etzioni's (1969) description of the semi-professions includes the aspect of lack of autonomy which is characteristic of most allied health professionals. Many are seeking less supervision from physicians and health administrators. Many, though, subscribe to the attitude of teamwork and interdependence in health care delivery. The factor of "autonomy" has been replaced with new items which will measure the crucial factor of "Commitment to lifelong practice in the profession." The costly education of students in the health fields becomes more costly if graduates do not become employed in their specialties or stay only a short while. Health manpower needs remain unmet if the limited student positions in allied health schools are filled by those who are disinterested in a long

career in their field. The graduate should value his career enough to continue it, largely uninterrupted by demands of family, and enough to prefer advancement in the field over a change of careers.

Method and Procedure

Development of the Instrument

The goal of developing this attitude scale was to design a feasible scale which will operate under classroom conditions, be useful in later research, and still result in valid and reliable item and factor analysis components.

The first step was to revise Hall's Professional Inventory (1969) to extend the scale for the stated purposes. The items which were loaded as much as .30 in each of the factors from Hall's and Snizek's data were rank ordered and analyzed for applicability to allied health students (Snizek, 1972). It was generally accepted that more than .30 is an acceptable factor loading. Those items with highest factor loadings and applicability were used as a basis for a new scale. Ambiguous items were eliminated or reworded as suggested by Snizek. The five attitudinal factors were renamed to better describe the attitudinal orientation of allied health professionals. These factors became the hypothesized subscales. New items which logically measured each construct were added by this investigator to bring the total number to 75 items--15 items in each of the five subtests. In order to avoid response set bias, the number of items in which an "agree" response was keyed positively was approximately equal to the number of items in which a "disagree" response was keyed positively (Anastasi, 1968, p. 460).

The second step was to select two panels of expert judges. One panel of twenty-four allied health professionals in nine different disciplines was chosen to judge the revised items for meaningfulness to allied health students. These judges offered a critical review of items which seemed to have limited applicability or uncertain meaning. Their review was based on personal experience as students, practitioners, and/or educators in a specific allied health profession. From outside the health fields, another panel of four judges with expertise in test construction reviewed and commented on the items. These comments from both panels of judges were used by the investigator to revise the 75 items a second time. Of the original 75 items from the Professional Inventory, approximately 23 were revised and 2 were left in their original form. Fifty items were altered to such a degree to be considered essentially new items.

The third step was to change the scoring on the instrument from Hall's 5-point scale of "very well," "well," "? (neutral)," "poorly," or "very poorly" to a 10-point continuum which ranged from "strongly agree" to "strongly disagree." The purpose of this change was to yield more variable scores.

The Subjects

The population for this study was students who were enrolled in the senior year of baccalaureate studies in all accredited educational programs (except military programs) in

five allied health disciplines. The number of baccalaureate educational programs in the United States which were accredited in 1974 are indicated following the name of the profession.

Assistant to the Primary Care Physician (Physician's Assistant)	19
Medical Record Administration	31
Medical Technology	715
Occupational Therapy	41
Physical Therapy	60

These five allied health professions were chosen to represent one recently established discipline (assistant to the primary care physician), one science oriented laboratory discipline (medical technology), one data management discipline (medical record administration), and two patient oriented, rehabilitation disciplines (occupational therapy and physical therapy). Military sponsored programs were not included because of their basic differences from other allied health programs in purposes and student characteristics.

The Procedure

A random sample of United States educational programs in the population of professions was chosen. A letter was mailed to the directors of the selected programs requesting their cooperation in administration of the scale to the senior students enrolled in their programs who volunteered to participate in the study (Appendix A). An instruction sheet for the administrator of the scale and multiple copies of the

Allied Health Career Attitude Scale were mailed to directors of the selected programs who had agreed to administer the scale. A copy of the instruction sheet and scale are contained in Appendixes B and C. A total of 200 subjects were sought from the selected programs for the first part of the study to obtain data for factor analysis. A total of 500 subjects were sought in the same manner for the second part of the study to cross validate the factors in the scale, factor analyze the scale a second time, and obtain norms to describe the sample. Appendixes D, E, and F contain copies of the letter to program directors, instruction sheet for the administrator, and the Allied Health Career Attitude Scale for the dissertation study. For the pilot study and dissertation study, participants marked their responses on a University of Houston General Coding Form. A copy of this form is contained in Appendix G.

The names of the programs were obtained from the Allied Medical Education Directory 1974 (Council on Medical Education of the American Medical Association, 1974). Follow-up telephone calls were made to program directors who did not return the research materials within the suggested time period.

Statistical Design

This study defined and measured the constructs within the domain of career attitudes of allied health students and identified the underlying factors of these constructs. A

preliminary scale was first administered to students from selected allied health professions. A minimum of 200 participants from five professions were sought. The scale items were intercorrelated and factor analyzed with the alpha factor analysis model (Kaiser & Caffrey, 1965) with varimax rotation procedure (Kaiser, 1958). This procedure served as a means of examining the instrument's construct validity. Five factors were proposed:

1. Motivation to participate in professional organizations.
2. Satisfaction with the professional role and tasks.
3. Regulation by peers within the profession.
4. Calling to the field based on the value to society.
5. Commitment to lifelong practice in the profession.

These factors are constructs and the factor loadings may be viewed as validity coefficients. Factor loadings of .30 or above were included in the final form of the scale. The factor analysis either confirmed or rejected these factors and served as a basis for development of the final instrument. Factors were combined and/or renamed to best describe the attitudinal orientation of allied health students.

The second part of the study cross validated the factors of the revised instrument by a second factor analysis. Responses from 500 students were sought. The health professions of the anonymous respondents were identified so that descriptive norms were established for the revised scale.

Other normative information developed was the mean scale scores and standard deviation of the groups. A method for scoring the scale was developed. This method required the use of a computer since it involved a multivariate scaling model.

Analysis of Data

This research sought to develop an instrument to identify and measure the factors underlying the career attitude domain of allied health students. Data from the pilot and final studies were analyzed using alpha factor analysis (Kaiser & Caffrey, 1965) and rotation of the factor matrix by the varimax rotation procedure (Kaiser, 1958). The results of the first analysis were used to revise the Allied Health Career Attitude Scale. A comparison of alpha and incomplete principal components analyses were used to show areas of agreement and disagreement between factors. A scaling model was developed for the purpose of scoring the scale. From data collected, norms were developed on the groups of subjects.

Data Collection--Pilot Study

A random sample of programs for the pilot study was chosen from among those accredited educational programs listed in the Allied Medical Education Directory 1974 (Council on Medical Education of the American Medical Association, 1974) for the five allied health professions. Because of the essential differences in students enrolled in military programs, these programs were not included in the study. In the Summer, 1975, 57 programs were requested to participate in the pilot study. Of these, 25 programs (43.9%) responded by the deadline for inclusion in the study. Responses from 201 students who completed the answer sheets in compliance

with instructions were included in the analysis. The sample was composed of:

<u>Discipline</u>	<u>Students</u>	<u>Programs</u>
Assistant to the Primary Care Physician	15	1
Medical Record Administration	5	1
Medical Technology	174	21
Occupational Therapy	7	2
Physical Therapy	<u>0</u>	<u>0</u>
Totals	201	25

Factor Analysis--Pilot Study

The University of Wisconsin STAT JOB computer program (University of Wisconsin, 1974) was used to analyze the data at the University of Houston Computing Center. The alpha factor analysis (Kaiser & Caffrey, 1965), followed by a varimax rotation procedure (Kaiser, 1958) was performed on the 75 item attitude scale resulting in 25 factors which accounted for 54.3% of total variance. The percent of total factor variance obtained from the rotated factor matrix was 17.7 for the first factor and 8.8 for the second factor. Factor I contained 17 items from the scale which had factor loadings in excess of four standard errors from a factor loading of zero. Factor II had seven such items. The item numbers, the item and the corresponding factor loadings for these two factors are shown in Tables 3 and 4.

The remaining 23 factors has less than six items with acceptable factor loadings per factor. These were judged by

Table 3

Items in Factor I--Pilot Study with Factor Loadings

Item	Factor Loading
62. I would like to change to another career.	-.790
54. This profession fits my career needs.	.753
26. If for some reason I had to stop working for a while, I would definitely return to this profession rather than some other.	.722
74. My profession is extremely important to me.	.680
52. I feel disappointment in my profession since I entered into training.	-.597
61. I think of myself as committed to this profession.	.592
69. My ideals were strengthened by my professional training.	.576
16. I enjoy the duties of my profession.	.575
11. It has been quite satisfying to be associated with the profession.	.554
59. I am enthusiastic about performing most of the tasks for which I have been trained.	.544
37. I feel that I would be good at recruiting others into my profession.	.516
6. I expect to practice this profession until retirement age.	.498
39. I am proud of the contributions we make to the total health care effort.	.468
2. The day-to-day work in my field is challenging to me.	.461
47. If I enrolled in graduate courses, it would be in another field.	-.433
75. My first (top) choice of careers was another field.	-.430
24. The main reason I am in this particular field is because it is personally satisfying to contribute to the health of others.	.409

Table 4

Items in Factor II--Pilot Study with Factor Loadings

Item	Factor Loading
41. Membership in the professional organization will probably help me in my practice in the profession.	.733
27. Participation in professional organization activities improves the quality of practice in the profession.	.665
58. It is not likely that I would volunteer to serve on a committee of the professional organization	-.618
63. I plan to join our professional organization in the "lifelong membership" category.	.570
21. I support my professional organization.	.561
48. Our professional organization routinely informs members of matters that will help them in practice.	.488
28. I regularly read my professional journals.	.468

the investigator, on the basis of a percent of total factor variance of less than 5.0 per factor, to account for too low a percent of the total factor variance to be useful for the revision of the scale. Of the hypothesized five factors, one was confirmed by the factor analysis. This was Motivation to Participate in Professional Organizations (Factor II from the factor analysis), shown in Table 4.

Revision of the Scale

The two strongest factors were retained for inclusion in the final study. Factor I with 17 items contained 5 items from the hypothesized factor Satisfaction with the Professional Role and Tasks. The factor was renamed Satisfaction with Career Choice to better describe the broader range of attitudes in the factor. The 15 items with the highest factor loadings were retained. Of the items, three were reworded to become negative statements so that the number of negatively stated items in the factor would approximately equal the number of positively stated items.

Factor II, Motivation to Participate in Professional Organizations, was increased from the 7 items shown in Table 4 to 15 items. This was accomplished by adding items which were newly developed or by combining and/or rewording items from other "minor" factors which were judged to be closely related to the items in the factor. No items from the Professional Inventory (Hall, 1969) remained in the scale for the dissertation study.

The two 15-item factors were randomly ordered in the revised Allied Health Career Attitude Scale prior to administration of the scale to subjects in the final study. The instructions to students and the scale appear in Appendix C.

It was hypothesized that in the final study, with a larger group of subjects, these two factors would emerge as separate and discrete entities.

Data Collection--Dissertation Study

The random sampling procedure used for the pilot study was used also for the final study. The programs which were selected in the pilot study were not included in the sample for the final study. In the Fall, 1975, 87 educational programs were chosen to participate in the study and 39 programs (44.8%) returned useable responses. No responses were received from programs for assistant to the primary care physician. The number of useable responses in each of the allied health disciplines is as follows.

<u>Discipline</u>	<u>Students</u>	<u>Programs</u>
Assistant to the Primary Care Physician	0	0
Medical Record Administration	99	5
Medical Technology	272	28
Occupational Therapy	106	2
Physical Therapy	<u>79</u>	<u>4</u>
Totals	556	39

Factor Analysis--Dissertation Study

The means and standard deviations of raw scores for each of the 30 items in the attitude scale are shown in Table 5. These data are useful in the calculation of factor scores for the purpose of scoring the scale.

The data from the 556 subjects were analyzed with the alpha factor analysis and incomplete principal components analysis and the initial solutions of these models were rotated to the varimax criterion. Both models were used to

Table 5
Means and Standard Deviations of the Raw Scores
of Subjects

Item	$\bar{X}$	SD	Item	$\bar{X}$	SD
1	7.79	1.52	16	7.48	1.75
2	7.51	1.77	17	6.30	2.13
3	3.19	2.39	18	2.93	2.06
4	6.03	2.50	19	6.85	1.84
5	6.81	1.97	20	2.39	3.25
6	2.37	2.21	21	2.51	2.73
7	1.61	2.20	22	6.50	1.95
8	6.37	2.38	23	6.47	2.04
9	3.07	2.90	24	6.53	2.41
10	7.22	1.87	25	3.11	2.02
11	1.56	2.00	26	1.69	2.30
12	4.03	2.39	27	6.35	2.76
13	6.19	2.15	28	7.45	1.71
14	6.31	1.86	29	5.62	2.29
15	3.45	2.21	30	1.85	2.16

Note. The raw scores on each of the 30 items ranged from a minimum of 0.00 to a maximum of 9.00.

determine if the solutions were dependent upon the factor model used. The hypothesized two-factor structure did not emerge. Five factors were isolated as a result of the factor analyses. The varimax rotated factor matrices for the alpha and principal components solutions are shown in Tables 6 and 7.

The title given to the factors, the items included in each factor, and their numerical factor loading values appear as Tables 8-13. The incomplete principal components solution was used to identify the factors.

Table 6
Alpha Solution, Varimax Rotated Factor Matrix--
Raw Scores

Item	Factors					h ²
	I	II	III	IV	V	
1	<u>41</u>	13	<u>39</u>	-14	17	39
2	<u>61</u>	03	<u>35</u>	-10	04	51
3	-11	-21	- <u>38</u>	12	11	23
4	<u>41</u>	03	<u>45</u>	09	00	38
5	<u>10</u>	<u>55</u>	<u>09</u>	- <u>33</u>	11	44
6	-00	- <u>31</u>	-04	<u>45</u>	09	30
7	- <u>40</u>	-13	-01	<u>37</u>	04	31
8	<u>23</u>	<u>35</u>	<u>43</u>	-13	-15	40
9	- <u>53</u>	<u>05</u>	-10	12	-00	30
10	<u>52</u>	23	26	-25	16	47
11	- <u>35</u>	-07	-13	<u>36</u>	-08	28
12	-08	- <u>42</u>	11	<u>06</u>	06	20
13	29	<u>24</u>	23	-17	12	24
14	11	<u>59</u>	23	-03	-07	42
15	-11	- <u>33</u>	-02	<u>32</u>	12	23
16	<u>67</u>	23	17	-01	19	56
17	<u>24</u>	<u>57</u>	26	-11	-12	48
18	-07	- <u>55</u>	-09	23	-08	37
19	08	<u>67</u>	29	-03	11	56
20	- <u>56</u>	-18	17	-05	11	40
21	- <u>57</u>	-19	-10	17	08	41
22	<u>12</u>	<u>65</u>	<u>30</u>	-10	-04	54
23	12	<u>61</u>	29	-03	-06	47
24	<u>50</u>	<u>17</u>	<u>39</u>	10	02	44
25	-21	- <u>64</u>	04	10	04	47
26	- <u>73</u>	-13	-18	01	04	58
27	<u>01</u>	-08	-08	04	<u>30</u>	11
28	<u>49</u>	23	27	-13	<u>43</u>	57
29	<u>21</u>	<u>47</u>	<u>57</u>	-07	-11	61
30	- <u>42</u>	-24	-05	27	-03	31
Percent of Total Variance	14.0	13.8	6.7	3.6	1.8	

Note. Rounded to two places, decimal removed. Factor loadings in excess of three standard errors are underlined for reference.

Table 7

Principal Components Solution, Varimax Rotated
Factor Matrix--Raw Scores

Item	Factors					h ²
	I	II	III	IV	V	
1	<u>58</u>	20	-17	22	09	46
2	<u>73</u>	08	-12	02	-05	56
3	-25	<u>-34</u>	13	<u>-35</u>	<u>31</u>	41
4	<u>63</u>	<u>16</u>	16	<u>19</u>	-13	50
5	<u>05</u>	<u>55</u>	<u>-42</u>	-05	12	50
6	07	-27	<u>63</u>	-08	07	48
7	-33	-03	<u>55</u>	18	08	45
8	<u>35</u>	<u>49</u>	-12	17	-24	46
9	<u>-57</u>	11	19	16	12	40
10	<u>58</u>	25	<u>-30</u>	00	17	52
11	<u>-38</u>	-01	<u>53</u>	-10	-12	44
12	08	<u>-41</u>	12	<u>44</u>	-04	38
13	<u>37</u>	29	-24	12	24	35
14	13	<u>68</u>	-04	-08	-01	49
15	-01	<u>-30</u>	<u>50</u>	11	19	38
16	<u>69</u>	22	-07	-22	17	61
17	26	<u>64</u>	-15	-08	-12	52
18	-03	<u>-56</u>	<u>32</u>	07	-14	44
19	14	<u>76</u>	-06	01	08	60
20	<u>-43</u>	-06	04	<u>63</u>	10	60
21	<u>-55</u>	-14	25	28	06	47
22	16	<u>75</u>	-12	-01	-04	60
23	16	<u>72</u>	-04	-02	-08	55
24	<u>65</u>	27	13	09	-04	52
25	-10	<u>-59</u>	21	<u>36</u>	-01	53
26	<u>-73</u>	-13	08	25	06	63
27	02	-09	08	02	<u>74</u>	57
28	<u>59</u>	26	-15	03	<u>38</u>	59
29	<u>38</u>	<u>64</u>	-05	20	-15	62
30	<u>-38</u>	-17	<u>42</u>	20	-05	39

Percent
of Total
Variance

17.5 16.9 7.3 4.5 3.9

Note: Rounded to two places, decimal removed. Factor loadings in excess of three standard errors are underlined for reference.

Table 8

Numerical Factor Loading Values for Alpha and
Incomplete Principal Components Solutions,
Factor I--Satisfaction with Career Choice

Item	<u>Factor Loadings</u>	
	A-I	PC-I
26. I would like to change to another career.	-.725	-.731
16. This profession fits my career needs.	.668	.692
2. If for some reason I had to stop working for a while, I would definitely return to this profession rather than some other.	.614	.731
21. I feel disappointment in my profession since I entered into training.	-.574	-.553
20. My first (top) choice of careers was another field.	-.564	-.425
9. If I enrolled in graduate courses, it would be in another field.	-.526	-.565
10. It has been quite satisfying to be associated with the profession.	.517	.582
24. I think of myself as committed to this profession.	.499	.654
28. I am enthusiastic about performing most of the tasks for which I have been trained.	.493	.593
30. I would advise young people to enter some other profession.	-.419	-.376
1. My profession is extremely important to me.	.414	.583
4. I expect to practice this profession until retirement age.	.410	.628
7. The day-to-day work in my field holds no challenge for me.	-.398	-.332
11. I do not enjoy the duties of my profession.	-.350	-.377
8. I plan to join our professional organization in the "lifelong membership" category.	--	.354
13. My ideals were strengthened by my professional training.	--	.369
29. My motivation to participate in the professional organization activities is strong.	--	.384

Table 9

Numerical Factor Loading Values for Alpha and
Incomplete Principal Components Solutions,
Factor II--Motivation to Participate
in Professional Organizations

Item	<u>Factor Loadings</u>	
	A-II	PC-II
19. Membership in the professional organization will probably help me in my practice in the profession.	.674	.761
22. Participation in professional organization activities improves the quality of practice in the profession.	.652	.745
25. Our professional organization does not do much for the members.	-.644	-.592
23. It is beneficial for a student to belong to the professional organization.	.606	.716
14. Professional organization membership helps the clinician.	.587	.679
17. I support my professional organization.	.573	.643
5. Our professional organization routinely informs members of matters that will help them in practice.	.554	.545
18. The meetings of our professional organization are not relevant.	-.549	-.559
29. My motivation to participate in the professional organization activities is strong.	.473	.640
12. The dues in our professional organization are too high considering the benefits to members.	-.420	-.408
8. I plan to join our professional organization in the "lifelong membership" category.	.353	.488
15. People in my field are disinterested in participating in the activities of the professional organization.	-.328	--
6. The journals of our professional organization are useless for learning how to do important tasks.	-.307	--
3. It is not likely that I would volunteer to serve on a committee of the professional organization.	--	-.341

Table 10

Numerical Factor Loading Values for Alpha Solutions,
Factor III--Commitment to Lifelong Practice
in the Profession

Item	Factor Loadings A-III
29. My motivation to participate in the professional organization activities is strong.	.569
4. I expect to practice this profession until retirement age.	.451
8. I plan to join our professional organization in the "lifelong membership" category.	.429
24. I think of myself as committed to this profession.	.394
1. My profession is extremely important to me.	.389
3. It is not likely that I would volunteer to serve on a committee of the professional organization.	-.377
2. If for some reason I had to stop working for a while, I would definitely return to this profession rather than some other.	.345

Note: Factor III of the incomplete principal components analysis is in agreement with Factor IV of the alpha analysis. This comparison is shown in Table 11.

Table 11

Numerical Factor Loading Values for Alpha and
Incomplete Principal Components Solutions,
Factor IV--Discontentment with the
Profession

Item	<u>Factor Loadings</u>	
	A-IV	PC-III
6. The journals of our professional organization are useless for learning how to do important tasks.	.444	.628
7. The day-to-day work in my field holds no challenge for me.	.368	.545
11. I do not enjoy the duties of my profession.	.363	.525
5. Our professional organization routinely informs members of matters that will help them in practice.	-.326	-.421
15. People in my field are disinterested in participating in the activities of the professional organization.	.315	.495
30. I would advise young people to enter some other profession.	--	.419
18. The meetings of our professional organization are not relevant.	--	.323
10. It has been quite satisfying to be associated with the profession.	--	-.300

Table 12

Numerical Factor Loading Values for Alpha and
Incomplete Principal Components Solutions,
Factor V--Preference for Practice Without
Professional Organization Participation

Item	<u>Factor Loadings</u>	
	A-V	PC-V
28. I am enthusiastic about performing most of the tasks for which I have been trained.	.427	.378
27. I am not in favor of mandatory membership in our professional organization.	.300	.742
3. It is not likely that I would volunteer to serve on a committee of the professional organization.	--	.306

Table 13

Numerical Factor Loading Values for Incomplete Principal
Components Solution, Factor IV--A Second
Discontentment Factor

Item	<u>Factor Loadings</u>	
	PC-IV	
20. My first (top) choice of careers was another field.	.634	
12. The dues in our professional organization are too high considering the benefits to members	.442	
25. Our professional organization does not do much for the members.	.356	
3. It is not likely that I would volunteer to serve on a committee of the professional organization.	-.351	

Note: Factor IV of the incomplete principal components analysis is in disagreement with all factors of the alpha analysis.

Discussion of the Factor Analyses

It was hypothesized that the 30 item scale would contain two 15 item factors: Satisfaction with Career Choice and Motivation to Participate in Professional Organizations. The alpha and incomplete principal components analyses showed agreement on these two factors (Tables 8 and 9). However, three additional factors resulted from the analyses which had not been hypothesized for the final study. Of the five obtained factors, there was agreement in the alpha and incomplete principal components analyses on four factors and disagreement on one factor.

The factor named Discontentment with the Profession (Table 11) and the factor named Preference for Practice Without Professional Organization Participation (Table 12) were in agreement in the alpha and incomplete principal components solutions. In the factor titled Discontentment with the Profession, the alpha solution Factor IV was in agreement with the incomplete principal components solution Factor III.

There was disagreement on the two analyses on the factor named Commitment to Lifelong Practice in the Profession (Table 10). The incomplete principal components analysis Factor IV, A Second Discontentment Factor (Table 13), was in disagreement with the alpha factor analysis.

Of the items which were proposed for the factor Satisfaction with Career Choice, 14 of the 15 items loaded above .30 on that factor. Item number 13 (My ideals were strengthened by my professional training) appeared in

Factor I in the incomplete principal components procedure but did not load appreciably in any factor in the alpha procedure.

Of the 15 items which were proposed for the factor named Motivation to Participate in Professional Organizations, 13 loaded above .30 on that factor. The other two items, number 3 (It is not likely that I would volunteer to serve on a committee of the professional organization) and number 27 (I am not in favor of mandatory membership in our professional organization), loaded in the alpha solution at .30 or above in Factor III and Factor V respectively.

Factors I and II together accounted for 27.8% of the total variance of 39.9% in the alpha solution. In the incomplete principal components solution, the first two factors accounted for 34.4% of the total variance of 50.1%.

Factor III, Commitment to Lifelong Practice in the Profession, emerged from both Factors I and II. Four items (numbers 1, 2, 4, and 24) emerged from Factor I; three items (numbers 3, 8, and 29) came from Factor II. The over-all intent of these components is commitment to lifelong practice in the profession. This factor was hypothesized in the pilot study but emerged as a weak factor in the pilot study factor analysis.

The factor named Discontentment with the Profession also emerged from Factors I and II. The five items (numbers 5, 6, 7, 11, and 15) indicate a construct which conveys a negative attitude of dissatisfaction, maladjustment, dislike, or discontentment with both the profession and the professional

organization. The factor was weak and the loadings range from .315 to .444 in the alpha solution.

Factor V (Preference for Practice without Professional Organization Membership), the weakest factor, contains one item (number 28) from Factor I and one item (number 27) which had low loadings on all other factors. The incomplete principal components solution shows this item to have a very high loading of .742 in Factor V.

The percent of total variance from Factors III, IV, and V (alpha solution) was only 12.1% of a total variance of 39.9% in contrast to a percent of total variance of 27.8% for Factors I and II.

In terms of reliability, the Cronback coefficients, alpha factoring procedure, are internal consistency reliability estimates for the five factors. These coefficients are:

(a) Factor I, .908; (b) Factor II, .847; (c) Factor III, .525; (d) Factor IV, .419; and (3) Factor V, .335.

In summary, the two factor analyses paralleled one another in three factors. The hypothesized two factors were confirmed in both the alpha and incomplete principal components analyses but must be rejected because they cannot be considered to be separate and discrete from the three additional factors which emerged in the analyses.

Multidimensional Scaling of the Attitude Scale

If the items in the scale had been shown to be statistically independent, a summing of scores within each factor could have been used to score the instrument. This scoring method is preferable because the calculations may be made manually.

However, many of the variables were complex and were represented with substantial factor loadings on two different factors; therefore, a multivariate scaling model (Rummel, 1970) was needed to validly measure each factor isolated. This procedure uses matrix multiplication by a computer to calculate scores. The incomplete principal components solution was used for the multivariate scaling model since the comparison of the alpha and principal components solutions reflected an underlying general similarity of the data.

The first step in the scoring method is the calculation of factor coefficients for the 30 items for the five factors. These appear in Table 14.

The factor scores (weighted totals) are derived from these factor score coefficients for the purpose of scoring the instrument. The factor scores for each subject are calculated by transferring the raw scores on the 30 variables to Z scores ($\bar{X} = 0$; ± 1.00) using the means and standard deviations from Table 5. This results in a vector of 30 Z scores per subject.

The resulting vector of Z scores (1 X 30) is multiplied by the 5 X 30 matrix of factor coefficients. This matrix

Table 14
Factor Score Coefficients from Incomplete
Principal Components Procedure

Item	Factors				
	I	II	III	IV	V
1	1238	-0190	-0445	2106	0763
2	1738	-0634	0028	0542	-0594
3	-0403	-0413	0493	-2874	2457
4	1750	0105	1704	1515	-1121
5	-0814	0928	-1793	0135	1214
6	1013	0208	3925	-1272	0583
7	-0249	1120	3071	0713	0921
8	0478	0793	0086	1532	-1861
9	-1355	1159	0689	0859	1253
10	0962	-0183	-0964	0567	1355
11	-0464	1108	3181	-1516	-0878
12	0859	-1104	-0263	3354	-0384
13	0467	0238	-0799	1350	2133
14	-0344	1804	1020	-0524	0147
15	0727	0023	2720	0375	1625
16	1429	0011	0870	-1375	1376
17	-0056	1352	0342	-0386	-0840
18	0800	-1156	1113	0146	-1381
19	-0393	2056	1003	0209	1051
20	-0819	0304	-0903	4785	1115
21	-0981	0504	0614	1721	0715
22	-0356	1817	0551	0084	-0069
23	-0252	1846	1040	-0115	-0363
24	1610	0401	1917	0214	-0328
25	0598	-1328	-0080	2544	-0208
26	-1635	0423	-0643	1638	0697
27	0052	0222	0568	0264	6364
28	1094	0168	0047	0689	3222
29	0484	1368	0831	1683	-1027
30	-0329	0476	1909	0951	-0274

Note: Rounded to four places, decimals removed.

multiplication results in a distribution of five factor scores per subject that reflects the weighting of factor loadings on incomplete principal components. Each factor score distribution has a mean of zero, a standard deviation of 1.00 and the correlation among factors is zero.

Analysis of Variance

For the four subgroups, a one-way analysis of variance for unequal size subgroups was calculated to show differences between subgroups on the five factors. The results of the ANOVA are tabulated in Table 15.

Means and Standard Deviations

The means and standard deviations for the four subgroups of subjects are shown in Table 16 for each of the five factors. A graph comparing the means for each subgroup on each factor is shown in Figure 1.

The Tukey Multiple Comparison Procedure

The Tukey method of multiple comparison was used to test the significance of difference between means. For Factor I, with an F ratio of 14.494, it was shown that the mean of occupational therapy students was significantly different from the mean of physical therapy students at the .01 level of significance. The differences between all other means were due to chance.

For Factor II, with an F ratio of 47.417, there were significant differences between the means of groups 1 and 2

Table 15

One-Way Analysis of Variance for Group
Differences on the Five Factors

Source of variation	Mean Square	df	F-Ratio	Significance Level
Factor I--Satisfaction with Career Choice				
Between Groups	13.50838	3	14.494	p>.0001
Within Groups	.93202	552		
Factor II--Motivation to Participate in Professional Organizations				
Between Groups	37.90639	3	47.417	p>.0001
Within Groups	.79942	552		
Factor III--Commitment to Lifelong Practice in the Profession				
Between Groups	9.98394	3	10.496	p>.0001
Within Groups	.95117	552		
Factor IV--Discontentment with the Profession				
Between Groups	2.70458	3	2.730	p>.044
Within Groups	.99073	552		
Factor V--Preference for Practice Without Professional Organization Participation				
Between Groups	1.31630	3	1.319	p>.267
Within Groups	.99828	552		

Table 16
Means and Standard Deviations of Factor Score
Coefficients of the Four Subgroups
on Five Factors

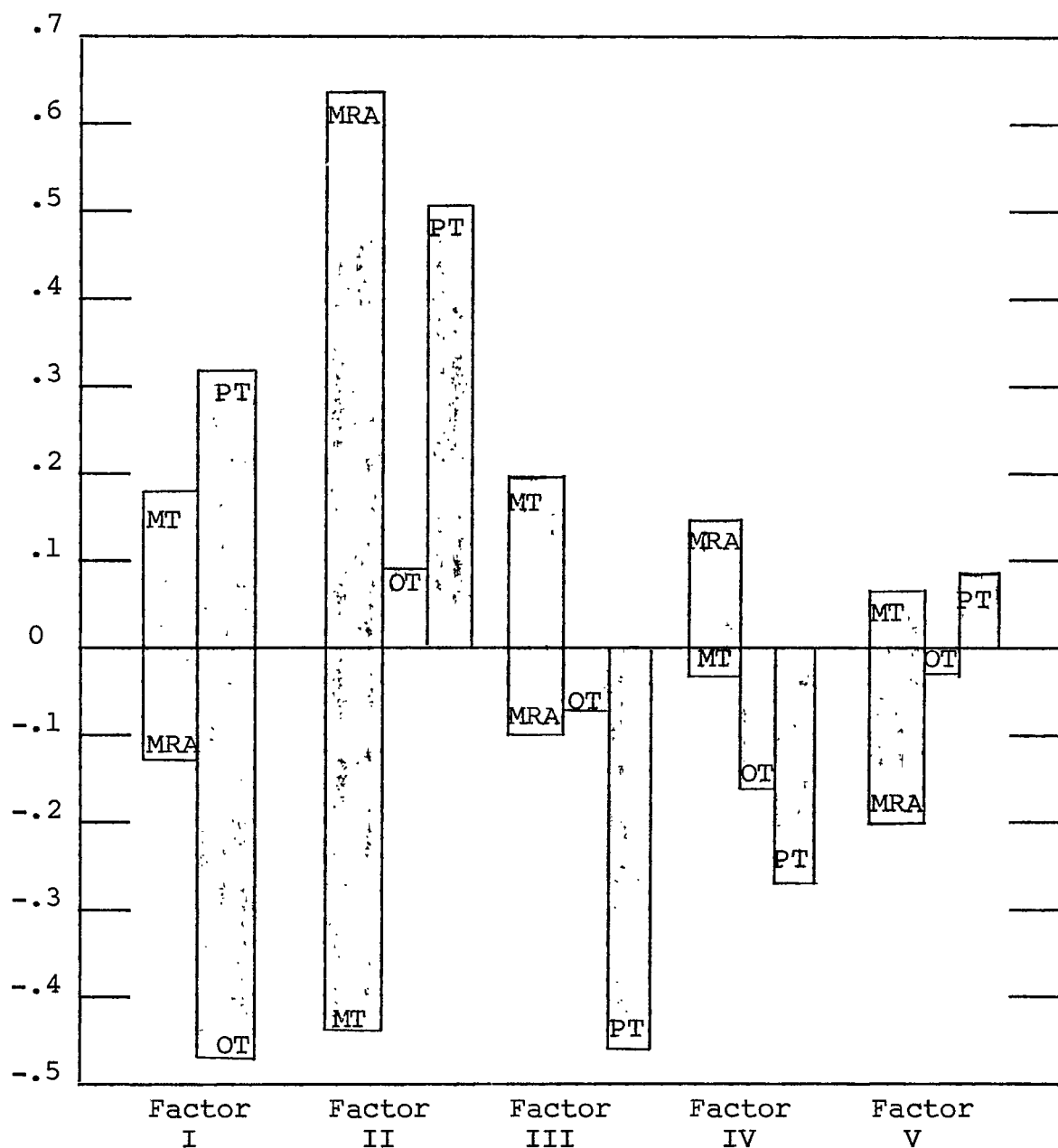
Factor	Group	$\bar{X}$	SD
I	Medical Record Administration	-.126	.968
	Medical Technology	.150	.988
	Occupational Therapy	-.492	.968
	Physical Therapy	.302	.878
II	Medical Record Administration	.657	.810
	Medical Technology	-.426	.899
	Occupational Therapy	.098	.983
	Physical Therapy	.512	.851
III	Medical Record Administration	-.099	1.021
	Medical Technology	.201	.934
	Occupational Therapy	-.073	1.127
	Physical Therapy	-.470	.824
IV	Medical Record Administration	.161	1.128
	Medical Technology	-.011	.992
	Occupational Therapy	.067	.989
	Physical Therapy	-.253	.824
V	Medical Record Administration	-.174	.117
	Medical Technology	.047	.917
	Occupational Therapy	-.008	.108
	Physical Therapy	.066	.921

(medical record administration and medical technology) and

groups 2 and 4 (medical technology and physical therapy).

These were significant at the .05 level of significance. The differences between all other means were due to chance.

For Factor III, with an F ratio of 10.496, the population means for groups 2 and 4 (medical technology and physical therapy) were different at the .05 level of significance. The differences between all other means were due to chance.



MRA--Medical Record Administration students
 MT--Medical Technology students
 OT--Occupational Therapy students
 PT--Physical Therapy students

Figure 1. Means of factor scores for each subgroup on five factors.

There were no significant differences between group means on Factors IV and V.

These data show that physical therapy students were significantly more satisfied with their choice of a career than are occupational therapy students. This finding might be explained in part by the broad, ambiguous nature of the role of the occupational therapist which is generally difficult for students to comprehend. In contrast, physical therapy is a more structured discipline which is easily understood by applicants prior to enrollment in the programs.

Medical technology students in the sample showed a lack of motivation to participate in their professional organizations which was significantly different from physical therapy and medical record administration students. Apparently the medical technology students do not view their professional organization as a major reference; possibly this might be a result of the close ties and interdependence of the profession with pathologists.

The medical technology students were significantly more committed to practice their profession for an extended length of time than the physical therapy students. Perhaps the physical therapy students have some preconceived attitudes that, although they are very pleased with their career choice, they plan to actually practice for a shorter period of time.

Descriptive Percentile Rank Norms

Since the ANOVA found that the subgroups were significantly different (Table 15), percentile rank norms were developed for these groups on Factors I, II, and III (Tables 17, 18, and 19) because the clearest differences were shown between groups on these factors. Factors IV and V were weak and did not delineate between the groups of subjects.

Table 17

Descriptive Norm Table for All Subjects and
Subgroups for Factor I--Satisfaction
with Career Choice

Percentile Rank	Factor Scores (Z scores)				
	All Subjects ^a (N=556)	MRA ^b (N=99)	MT ^c (N=272)	OT ^d (N=106)	PT ^e (N=79)
99	2.33	2.13	2.45	1.77	2.35
95	1.64	1.46	1.77	1.09	1.74
90	1.38	1.21	1.51	.85	1.51
85	1.04	.88	1.18	.52	1.21
80	.84	.68	.98	.32	1.04
75	.67	.52	.81	.16	.89
70	.52	.37	.66	.01	.76
65	.39	.28	.54	-.11	.64
60	.25	.10	.40	-.25	.52
55	.13	-.00	.28	-.36	.41
50	.00	-.13	.15	-.49	.30
45	-.13	-.26	.02	-.62	.19
40	-.25	-.37	-.10	-.73	.08
35	-.39	-.51	-.24	-.87	-.04
30	-.52	-.63	-.36	-.99	-.16
25	-.67	-.78	-.51	-1.14	-.29
20	-.84	-.94	-.68	-1.30	-.44
15	-1.04	-1.14	-.88	-1.50	-.61
10	-1.38	-1.47	-1.21	-1.83	-.91
5	-1.64	-1.72	-1.47	-2.08	-1.14
1	-2.33	-2.38	-2.15	-2.75	-1.75

^aNormal curve tables were used to develop these scores.

^bMRA--Medical Record Administration students.

^cMT--Medical Technology students.

^dOT--Occupational Therapy students.

^ePT--Physical Therapy students.

Table 18

Descriptive Norm Table for All Subjects and Subgroups
for Factor II--Motivation to Participate in
Professional Organizations

Percentile Rank	Factor Scores (Z scores)				
	All Subjects ^a (N=556)	MRA ^b (N=99)	MT ^c (N=272)	OT ^d (N=106)	PT ^e (N=79)
99	2.33	2.55	1.66	2.39	2.50
95	1.64	1.99	1.04	1.71	1.92
90	1.38	1.78	.81	1.46	1.69
85	1.04	1.50	.50	1.12	1.41
80	.84	1.34	.33	.93	1.24
75	.67	1.20	.17	.76	1.09
70	.52	1.08	.04	.61	.96
65	.39	.96	-.08	.48	.85
60	.25	.86	-.21	.35	.73
55	.13	.77	-.31	.23	.63
50	.00	.66	-.43	.13	.52
45	-.13	.55	-.55	-.03	.41
40	-.25	.45	-.65	-.15	.31
35	-.39	.34	-.78	-.28	.19
30	-.52	.24	-.90	-.41	.08
25	-.67	.11	-1.03	-.56	-.05
20	-.84	.02	-1.19	-.73	-.20
15	-1.04	-.18	-1.36	-.92	-.37
10	-1.38	-.46	-1.67	-1.26	-.65
5	-1.64	-.67	-1.90	-1.51	-.88
1	-2.33	-1.22	-2.52	-2.19	-1.46

^aNormal curve tables were used to develop these scores.

^bMRA--Medical Record Administration students.

^cMT--Medical Technology students.

^dOT--Occupational Therapy students.

^ePT--Physical Therapy students.

Table 19

Descriptive Norm Table for All Subjects and Subgroups
for Factor III--Commitment to Lifelong Practice
in the Profession

Percentile rank	Factor Scores (Z scores)				
	All Subjects ^a (N=556)	MRA ^b (N=99)	MT ^c (N=272)	OT ^d (N=106)	PT ^e (N=79)
99	2.33	2.28	2.38	2.56	1.45
95	1.64	1.57	1.73	1.78	.88
90	1.38	1.31	1.49	1.49	.67
85	1.04	.96	1.17	1.17	.39
80	.84	.76	.99	.88	.22
75	.67	.58	.83	.69	.08
70	.52	.43	.69	.52	-.04
65	.39	.30	.56	.37	-.15
60	.25	.16	.43	.21	-.26
55	.13	.03	.32	.08	-.36
50	.00	-.10	.20	-.07	-.47
45	-.13	-.23	-.08	-.22	-.58
40	-.25	-.36	-.03	-.35	-.68
35	-.39	-.50	-.16	-.51	-.79
30	-.52	-.63	-.29	-.66	-.90
25	-.67	-.78	-.43	-.83	-1.02
20	-.84	-.96	-.59	-1.02	-1.16
15	-1.04	-1.16	-.77	-1.24	-1.38
10	-1.38	-1.51	-1.09	-1.63	-1.61
5	-1.64	-1.77	-1.33	-1.92	-1.82
1	-2.33	-2.48	-1.98	-2.56	-2.39

^aNormal curve tables were used to develop these scores.

^bMRA--Medical Record Administration students.

^cMT--Medical Technology students.

^dOT--Occupational Therapy students.

^ePT--Physical Therapy students.

Conclusions

The data obtained in this study are specific to the population. Generalizations from the study can be made only to that population.

The Problem

This research sought to develop an attitude scale with subscales to measure the construct of allied health students' career attitudes.

Summary

Based on the review of the literature, a theoretical model was developed which proposed five factors to measure allied health students' career attitudes. These factors were:

Factor I--Motivation to Participate in Professional Organizations

Factor II--Satisfaction with the Professional Role and Tasks

Factor III--Regulation by Peers within the Profession.

Factor IV--Calling to the Field Based on the Value to Society

Factor V--Commitment to Lifelong Practice in the Profession

This theoretical frame of reference was the basis on which the attitude scale was constructed.

As a result of the factor analysis of data from the pilot study, the strongest factor, Satisfaction with the Professional Role and Tasks, was renamed Satisfaction with Career Choice. This factor and the second strongest factor, Motivation to Participate in Professional Organizations, fit the theoretical frame of reference. Items from Factors III, IV, and V from the theoretical model were eliminated from the scale or reworded and combined with items from the first two factors.

The second alpha factor analysis and an incomplete principal components analysis on the data from the dissertation study failed to confirm that the two hypothesized factors were independent factors. Three other weak factors emerged in the 30-item scale which showed moderately high intercorrelations with the two hypothesized factors. The factors found in the final study were named:

Factor I--Satisfaction with Career Choice

Factor II--Motivation to Participate in Professional Organizations

Factor III--Commitment to Lifelong Practice in the Profession

Factor IV--Discontentment with the Profession

Factor V--Preference for Practice without Professional Organization Participation

Factors I and II together accounted for 27.8% of the total variance of 39.9% in the alpha solution and had reliability estimates of .980 and .847 respectively.

Factor III, Commitment to Lifelong Practice in the Profession, was initially hypothesized in the theoretical model but was not retained for the final study because of its weakness in the pilot study analysis. In the final study, though, 7 items emerged which contained acceptable factor loadings. The factor had a significant F-ratio and showed significant differences between the means of two groups of allied health students in the sample for the final study. It was concluded that this factor, although weak, was logical and tentatively supported as a construct of allied health student attitudes. The instrument did tend to function in that it differentiates between groups on three of the five factors.

The scale was scored by calculation of factor scores and a multidimensional scaling strategy with the use of matrix multiplication by computer. This was necessitated by the complexity of the variables and the contribution to the total variance by the lesser factors.

Significant differences between the means of the four subgroups were shown on three factors. Therefore, percentile rank norms were developed.

Recommendations

The following recommendations are suggested as a result of the findings in the study:

1. Research be conducted with an additional sample of allied health students to improve the efficiency of the

instrument. The purpose of this research would be to either confirm:

- a. that the scale could be shortened to a two factor, approximately 18 item instrument, or,
- b. that the three factor structure of the domain exists by eliminating 7 items which contribute to the weak fourth and fifth factors in the analyses which have been completed.

2. Develop a simplified scoring method for the instrument, which would be possible if less complexity of the variables could be demonstrated.

3. Further research needs to be conducted to explain the findings of this study which showed (a) dissatisfaction of occupational therapy students with their career choice, (b) lack of motivation to participate in professional organizations by the medical technology students, and (c) lack of commitment to lifelong practice in the profession by physical therapy students.

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Appendixes

Appendix A

Houston, Tex., 77036
May 12, 1975

Dear Program Director or Educational Coordinator,

I am a doctoral candidate in allied health education in a jointly sponsored program at Baylor College of Medicine and the University of Houston. My dissertation research involves the development of a scale to measure attitudes of allied health baccalaureate students toward their own profession. Your program has been selected in a nationwide sample of accredited baccalaureate programs in five professions (physician's assistant, medical record administration, medical technology, occupational therapy, and physical therapy). The attitude scale which I have developed has 75 agree-disagree items. All deal with the student's career in an allied health profession.

Students who volunteer to complete this scale will remain completely anonymous. Codes will not be used and demographic data will not be requested. To qualify, the student must be classified as a senior. Graduating seniors are preferred over incoming seniors. The scale requires less than one hour to complete and must be administered in a setting which will prevent discussion of items. Participating students and programs will have no later commitments to the research study. I will provide stamped return envelopes for the scales.

If you would like your program to be included in this research--and I sincerely hope you will--please survey your senior students to obtain an estimate of the number who will volunteer to complete the attitude scale. Within two weeks, return the enclosed post card with the requested information.

Copies of the scale and administration instructions will be mailed to you or other faculty you designate in approximately one week. The participating programs will eventually receive a summary of the research results.

Please let me know whether or not your program will participate by completing the post card.

Sincerely,

(Mrs.) Joy Boone

Dale W. Evans, H.S.D.
Research Committee Chairman
Coordinator, Allied Health Education
University of Houston
Houston, Texas 77004

INSTRUCTIONS FOR ADMINISTRATOR

This scale is being developed to measure the attitudes (opinions) of baccalaureate allied health students toward their own profession. The students who complete the scale should be classified as seniors. Most students complete the 76 items in 15-20 minutes. If a student works over 30 minutes without finishing all items, you should encourage him to finish quickly.

Enclosed are enough six page scales and red answer sheets for each student who volunteered for the research. If any of these are missing, please administer the scale to as many students as possible. The group should be told to:

1. read the instruction sheet carefully,
2. (after reading the instructions) mark only on the red answer sheet,
3. use only a pencil,
4. mark across the answer sheet, and
5. feel free to express himself honestly -- the scales will be returned to the researcher and no one else will read his responses.

Please return all scales and answer sheets in the enclosed stamped, self-addressed envelope. The scale should be administered within two weeks of the date it is received and returned promptly.

My sincere thanks to all of those who have participated in this dissertation research. A brief summary of the results of the research will be mailed (eventually) to all programs who participated.

Joy Boone

Houston, Texas 77036

This scale is in a preliminary stage of development.

DO NOT REPRODUCE; DO NOT CIRCULATE !

ALLIED HEALTH CAREER ATTITUDE SCALE

Instructions

The following 76 statements are intended to measure your attitude and personal feelings about your career in an allied health profession. Each item refers to the profession in which you are currently enrolled. Some items refer to the "client." This word refers to the PATIENT--not to the physician or others who request services.

Use a pencil to mark the answer sheets. Do not mark in the sections which ask for name and I.D. number. If you change your response, be sure to erase the original mark completely.

After reading the statement carefully, mark your response in the space on the answer sheet which corresponds to the statement. The numbers on the answer sheet are arranged from left to right and are marked ACROSS the page. Your responses indicate how much you agree or disagree with each statement. Example:

	Strongly	Strongly
	Disagree	Agree
The work in my profession is easy for me.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	

If you:

Strongly disagree blacken the 0 on the answer sheet.

Strongly agree blacken the 9 on the answer sheet.

Are undecided mark either the 4 or 5 depending on whether you tend to disagree (4) or agree (5).

The other numbers are to be used to indicate differing degrees of agreement or disagreement.

Do not mark on this page. Respond on red answer sheet.

	Strongly Disagree	Strongly Agree
1. Mark on the answer sheet which one is your profession. (0) medical record administration (1) medical technology (2) occupational therapy (3) physician's assistant (4) physical therapy		
2. The major advantage of membership in the professional organization is the prestige it conveys to others.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
3. The day-to-day work in my field is challenging to me.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
4. The client knows his own health needs better than the professional in our field.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
5. There is a high level of idealism maintained by people in this field.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
6. Compared to other allied health fields, my field contributes relatively little to the health effort.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
7. I expect to practice this profession until retirement age.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
8. It is not likely that I would attend professional meetings if they are held in the evenings or on weekends.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
9. Our profession is quite limited in the types of "specialties" we can choose.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
10. We overemphasize the importance of our profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
11. If my spouse felt strongly against me working, I would quit.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
12. It has been quite satisfying to be associated with the profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
13. Practitioners in my field are too closely controlled by those in other fields.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
14. By exchanging ideas with fellow professionals, we strengthen our profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	

	Strongly Disagree	Strongly Agree
15. To be a member of the national professional organization, local membership should be required.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
16. People in my field are disinterested in participating in the activities of the professional organization.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
17. I enjoy the duties of my profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
18. The client must trust the judgment of the professional in our field if he is to be helped.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
19. We pretty well know how we all do in our own work.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
20. Not enough people realize the importance of our profession for society.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
21. My career in this profession will probably be ended by marriage and/or family obligations.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
22. I support my professional organization.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
23. I am vague about some of the methods used in our work.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
24. Our professional standards need to be strengthened and enforced.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
25. The main reason I am in this particular field is because it is personally satisfying to contribute to the health of others.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
26. Some standards of my profession are not truly professional.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
27. If for some reason I had to stop working for a while, I would definitely return to this profession rather than some other.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
28. Participation in professional organization activities improves the quality of practice in the profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
29. I regularly read my professional journals.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
30. I believe the work in our profession could be performed by those with less training than myself.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	

	Strongly Disagree	Strongly Agree
31. I approve of the name of my profession.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
32. Governmental regulation of our profession is unnecessary.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
33. I joined this field more for the salary than any other reason.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
34. In our field, there is little opportunity to show concern for the health of the client.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
35. Someday, I would like to teach and/or do research in my field.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
36. I don't read the professional journals thoroughly.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
37. The majority of the tasks in our profession should be automated.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
38. I feel that I would be good at recruiting others into my profession.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
39. Our profession is powerless in enforcing its standards.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
40. I am proud of the contributions we make to the total health care effort.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
41. I plan to get an advanced degree in this profession.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
42. Membership in the professional organization will probably help me in my practice in the profession.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
43. Some jobs in our profession require a high level of expertise.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
44. If I unknowingly violated professional ethics, I would prefer censure by my professional colleagues rather than continue in my ignorance.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
45. People in this field are truly dedicated to the health of society.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
46. I put a lot more effort into my professional education than was required by my instructors.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
47. I have decided on my "specialty" in this profession.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
48. If I enrolled in graduate courses, it would be in another field.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	

	Strongly Disagree	Strongly Agree
49. Our professional organization routinely informs members of matters that will help them in practice.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
50. The work in our profession is frustrating.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
51. We really have no way of evaluating each other's competence.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
52. Although many people talk about their high ideals, very few are really motivated by them.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
53. I feel disappointment in my profession since I entered into training.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
54. Our professional organization does not do much for the members.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
55. This profession fits my career needs.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
56. Most "outsiders"—even those in other health fields—don't understand our duties well enough to criticize our work.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
57. There is a sound theoretical basis for my profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
58. It is my guess that ten years from now, most of my classmates will still be working in this same field.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
59. It is not likely that I would volunteer to serve on a committee of the professional organization.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
60. I am enthusiastic about performing most of the tasks for which I have been trained.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
61. The real test of how good a professional is in our field is the client's opinion of him.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
62. I think of myself as committed to this profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
63. I would like to change to another career.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
64. I plan to join our professional organization in the "lifelong membership" category.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
65. It is hard to explain to the layman what we do in our profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	

Strongly
Disagree

Strongly
Agree

- | | |
|--|--|
| 66. The literature in our field is useless for learning how to do a specific task. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 67. My fellow professionals have a fairly good idea about each other's competence. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 68. The dues in our professional organization are too high considering the benefits we receive. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 69. The major problem in this profession is a lack of communication about what our fellow professionals are doing. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 70. My ideals were strengthened by my professional training. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 71. If necessary, I would move to another city to get a job in my profession. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 72. Sometimes I am ashamed to admit that I belong to my profession. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 73. I regularly attend professional meetings at the local level. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 74. In our field, an incompetent could severely hurt the profession. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 75. My profession is extremely important to me. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |
| 76. My first (top) choice of careers was another field. | <u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u> |

Appendix D

Houston, Texas 77036
August 25, 1975

Dear Program Director or Educational Coordinator,

I am a doctoral candidate in allied health education in a jointly sponsored program at Baylor College of Medicine and the University of Houston. My dissertation research involves the development of a scale to measure attitudes of allied health baccalaureate students toward their own profession.

Your program has been selected in a nationwide sample of accredited baccalaureate programs in five professions (physician's assistant, medical record administration, medical technology, occupational therapy, and physical therapy). The attitude scale which I have developed has agree-disagree statements which deal with the student's career in an allied health profession.

Students who volunteer to complete this scale will remain completely anonymous. Codes will not be used and demographic data will not be requested. To qualify, the student must be classified as a senior. The scale requires about 25 minutes to complete and must be administered in a setting which will prevent discussion of items. Participating students and programs will have no later commitments to the research study. The participating programs will receive a summary of the results at the completion of the research.

We would like your program to be included in this research. Upon receipt of the enclosed post card, you (or other faculty you designate) will receive by mail a packet of attitude scales and brief instructions. Stamped return envelopes will be included for your convenience. The deadline for returning the packet to me is October 1, 1975.

Please let me know whether or not your program will participate by completing the attached post card and returning it to me immediately.

Sincerely,

(Mrs.) Joy Boone

Dale W. Evans, H.S.D.
Research Committee Chairman
Coordinator, Allied Health Education
University of Houston
Houston, Texas 77004

Appendix E

INSTRUCTIONS FOR ADMINISTRATOR

This scale is being developed to measure the attitudes (opinions) of baccalaureate allied health students toward their own profession. The students who complete the scale should be classified as seniors. Most students complete the 31 items in 15-20 minutes. If a student works over 20 minutes without finishing all items, you should encourage him to finish quickly.

Enclosed are enough 3 page scales and red answer sheets for each student who volunteered for the research. If any of these are missing, please administer the scale to as many students as possible. Tell the group to:

1. read the cover sheet of instructions carefully,
2. (after reading the instructions) mark only on the red answer sheet,
3. use only a pencil,
4. mark across the answer sheet, and
5. feel free to express himself honestly--the scales will be returned to the researcher and no one else will read his responses.

Please return all scales and answer sheets in the enclosed stamped, self-addressed envelope. The scale should be administered and mailed by October 15, 1975. If problems occur and you don't meet this deadline, please mail anyway. I may be able to use the data.

My sincere thanks to all of those who have participated in this dissertation research. A brief summary of the results of the research will be mailed at the completion of the study to all programs who participated.

Joy Boone

Houston, Texas 77036

This scale is a preliminary stage
of development.
DO NOT REPRODUCE: DO NOT CIRCULATE!!!

ALLIED HEALTH CAREER ATTITUDE SCALE

Instructions

The following 31 statements are intended to measure your attitude and personal feelings about your career in allied health professions. Each item refers to the profession in which you are currently enrolled. Please feel free to mark your responses honestly. The answer sheets will be returned to the researcher without review by other individuals. The statements may seem similar but be certain to read each carefully and mark the answer sheet to reflect your true attitudes.

Use a pencil to mark the answer sheets. Do not mark in the sections which ask for name and I.D. number. If you change your response, be sure to erase the original mark completely. Please make your marks VERY VERY DARK. You will be using only the middle section of the answer sheet numbered 1-31.

After reading the statement carefully, mark your response in the space on the answer sheet which corresponds to the statement. The numbers on the answer sheet are arranged from left to right and are marked ACROSS the page. Your responses indicate how much you agree or disagree with each statement. Example:

	<u>Strongly Disagree</u>	<u>Strongly Agree</u>
The work in my profession is easy for me.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	

If you strongly disagree blacken the 0 on the answer sheet.

If you strongly agree blacken the 9 on the answer sheet.

If you are undecided mark either the 4 or 5 depending on whether you tend to disagree (4) or agree (5).

The other numbers are to be used to indicate differing degrees of agreement or disagreement.

Do not mark on this page. Respond on red answer sheet.

1. Mark on the answer sheet which one is your profession. Use spaces labeled #1.
 - (0) medical record administration
 - (1) medical technology
 - (2) occupational therapy
 - (3) physician's assistant
 - (4) physical therapy

	<u>Strongly Disagree</u>	<u>Strongly Agree</u>
2. My profession is extremely important to me.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
3. If for some reason I had to stop working for a while, I would definitely return to this profession rather than some other.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
4. It is not likely that I would volunteer to serve on a committee of the professional organization.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
5. I expect to practice this profession until retirement age.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
6. Our professional organization routinely informs members of matters that will help them in practice.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
7. The journals of our professional organization are useless for learning how to do important tasks.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
8. The day-to-day work in my field holds no challenge for me.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
9. I plan to join our professional organization in the "lifelong membership" category.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
10. If I enrolled in graduate courses, it would be in another field.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
11. It has been quite satisfying to be associated with the profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
12. I do not enjoy the duties of my profession.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	
13. The dues in our professional organization are too high considering the benefits to members.	<u>0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9</u>	

continue to next page

	<u>Strongly Disagree</u>	<u>Strongly Agree</u>
14. My ideals were strengthened by my professional training.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
15. Professional organization membership helps the clinician.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
16. People in my field are disinterested in participating in the activities of the professional organization.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
17. This profession fits my career needs.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
18. I support my professional organization.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
19. The meetings of our professional organization are not relevant.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
20. Membership in the professional organization will probably help me in my practice in the profession.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
21. My first (top) choice of careers was another field.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
22. I feel disappointment in my profession since I entered into training.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
23. Participation in professional organization activities improves the quality of practice in the profession.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
24. It is beneficial for a student to belong to the professional organization.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
25. I think of myself as committed to this profession.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
26. Our professional organization does not do much for the members.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
27. I would like to change to another career.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
28. I am not in favor of mandatory membership in our professional organization.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
29. I am enthusiastic about performing most of the tasks for which I have been trained.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
30. My motivation to participate in the professional organization activities is strong.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	
31. I would advise young people to enter some other profession.	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9	

End of scale. Thank you for your participation in this research.

Appendix G

L		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
G		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
T		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
N		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
M		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
F		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
I		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
N		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
M		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

I		0	1	2	3	4	5	6	7	8	9
D		0	1	2	3	4	5	6	7	8	9
		0	1	2	3	4	5	6	7	8	9
N		0	1	2	3	4	5	6	7	8	9
U		0	1	2	3	4	5	6	7	8	9
M		0	1	2	3	4	5	6	7	8	9
B		0	1	2	3	4	5	6	7	8	9
E		0	1	2	3	4	5	6	7	8	9
R		0	1	2	3	4	5	6	7	8	9

1	0	1	2	3	4	5	6	7	8	9	20	0	1	2	3	4	5	6	7	8	9	30	0	1	2	3	4	5	6	7	8	9	40	0	1	2	3	4	5	6	7	8	9
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49	0	1	2	3	4	5	6	7	8	9	500	0	1	2	3	4	5	6	7	8	9	510	0	1	2	3	4	5	6	7	8	9	520	0	1	2	3	4	5	6	7	8	9
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81	0	1	2	3	4	5	6	7	8	9	820	0	1	2	3	4	5	6	7	8	9	830	0	1	2	3	4	5	6	7	8	9	840	0	1	2	3	4	5	6	7	8	9
85	0	1	2	3	4	5	6	7	8	9	860	0	1	2	3	4	5	6	7	8	9	870	0	1	2	3	4	5	6	7	8	9	880	0	1	2	3	4	5	6	7	8	9