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JAMES C. DOGGETT

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AN ANALYSIS OF ROLE EXPECTATIONS OF PROFESSIONAL AND

INDIGENOUS NON-PROFESSIONAL HEALTH WORKERS

APPROVED BY

William R. Hood

Marvin K Tessler

R. A. Dahlke

Robert W Kitner

DISSERTATION COMMITTEE

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CHAPTER I

INTRODUCTION

Purpose of the Study

The purpose of the research was to study specific problems concerning role relationships of professional and non-professional health workers in a comprehensive health program undertaken by a public health department. The target population for the health program was an impoverished community containing some 40,000 residents within a city of over 300,000 population. The primary concern of this study was the problems of role consensus in regard to the expectations held by two experimental groups, the professional health workers and the non-professional health workers who are indigenous to the target population. Role expectations of the two groups were investigated in terms of (1) the division of labor, and (2) expectations for attributes and behavior on the job.

Need for the Study

The employment of non-professional personnel in health and social services, as well as in many other occupations previously limited to those with professional education and training, has recently been given impetus, primarily as a result of either a new-found or a revived interest in the

problems of the poor in terms of their social, educational, economic, and health deprivations. While this new interest has resulted in numerous projects employing indigenous lay persons, frequently working alongside or under the supervision of a professionally trained person, the literature reveals that little has been done in the area of role analysis of these two separate roles. Consequently, there were two general areas of concern toward which this study was addressed: first, that of investigating the social-psychological problems believed to be inherent in bringing into working relationship representatives of theoretically disparate populations; and second, that of the utility of a research approach, that of role theory, as an appropriate method for the study of the relationship between the health professional and the indigenous health worker.

The "pervasive social-psychological effects" of groups within organizations have been discussed by Vidmar and McGrath (1967). It was stated that social psychologists now view organizational effectiveness "...as a complex of the dynamics of both formal and informal groups." Since the organization emphasizes division of labor, smaller functional task groups are created, and informal groups come into existence as a result of individual interpersonal needs or as a means of facilitating interaction and communication between formal groups. The authors quote Schein (1965) who pointed out that a

> "...major problem (in organizations) is how to establish conditions between groups which will enhance the productivity of each without destroying intergroup relations and coordination. This problem exists because as groups become more committed to their own goals and norms, they are likely to become competitive with one another and seek to undermine their rival's activities, thereby becoming a liability to the organization as a whole..." (Vidman & McGrath, 1967, p. 2)

The problem of intergroup competition and its consequences for organizational decision-making have been commented on by a number of authors who are in general agreement with Sayles and Strauss when they suggested that "Specialization has increased the relative importance of lateral relationships, as distinct from hierarchical (superior-subordinate) relationships" within the organization(Vidman & McGrath, 1967, p. 76). It has also been suggested that when representatives of these subsystems in an organization are involved in decision-making, their commitment and loyalty tends toward their group more than toward solving the problems.

Although studies of the working relationships within organizations directed toward conflict-producing role structures have been done by role theorists and others, the studies have not generally been concerned with conditions similar to those specified in this investigation. For example, the studies have frequently dealt with the hierarchical structure in terms of status and status relationships, supervision and supervisory relationships, and the like; but few have dealt with those problems in connection with <u>indigenous</u> nonprofessionals working in community projects alongside the professionals and performing some of the functions previously done by professionals.

The health profession, including government sponsored public health programs, has utilized the services of aides and assistants, particularly in nursing programs. In such cases, roles have typically been pre-negotiated and well established for the nonprofessional worker in a system where professionals are in the majority and, consequently, where problems of social relationships are primarily relevant only to the professionals, at

least in terms of maintaining an orderly organizational life. The project from which this study is taken did not have these conditions, however.

The health project was one in which a comprehensive range of health services were to be rendered to impoverished people in an urban area, the range of services including personal medical care, mental health services, environmental health services (sanitation, housing, etc.), pharmaceuticals, and home care by visiting nurses, nurse assistants, homemakers, etc. From its inception, the intention was to employ a large number of persons, largely non-professionals, from the target area. A previous study reporting greatly increased immunization rates in this same community through the utilization of indigenous lay personnel as a means of securing maximum community participation (Stewart, 1967) had demonstrated the efficacy of employing nonprofessionals for such functions. For the Comprehensive Health Project, approximately 85 persons were employed from the community to serve a number of health functions ranging from clerical duties to home visitations in counseling, sick care, and environmental health roles. Thus, for this project, the number of nonprofessionals exceeded that of the professionals (physicians, dentists, psychologists, nurses, etc.).

A number of questions concerning research potential in such a situation dealt with the effectiveness that the program might experience; but of equal relevance were questions of role. For example, how will the various roles be defined, normative prescriptions be set, and relationships be negotiated? How will the various roles be differentiated in actual practice? What will be the expectations for performance and for personal attributes between the professional and nonprofessional staff members? What conflicts will be generated as a result of the various expectations which

persons hold in regard to their role, as well as the role of others? Will the professionally trained person jealously guard his status and position to the extent that no functions are relinquished to the nonprofessional? Will the nonprofessional be given only those functions which he perceives to be mean chores? Or will the nonprofessional aggressively push for the acquisition of a role which he cannot manage?

Obviously, all of these questions cannot be considered within the limitations of such a research undertaking as this. Therefore, it was decided to concentrate present efforts on the expectations which the two differing groups hold between groups and, in some instances, for their own group. It was believed that quantifiable answers to the specific questions regarding expectations for division of labor and expectations for attributes and behaviors between professionals and indigenous nonprofessionals would be meaningful for other community service projects. Furthermore, it was thought that such a study, utilizing the concepts of role theory, would contribute to both role theory and to general social psychological theory.

It can readily be seen that a study such as this is concerned with the relationships that exist within a social system rather than with individual personality dynamics. However, with the focus of the study being on certain expectations which exist for individuals within the system, an element which reflects both attitudes and conceptions of self and others, the research falls well within the realm of social psychology. In fact, the study can be labeled as "interdisciplinary", in that it is theoretically based in psychology, sociology, and cultural anthropology.

Theoretical Background for the Study of Role

The concept role provides a theoretical framework for the investi-

gation of a variety of problems affecting the functioning of social systems and subsystems and for the conditions of individuals who must function within those systems. Role theory is perceived by Rommetveit as the theoretical point of articulation between psychology and sociology because it..."is the largest possible research unit within the former discipline and the smallest possible within the latter" (Rommetveit, 1955). Or, as has been suggested by Hood (1968), role theory "...can be dealt with at a purely sociocultural level of analysis - as expected patterns of behavior, apart from any individual," but, on the other hand, "...we can usefully concern ourselves with the psychological aspect of role - how an individual perceives the expectations of others around him, how he behaves in relation to those expectations, and how he consequently evaluates himself in terms of success or failure."

Any theoretical formulations concerned with role analysis, according to Gross et al (1958), must attend to three elements which are common to most role definitions: social locations, behavior, and expectations. Early concepts which relate to current concepts of social location and behavior include the idea of status (Maine, 1861); involvement through interaction (Simmel, 1950); and concepts of social forces (Durkheim, 1893, 1894, 1897; Ross, 1908). During the 1930's, those concerned with socio-cultural forces first began to use the term "role" as a technical concept. In his concern with the function of socailly reflexive behavior and with the problems of maintaining order in a continuously changing organization, in brief, with problems of intelligent social control, Mead (1934) examined problems of interaction, the self, and socialization. In his examinations he employed such concepts as "role taking", the "generalized other", the

"self", and "I", and "me", and "audience". Thus he viewed the individual, but largely in terms of his relationships with others, a social-behavioral position.

Moreno (1934) further developed the concept of role and introduced the complementary concept "role playing" in psychodrama and sociodrama. Among his contributions to role theory in later writings are his role categorizations and stages. Moreno defined three categories: (1) psychosomatic roles, e.g., the sleeper, the eater, the walker; (2) psychodramatic roles, a mother, a son, a daughter, a Negro, etc.; (3) social roles, e.g., the mother, the son, the daughter, the Negro, etc. Role development was construed in two stages: role perception and role enactment. Moreno was also concerned with changing behavior as demonstrated by his conception of role playing "...as an experimental procedure, a method of learning to perform roles more adequately", and "In contrast with role-playing, role-taking is an attitude already frozen in the behavior of the person...role-taking is a finished product, a role conserve" (Moreno, 1960, 1962).

Ralph Linton (1936) equated role with normative culture patterns and, consequently, set the stage for a number of contemporary theoreticians who made similar formulations. He postulates three separate elements as pre-requisites for the existence of a society: (1) an aggregate of individuals, (2) an organized system of patterns for controlling the activities of individuals, and (3) esprit de corps as motive power for expressing these patterns. In conceptualizing status and roles as the "ideal patterns which control reciprocal behavior", Linton was concerned with the fine distinction between status and role:

> A status, as distinct from the individual who may occupy it, is simply a collection of rights and duties... A role re-

> presents the dynamic aspect of a status. The individual is socially assigned to a status and occupies it with relation to other statuses. When he puts the rights and duties which constitute the status into effect, he is performing a role. Role and statuses are quite inseparable, and the distinction between them is only one of academic interest. There are no roles without statuses or statuses without roles. Just as in the case of status, the term role is used with a double significance. Every individual has a series of roles deriving from the various patterns in which he participates and at the same time a role, general, which represents the sum total of these roles and determines what he does for his society and what he can expect from it. (Linton, 1936, 113-114).

Nadel is in essential agreement with the contention that differences between role and status are only of academic interest:

> It is relevant to emphasize, as Linton and Parsons have done, that in role behavior something is translated into action. But the important thing about this something is not that it is static or positional while the actual role is dynamic or processual; these are incidental features. The important thing is that in one case we have the execution of certain rights and obligations, that is, a performance, and in the other, this set of rights and obligations embodied in a piece of knowledge - in a norm or prescription, or perhaps only in an image people carry in their heads. In brief, we have a rule and its application... It seems unnecessary if not illogical to give different names to these two "aspects"; for their coexistence is basic to every item of human acting that follows from rules... (Nadel, 1957, p. 29).

In his definition of role, Newcomb (1951) states that "the ways of behaving which are expected of any individual who occupies a certain position constitute the role (which is) associated with that position." Similarly, it has been said by Sarbin (1954) that "roles are defined in terms of the actions performed by the person to validate his occupance of the position (or statuses). In sum, all societies are organized around positions and the persons who occupy these positions perform specialized action or roles..." Others with similar or related definitions of the term include Bennett and Tumin (1948), Znaniecki (1940), Rose (1951), and Sherif

and Sherif (1956), although the Sherifs distinguish more clearly between the positional, power, or hierarchical aspects of social structure and behavioral pattern.

Davis (1949) comments on status and "office" in relation to role and in terms of behaviors of actors occupying social positions, with the behaviors being actual behaviors rather than expected behaviors. He defines status as the person's identify in a social situation, and states that the term "position" may be used interchangeably with "status" either term denoting identity and the establishment of rights and obligations with reference to others holding positions within the same structure. Thus, for Davis, status is a relational concept, and every individual occupies a number of different statuses simultaneously. First are the general statuses of identity, such as class, sex, family, and then the more particularized positions of occupation, membership, and achievement. Statuses become institutionalized and are recognized and supported by the entire society, differing from office in that the latter is deliberately created within organizations. For example, "professor" indicates a status, whereas a professor of a specified subject in a specified university represents an example of a corresponding office.

The number of statuses that a person holds at a given time, i.e., father, professor, department head, golfer, is termed a "status-set". Merton (1957) refers to status-set as "the complex of distinct positions assigned to individuals both within and among social systems". He further points to the fact that status-sets provide a basic form of interdependence between the institutions and the subsystems of a society due to the involvement of the same persons in distinct social systems. Individuals differ in

the number and complexity of status-sets just as groups and societies differ in the number and complexity of social statuses within their structure.

Hood (1968) suggests that any conceptualization of status and role as inseparable aspects of a single phenomenon "...is a practice which results in unnecessary confusion and rigidity..." He suggests that while the leadership status position is inseparable from the leadership role, there are important roles performed in community, small informal groups and family that are "free floating" with respect to status positions. "That is to say, the socially constructive roles of resources person, group clown, good listner, etc., are not necessarily attached to any particular status position in a specific social entity at some point in time. These and other roles may be taken by a leader in one group, a person in middling position in another, and even by a low status person in some other. This overidentification of status and role may have blinded us to some of the constructive alternatives available in handling social and psychological problems..." (Hood, 1968).

Sargent (1951) points out that "...those patterns of social behavior which may reasonably be called 'roles' have ingredients of cultural, of personal, and of situational determination." And again, "The demands and expectations of others, learned through one's social experience, give a role its basic character. Most roles are reciprocal; their structure is patterned through the mutual expectations of group members, e.g., husband and wife, parent and child, teacher and pupil, employer and employee, leader and follower" (Sargent, 1951, p. 360). He also points to the very relevant distinction made by Newcomb between <u>role</u> and <u>role behavior</u>: The actual role behavior is a function of an individual's role along with various

intervening variables deriving from personality and characteristics of the specific social situation" (Sargent, 1951, p. 360).

Recent attempts have been made to bring some order into the various aspects of role phenomenona. Biddle and Thomas (1966) have produced a classification scheme, elaborated on the possible variables for study, and presented an organized anthology of relevant role studies. In their classification system, first there is the delimitation of a set of phenomenal referents. These include behaviors, persons, or a combination of persons and their behaviors. Second are the conceptual operations for the formulation of role concepts: (a) the analytic partitioning of phenominal referents, (b) the relating of analytic partitions, and (c) the combining of analytic partitions. Third are the formulation criteria used for evolving subclasses of phenomenal referents, among them being similarity, determination, and numerosity. The final classificatory concept is that of categorized elements, which are units of phenomenal referent formed into a subclass. The authors provide further elaboration of this classificatory concept and derive a person-behavior matrix (Biddle and Thomas, chapter 2).

The language of role was also a concern of Biddle and Thomas (1966) as "...(it) has grown from a few to many concepts, from vague to more precise ideas, and from concept to operational indicator; and that role concepts and terms can describe complex real-life phenomena, "...with an exactness that probably surpasses that which is provided by any other single conceptual vocabulary in behavioral science" (Biddle and Thomas, 1966, p. 8-9). These authors undertook the organization of the various terms and their definitions in use in role theory. These definitions, presented under concepts of partitioning, are presented in four categories: (1) terms

for partitioning persons, (2) terms for partitioning behavior, (3) terms for partitioning sets of persons and behaviors, and (4) terms for relating sets of persons and behaviors. Without going into the definitions at this point, the organizational system will be demonstrated as follows.

Terms for partitioning persons include actor, alter, ego, other, person and self. Terms for partitioning behaviors include expectations, norms, performance, and sanction. Terms for partitioning sets of persons and behaviors include position and role, while terms for relating sets of persons and behaviors include role, status, accuracy, conformity, consensus, role conflict, and specialization. The authors point out the existence of denotative difficulties, citing as an example the large number of role metaphors, such as role playing, role enactment, role-playing ability, role taking, coaching, altercasting, front, realization, performance, actor, mask, persona, self, identity, and "as-if" behavior. It is pointed out that the metaphors of role theory increase the articulateness of role language but do not have the advantage of scientific precision which is needed in behavioral research. "At present, the language of role is a particularly articulate vocabulary that stands midway in precision between the concepts of the man in the street, who uses what the common language just happens to offer as a terminology, and the fully articulate, consensually agreed-upon set of condepts of the mature scientific discipline" (Biddle and Thomas, 1966, p. 13).

In order to develop hypotheses for the testing of theoretical constructs, a number of different variables have been identified and investigated or suggested for investigation. Biddle and Thomas (1966) have compiled a number of these variables, which include (1) behavioral variables;

(2) position variables; (3) role variables; (4) variables for interdependence; and (5) variables for personal adaptation. Included among identified behavioral variables are the following: permissiveness of prescription, approval of evaluation, adequacy of performance, complexity of performance, declaration of description, completeness of transistors, transistor complexity, transistor universality, codification, organismic involvement, presentation bias, environment, presentation bias, environmental constraint, reinforcement, and reward-punishment.

Among the position variables are membership achievement, discriminability by characteristic, position continuity, joint membership, and interpersonal contact. Variables for role include behavioral commonality, repertoire extensiveness, and aggregate differentation. Two variables for interdependence have been identified as facilitation and hindrance and reward and cost. The essential variables for personal adaptation are person-role fit and pressure and strain.

An important area of investigation has been that of role differentiation. Roles may be construed as having specialized properties which can be stated in terms of instrumental, expressive, and intergrative problems, with these problems providing the basis for differentiated behavior. For example, "...instrumental activities suggest a variety of role specializations associated with the provision and distribution of facilities, among these being the supplier, consumer, collaborator, and source of income" (Biddle and Thomas, 1966, p. 237). The authors quote Parsons and Shils (1951) in their delineation of six major types of combination which are of particular relevance to the differentiation of role types:

1. The segregation of specific expressive interests from instrumental expectations; for example, the role of a casual spectator at an entertainment.

2. The segregation of a diffuse object attachment from instrumental expectations; for example, the pure type of romantic love role.

3. The fusion of a specific expressive or gratificatory interest with a specific instrumental performance; for example, the spectator at a commercialized entertainment.

4. The fusion of a diffuse attachment with diffuse expectations of instrumental performance; for example, kinship roles.

5. The segregation of specific instrumental performance, both from specific expressive interests and attachments and from other components of the instrumental complex; for example, technical roles.

6. The fusion of a plurality of instrumental functions in a complex which is segregated from immediate expressive interests; for example, "artisan" and "executive" roles.

This classification has been constructed by taking the cases of fusion and segregation of the instrumental and direct gratification complexes and, within each of the segregated role orientations distinguishing the segregation of role components from the fusion of role complexes. The technical role and the executive role (5) and (6) are the two possibilities of segregation and fusion in the instrumental complex when it is segregated from the direct gratification complex. The role of casual spectator (1) and the romantic love role (2) are the two possibilities of segregation and fusion of the direct gratification complex. There is a fusion of the two complexes in roles (3) and (4). In the role of the paying spectator is segregation both in the direct gratification and in the instrumental orientation; in the role of member of a kinship group there is fusion of all role components in each orientation. (Biddle and Thomas, 1966, p. 242).

In his group research, Bales (1958) identifies three distinct factors for the differentiation of role types in samll group interaction. These are labeled; (1) activity, (2) task-ability, and (3) likeability. It is rare for a person to fit all three role types, this corresponding to the traditional "great man" conception of the good leader. The person who is high on activity and task-ability but less high on likeability is called the <u>task specialist</u>. The <u>social specialist</u> is a member who is high on likeability but less high on activity, while the member who is high on activity but relatively low on task ability and likeability ratings may be called an <u>overactive deviant</u>

(shows domination rather than leadership). A person who is low on all three ratings is considered an underactive deviant and may actually be a scapegoat in the group.

Although William James was not specifically concerned with current concepts of role and role behaviors and their differentiation, support is implicit in his definition and discussion of the material self:

> ...The clothes come next. The old saying that the human person is composed of three parts - soul, body, and clothes - is more than a joke. We so appropriate our clothes and identify ourselves with them that there are few of us who, if asked to choose between having a beautiful body clad in rainment perpetually shabby and unclean, and having an ugly and blemished form always spotlessly attired, would not hesitate a moment before making a decisive reply... (James, 1890, p. 292).

This suggests, as does Nadel (1957), that role behavior is accompained by certain identities and the manifestation of these identities through symbols such as uniforms, badges of rank, and other categorical identities.

In their treatment of the role identity model, McCall and Simmons (1966) define role identity as "...the character and the role that an individual devises for himself as an occupant of a particular social position." In claiming and acting out this character and role, role support is given an actor by his audience in the form of reactions and performances which tend to confirm his view of himself as an occupant of a position. If the view of self is disconformed, or if actor does not live up to his role identities, he continues to strive to foster the social impression that his identities are legitimate through further seeking of role support.

Borgatta and Evans (1967) studied role-playing behavior where positions were specified and concomitant behavioral characteristics were described to their subjects in order to determine whether status-positions have behavioral characteristics associated with them that might commonly be

described as personality traits. Utilizing such roles as politician, nurse, wife, doctor, Negro, factory worker, musician, etc., it was found that behavioral characteristics or personality traits are consistently attributed to particular status-positions.

In speaking of the "performance" of an individual before a particular set of observers, Goffman (1959) labels as "front" that individual behavior which serves to define the situation for the observers. He identifies standard parts of "front" as (1) setting, (2) appearance, and (3) manner. While "setting" refers to the physical background of expressive equipment which serve as "scenery and stage props for the spate of human action played out...", "personal front" includes those items of intimate identification such as "...insignia of office or rank; clothing, sex, age, and racial characteristics; size and looks; posture; speech patterns; facial expressions; bodily gestures, and the like. Some of these vehicles for conveying signs, such as racial characteristics, are relatively fixed and some sign vehicles are relatively mobile or transitory, such as facial expression (Goffman, 1966, p. 201).

Thibaut and Kelley (1959) analyzed behavior in terms of behavior sequence or set, utilizing interaction in a two-person relationship as the basic unit of analysis and distinguishing between reward and cost as significant components in human interaction. The behavioral repertoire, (role performances) which a person may enact consists of all possible sets and combination of sets, while interaction can be described in terms of what is actually produced from the respective repertoires. Using reward and cost as measures of outcome of interaction, the values assigned to the measures are dependent upon the behavioral items produced in the dyadic relationship

in the course of interaction. Thus, concerns with performances can find at least theoretical quantification possibilities in the interaction matrix presented by the authors, specifically in terms of factors external to the relationship (exogenous determinants of rewards and costs) and factors intrinsic to the interaction itself (endogenous determinants of rewards and costs).

Nadel (1957) attempted to analyze social structure in terms of the role system of any society, with its given coherence, as the matrix of the social structure. Initial designs of a single social structure gave way to the notion that its matrix, or basic structure, was broken by logical cleavages and the factual dissociation of roles. Many roles were found to be entities in themselves, but roles which could still be played by the same actor: "...it simply makes no sense to construe any 'mutual' implication; viz., actor relationships, between such roles as chief, a father, pagan, old man, friend, coward, musician..." but these are mutually inclusive classes of role across which the same actor can travel. It was suggested, however, that logical cleavages may be overruled by a regular interrelationship between roles, as summarized below:

1. Leadership or authority roles. These roles imply the supervision of all or numerous other roles in the society, e.g., a chief who must concern himself with the conduct of the occupants of specific roles. Thus he has the power and authority to cross roles.

2. Expressive roles. In these roles, actor's task is the communication of ideas and emotional experiences which may be done by manipulating, applying, and perhaps creatively adding to the expressive symbols prevailing in a society. A priest, for example, may comment on numerous subjects which

cross roles systems.

3. Services. This relates to the production, as through the rendering of services expected by some kind of contractual relationship, which potentially satisfies wants or needs. (Nadel, 1957, p. 75-76).

Nadel presents, at a relatively high level of abstraction, a structuralist approach to the concept of role and social structure. He makes the point that only at such a high level of abstraction can the many subsystems whose matrices are role systems be tied together intc a coherent description of human societies. To describe the interaction between cultures under a single superordinated conceptual system in terms of interaction schemas, he contended that "...'real' roles and relationships are valid for numerous and diverse contexts, so that the overall social structures must be based upon something like the resultant or syntheses of all these contexts, each duly weighted according to some criterion of relevance." (Nadel, 1957)

Newcomb (1950) gave particular emphasis to two social psychological concepts in terms of role: (1) "groups share role anticipation," and (2) "role behavior as motive pattern." In terms of the former, Newcomb states "...the significant thing about a group is that its members share common understandings as to their respective roles...a poker club...is a group of individuals whose roles are defined and understood in terms of the rituals associated with the game...(implying) a universality among the members with regard to understandings and anticipations of roles...(therefore) the individual is provided with the dependable frame of reference for his own role." In this sense, group behavior may be construed as being characterized by standards or norms by which individual perceptions are made, and which

involves the anticipation of roles of others and responding to those roles as anticipated by others.

In his view of role behavior as motive patterns, Newcomb states:

> It is not the observable form of a motive pattern which identifies it as a role behavior, but the context in which it occurs. Any motive pattern may be a role behavior if it is identifiable as behavior on the part of the person as he takes a recognized role. A traffic policeman's beckoning to a motorist, a school-teacher's reproof of a child for misconduct..these are unmistakably role behavior in our culture. They are at the same time motivated behaviors and communicative behaviors. In each of these instances the behaver anticipates that he will be responded to as an occupant of his position and the direction of his behavior is influenced by such anticipation (Newcomb, 1950, p 330).

Jones and Thibaut (1958) suggest that in the interaction situation a person will react according to the degree of structure which is present and which is relevant to both actors. They identify and define three types of interaction situation: (1) noncontingent interaction; (2) asymmetrically contingent interactions, and (3) reciprocally contingent interactions.

In the noncontingent interaction the roles of actors are predetermined, and "the appearance of interaction is accomplished through a simple synchronization of responses, so that both actors do not talk at the same time or in inappropriate orders" (James and Thibaut, 1958). The behavior of each actor is determined by a well-defined standard, and the content of one actor's behavior is irrelevant to the unfolding of the other's responses. This is the prestructured type of interaction, frequently that of specific task accomplishment, requiring little interaction of personalities.

In their asymmetrically contingent interactions, Jones and Thibaut (1958), make a distinction between standard and variable responders:

> A standard responder is one whose response potentialities are largely determined by an S.O.P. The S.O.P. does

> not completely define his behavior, as in the noncontingency situation (except for synchronization of cues), but it vastly reduces his range of improvision. A variable responder, on the other hand, is one whose behavior is unfettered by influence. With this distinction in mind, then, we can define a situation as asymmetrically contingent when it involves interaction between a standard and a variable responder. (Jones and Thibaut, 1958, p. 156).

Take, for example, the interviewer as the standard responder and the person being interviewed as the variable responder where the interviewer follows a detailed interveiw schedule. In such a situation, one role is highly structured while the other is relatively unstructured.

Reciprocally contingent interactions are those in which actor's behavior is entirely contingent on that of other and vice versa. These are clearly social situations in which "...the full range of human emotions is most likely to be engaged, and the intricate complexities of shared and nonshared perspectives become critically relevant" (Jones and Thibaut, 1958,p. 157).

While structural role theory, utilizing a mathematical system of terms and concepts, may not be the most universally accepted approach to the study of roles at this time, its adherents have demonstrated its potential for quantification and graphic representation of role structures. Oeser and Harary (1962) applied the concepts and terminology of graph theory to the structural modeling of role systems using the basic elements of persons, positions, and tasks as the structural base. According to their concept, the total pattern of organizational relations change with the informal relationship between persons. The context of interaction is viewed as the totality of relations of the structural role diagraph.

More recently, Trahair (1967, a,b,c,d,) has utilized the concepts

of structural role theory, without stressing graph theory, by relating the study of personality to the structural elements of role, i.e., tasks, persons, and positions. In one study, Trahair (1967, a) presents specific illustrations to show that workers seek some control over physical demands and intrinisc satisfaction of task performance, and over the authority, pay, and security of their positions, as well as that of task competence and mateship of persons. He also points out that the success ideology which characterized the lives of men at the lower levels of industrial administration is a determining factor of the extent to which control is sought over benefits and promotion features. In another report (Trahair, 1967, b) demonstrates how experiences are sensibly ordered according to the classification scheme and demonstrates the conceptual calrity that can be attained when applying such a scheme to the conditions and experiences of workers during task performance, position occupancy, and in their interpersonal relations with others.

Trahair (1967, c, d) suggests that through structural role modeling the operational role, which augments the formal role, can be described by observing interpersonal behavior during the adoption of formal roles and from analyses of individual judgements of social and physical conditions under which overt behavior is shown. Furthermore, it is the belief of the author that judgements of the worker are not adequately studied through the analysis of lists of what people like and dislike, as such an approach is lacking in theoretical unity. Consequently, he concludes that the mathematical model, specifically that which was developed by Oeser and Harary (1962), offers a meaningful approach to structural role theory, as it can be connected with the important specific realities of work.

While there exists a considerable lack of clarity surrounding the use of the concept "role" it can be said that the term itself relates directly to an individual's behavioral repertoire in terms of position. Consequently, role may be best viewed in terms of the three distinct conceptualizations suggested by the writings of Roometveit (1955) and by Thibaut and Kelley (1959):

> 1. The role consists of the system of expectations which exist in the social world surrounding the occupant of a position-expectations regarding his behavior toward occupants of some other position. This may be termed as the prescribed role.
>
> 2. The role consists of those specific expectations the occupant of a position percieves as applicable to his own behavior when he interacts with the occupant of some other position. This may be termed the subjective role.
>
> 3. The role consists of the specific overt behaviors of the occupant of a position when he interacts with the occupants of a position. This may be termed the enacted role (Deutsch and Krauss, 1965, p. 175).

A number of writers have been concerned with the problem of role conflict and role strain. An individual is likely to encounter role incompatibilities within his status-set, and these incompatibilities lead to conflict and strain. Biddle and Thomas (1966) provide four examples of role conflict: (1) a child has a different role conception of himself than does his teacher (conflict for description); (2) parents may expose a child to conflicting prescriptions; (3) an employee may evaluate his performance more highly than does his supervisor; and (4) a friend's sanction may be different from that of some representative of society. These authors view concensus regarding roles as varying from maximum disagreement (dissensus), through polarization (conflict), to virtually unanimous agreement (consensus).

Different investigators have viewed role conflict in varied ways. Some refer to incompatible expectations where the actor perceive the conflict; others view it as incompatible expectations whether the actor is aware of the conflict or not; some view the actor as being in a situation of exposure to conflicting expectations as a result of his occupancy of two or more positions simultaneously; whereas others are concerned with whether the conflicting expectations are legitimate.

Role obligation are conceived for the actor in terms of role descriptions, role prescriptions, evaluations of role and performance by self and significant others, and in terms of sanctions resulting from evaluations. Summarily, role research may be concerned with how one perceives his role obligations, how significant others perceive his role obligations, how self and significant others evaluate both role and performance, and the degree of consensus and of functional integration within social systems.

Parsons (1951) states that when actor is exposed to conflicting sets of legitimized role expectations both cannot realistically be fulfilled and compromise is necessary. Actor is exposed to negative sanctions and to internal conflict in so far as both sets of values are internalized. There are limited possibilities for conflict to be transcended, essentially by redefining the situation or through evasion of the requirements, as through secrecy or segregation of occasions. The results of such conflicting prescriptions, according to Biddle and Thomas (1966) may be personal confusion, anxiety, and ambivalence which can result in social dysfunction. This view is consonant with that of Parsons (1951) that role conflict is continuous with elements of uncertainty and malintegration. Parsons also suggests that any actor has a plurality of roles involving differences of patterns, and

consequently, differences of relations to others whose interests and orientations mesh with those of self in different ways. Furthermore, role systems are seen as being allocatively ordered and often delicately balanced, as any serious alteration may encroach on another role "order" and necessitate a whole series of adjustments.

Explaining his concept of role strain, Goode (1960, a) suggests that "when social structures are viewed as made up of roles, social stability is not explicable as a function of (a) the normative consensual commitment of individuals or (b) normative integration. Instead, dissensus and role strain - the difficulty of fulfilling role demands - are normal." The concern here is essentially with the linkage of observable social behavior to the "...less easily observable abstraction, social structure." The utility of this concept rests largely with the proposition that dissensus and role strain are normal and that the individual organizes his role system and performs in role relationships through sequences of role bargains - an economic system. Additionally, this view holds that an individual's total role system is over-demanding, and since all demands cannot be fully satisfied, the individual "...must move through a continuous sequence of role decisions and bargains, by which he attempts to adjust these demands."

Secord and Backman (1964) refer to the anticipatory and normative qualities of role expectations within the interaction context. The anticipatory quality has to do with the inference of attitude made by one individual to another by ways in which he presents himself and by the situational context. The normative quality suggests that there are well-established patterns of behavior that are anticipated, many of which are obligatory in the normative sense. Furthermore, these writers state that "...only when

one is able to anticipate consistently the behaviors of others can one maximize one's reward-cost outcomes" (Secord and Backman, 1964, p. 455). Additionally, the difficulties of meeting the demands of one's role system (Goode, 1960), or the occupancy of multiple role categories simultaneously within social systems, expose the individual to sanctions of others within his interactional context. Thus he might find himself under the strain of needing to meet simultaneously a number of expectations which are imcompatible with the resources available to him, and the reward-cost outcome, or the sanctions of others, as well as internal sanctions, intensify the internal conflict experienced by the actor.

In such role transactions, actor seeks the most advantageous bargain for himself, allocating his own resources and exacting role performances from others in exchange. In the social systems context, the failure of the system to achieve its goals might frequently be a result of the failure of group members to hold expectations in common, or their failure to clearly specify the expectations they hold. This element of role interpretation, i.e., defining and interpreting the individual within the interactional setting, if continued out of balance or under conditions of ambiguity of dissonance may lead to individually deviant responses and result in mis-integration of the social system.

The Professional- Nonprofessional Relationship

The existence of role relationships implies organizational structure, either of a formal or informal nature. The present concern with the relationship between professional and nonprofessional health workers leads to the consideration of the concept of formal organization, particularly

ways in which human conduct is socially organized and, consequently, to a consideration of the professional-nonprofessional relationship within the organizational structure.

Social relations, according to Blau and Scott (1962), consist of three elements: (1) patterns of social interaction; (2) sentiments of persons toward one another; (3) the differential distribution of social relations in a group which defines its status structure. A group member's status, for example, depends upon the sentiments toward him and their interaction with him. Consequently, organizations have their integrated members and their isolates, their highly regarded members and those who are not so highly respected, and they have their leaders and their followers. Concern over the relations between individuals within groups frequently gives way to concern over all relations between groups "... relations that are a source of still another aspect of social status, since the standing of the group in the larger social systems becomes part of the status of any of its members. An obvious example is the significance that membership in an ethnic minority...has for an individual's social status." (Blau and Scott, 1962, p. 78).

> The other main dimension of social organization is a system of shared beliefs and orientations, which serve as standards for human conduct. In the course of social interaction common notions arise as to how people should act and interact and what objectives are worthy of attainment. First, common values crystallize, values that govern the goals for which men strive.....Second, social norms develop that is, common expectations concerning how people ought to behave-and social sanctions are used to discourage violations of these norms...Finally, aside from the norms to which everybody is expected to conform, differential role expectations also emerge, expectations that become associated with various social positions. (Blau and Scott, 1962, p. 78).

Relevant to the problem of "how people should act and interact" and to the concepts of behavioral norms, role expectations, and sanctioning behavior, are recent communication studies. Of these studies, that of Cohen (1958) has particularly relevance as it demonstrated that upward communications seem to be more than merely serving as substitute upward locomotion but, more generally, as facilitation of need satisfaction. For example, low ranking persons with the freedom to move upward communicate in ways which protect and enhance their relations with those who exercise the control over need satisfaction and general status. On the other hand, low ranking individuals for whom upward mobility is impossible appear to have less need to communicate to the upper level in equally friendly, promotive, and task-orientated fashion. Thus, within the context of an organizational structure which is characterized by large numbers of roles, formal relationships patterns, and more or less well defined divisions of labor, communications and interaction patterns may be determined by role and, conversely, role flexibility appears to be limited by hierarchical patterns of organizations.

Another communication study relevant to the present discussion was that done by Janis and Feshbach (1953). This experiment was concerned with the effects of a particular type of motivation variable, that of the arousal of fear or anxiety by the portrayal of potential dangers to which subjects might be exposed. It was found that the use of a strong appeal which evokes a level of tension without satisfying the need for reassurance tends to reduce the overall effectiveness of a persausive communication. In fact, the motivational direction tended toward either ignoring or minimizing the importance of the threat. It service organizations, particularly within

the public health profession, the typical usage of this type of communication can now be questioned and new channels sought for communicating and, subsequently, delivering service. With the advent of indigenous nonprofessional service workers, the solution of the service problem may be nearer at hand, but the findings of the communication study may also have implications for the relationships that exist between occupants of different positions within the organization.

While there are many relevant studies in communication and in organizational theory, it is not the purpose of this study to investigate those specific areas. Rather, it is believed that this provides a noteworthy connection between the discussion of role theory and the practical problems of interaction between professionals and nonprofessionals. It is against the background of role in its theoretical perspective that attention is now directed to a consideration of the professional-nonprofessional role relationship.

Pearl and Reissman (1965) argue the case for hiring the poor to serve the poor, an approach which involves utilizing nonprofessional personnel in service programs to perform functions previously done by professionals. Following the HARYOU proposal (1964), they suggest that this would provide for vastly improved services while reducing the manpower crisis in health, education and welfare fields. This proposal states:

> In a very real way, the use of indigenous nonprofessionals in staff positions is forced by the dearth of trained professionals. At the same time, however, the use of such persons grows out of concern for a tendency of professionals to "flee from the client", and for the difficulty of communication between persons of different backgrounds and outlooks. It is HARYOU's belief that the use of persons only "one step removed" from the client will improve the giving of service as well as provide useful and meaningful employment for Harlem's residents (Pearl and Riessman, 1965, p. vii).

It is further noted that there is a current trend in most of the human service areas for professionals to spend more time on consultation, supervision, teaching, with less time spent on direct service. Thus, the indigenous low-income nonprofessional can fill a large void in the service orientated occupations.

Included in the service-orientated professions is the education field, a field which, according to Pearl and Reissman (1965), has a special potential for the development of new careers. It is pointed out that education will ultimately become this nation's largest enterprise, but that presently, there is only one occupational role in the classroom, that of teacher, while there exists a large number of functions - educator, clerk, custodian, operator or audio-visual equipment, and the like. Consequently, it is proposed that new roles be developed to improve services and permit the fullest utilization of the teacher's professional competence. The aide category is proposed as the entry position, with intermediate roles of assistant and associate.

It is further suggested that this concept would help toward reducing colonialism in the schools. Specifically, the school "...can take on a different complexion; persons known to be friends and neighbors could also be known as teachers. The school would no longer have to be forbidding and awesome to parents. Within the school there would be persons who could be talked to..." (Pearl and Reissman, 1965, pp. 72-73).

Grant (1965) provides examples of the effectiveness of nonprofessionals in research, one of the most rapidly growing activities in the country, and one which heretofore provided training almost exclusively at the college graduate level. The Camp Elliott Project is one such example. In

this project, the research program initially had nonprofessionals, i.e., persons without higher education or research training, scoring and tabulating the results of tests administered to treatment groups of naval and marine offenders. Within a few months, however, the research section was making use of the part-time services of offenders in a semi-automated data processing unit. The activity is described as follows:

> Research was done on a production-line basis. The testing section remained, but it had doubled in size. In addition there was a section to handle population accounting for the Command as a whole (a new service taken on by research); one for data preparation and coding, which included filing and a typing pool; another for data analysis; and a fifth for calculators which were run in shifts, from 8:00 A. M. to midnight. This unit handled not only data from the several research studies, but was able to run an operations-accounting system for the Command as a whole and to do special studies for other Navy facilities in the area (Grant, 1965, p. 104).

From the Camp Elliott experience, the following conclusions are presented:

> (1) Many necessary research tasks can be performed with a minimum of training. These are not limited to computational routines.
>
> (2) An apprenticeship can be served on the job as well as in graduate school. Academic experience may in fact be more meaningful and more effective if it accompanies or follows related work experience.
>
> (3) Persons who are considered relatively "nonverbal" and hence cut off or discouraged from academic advancement may possess skills that are lost from development because of academic emphasis on verbal modes of functioning.
>
> (4) Even persons who are considered behavior problems serious enough to warrant confinement can work productively on technical white collar tasks...disciplinary problems in the research unit were minimal and morale was high (Grant, 1965, p. 105).

A number of prison systems have demonstrated the capacity for persons without professional preparation to perform research functions. Grant (1965) cites the work done in research, frequently using persons with less

than high school education, at the Indiana Reformatory, the State Prison of Southern Michigan, and the California Medical Facility - a prison facility. Two of these prisons, the Indiana and the Southern Michigan facilities, have instituted on-going training programs as a result of the success of initial training efforts, while the California Medical facility has continued to provide on-the-job training for specific research or research related tasks to which inmates have been assigned. In each of these programs, a substantial number of outside placements have been made in data processing or some research related activity when the workers were paroled. Results of these prison experiences suggest the following conclusion:

> (1) Administrative support is essential if new career opportunities are to be opened and maintained, at both a local and a central agency level.
>
> (2) Making an opportunity available is not enough. Nonprofessionals, as much as graduate students, need training, supervision, and guidance.
>
> (3) A great deal is still to be learned about the effective development and use of nonprofessionals. There must be a willingness to accept failures on the part of both professional and administrative staff, especially in the early stages of these new programs.
>
> (4) A sense of commitment to a job must be fostered. This is easier when the nonprofessional is in a job that has a future, in which he has reasonable certainty of recognition and advancement. What is needed...is that the nonprofessional be taken seriously as a contributing member of a work effort. Expectations for performance should be high...failure to meet expectations should result in the same sanctions imposed on the professional.
>
> (5) At the same time, attention must be given to the unique problems faced by the nonprofessional...(but)...not by lowering standards for work performance, but by adjunct training and/or therapeutic experience that help them in the management of those internal problems and external realities that interfere with job performance (Grant, 1965, pp. 114-115).

Goldberg (1965) reported on the use of untrained neighborhood workers

in a social-work program in which fifteen neighborhood women were to serve as homemakers, with the basic responsibility of teaching low-income families greater competence in home management. The recruiting goal was to identify persons who exhibited less social distance to the client group than did most members of the professional staff, but who had personality attributes as well as homemaking skills which would enhance their acceptance as helpers in the community. Suitable task functions were found to include teaching the newcomer, the young housewife, or the inadequate homemaker how to manage and to exploit community resources through group teaching and individual assignments, all in an informal atmosphere. Another useful function was that of teaching of professional staff from first hand knowledge about how the professional is perceived by lower-class clients. Additionally, the indigenous homemaking staff were able to function in specific community organization tasks such as campaigning to secure adequate transportation to medical services, or organizing boycotts against exploitative merchants whose pricing practices inhibited sound home management practices. It was concluded that the value of indigenous staff is apparent, providing the agency appreciates and knows how to realize their potential. Furthermore "...if we regard social deprivations as critical barriers for many lower-class clients, then providing them with skills for coping with difficult management problems...is an important goal of social-work practice. In this type of social treatment, an indigenous staff can make a substantial contribution...(and)...help with environmental problems was an important prelude or concomitant of psychological treatment by the casework staff" (Goldberg, 1965, p. 151).

In their discussion of new careers which the poor might enter,

Pearl and Reissman (1965) suggest that "informal leaders" who have close ties to the neighborhood and its traditions can perform needed functions which the professionally trained person may be unable to accomplish even if there were adequate numbers of such personnel available. They discuss the use of aides in community mental health programs, pointing out that the traditional custodial role of psychiatric aides could well be changed to one in which the aide performs more rehabilitative functions and that he might "play a decisive role in bridging the gap between the middle-class professional and the underprivileged patient."

These writers suggest a logical division under which the contributions of the nonprofessional might fall. These divisions are healing functions and service functions.

> The healing function is principally concerned with the various psychological and psychotherapeutic roles within the potential repertoire of the mental health aide, guided by a professionally led team: role models (ego ideals, significant others, socializers); listener role (provide cathartic outlet); supportive role (concern); intervention role (the "intervention" effect of the presence of a therapeutic establishment such as a hospital or mental health unit - especially at crisis points); ego expansion role - provide better understanding and awareness of reality, community resources, issues (Pearl and Reissman, 1965, pp. 79-80).

The service function, according to the authors, is largely one of expeditor. In this function, the nonprofessional serves to "open doors" to provide the low-income client with information and support, and assists in negotiating services. It is also pointed out that the two functions overlap, as in the work that nonprofessionals perform in relation to groups. Under this circumstances he might fulfill the role of information giver and, at the same time, serve as an auxiliary in group treatment - a role of participant in therapy sessions, but as a participant who can maintain continuity of contact through between-sessions visits.

The Use of Indigenous Nonprofessionals in Health Services

The effectiveness of indigenous nonprofessionals in numerous service occupations, and specifically in health services, has been well documented in the literature. The question of why this is so should be considered. Pearl and Reissman (1965) quote the veiws of Kobrin (1959) and the Chicago Area Project:

> In the first place the indigenous worker usually possessed a natural knowledge of the local society. Second, he was hampered by none of the barriers to communications with residents for whom the nonresident, especially those identified with "welfare" enterprise, tended to be the object of suspicion and hostility. Third, his employment was a demonstration of sincere confidence in the capacity of the area resident to have access to the neighborhood's delinquent boys and, therefore, to be more effective in re-directing their conduct. Fifth, his employment represented a prime means of initiating the education of the local population in the mysteries of conducting the welfare enterprise. Hence virtually from the first, one of the most distinctive features of (Chicago) Area Project procedure was the employment, in appropriate categories and under the tutelage of staff sociologists of the Institute, of local residents to aid in the organization of the approximately dozen community or civic "committees" which were established in Chicago over the course of two decades (Pearl and Reissman, 1965, p. 84).

Perhaps the views of contemproray community organization theorists (Alinsky, 1965, a,b; Goodenough, 1963; Ross, 1955) provide some additional insight as to the reason. While these theorists are not in comple accord, a common thread is that of maximum participation and involvement in the tasks to be accomplished - from problem identification, to process, to solution. It is a matter of people helping themselves toward improved conditions rather than perpetuating the condition of colonialism and the resultant dependencies which trational services have encouraged.

In describing the results of a health project in two villages in

Libya, Khalil (1960) concluded that the success of public health programs depends on what people can do for themselves:

> Some health workers think that it is their job to solve the people's health problems. In fact we only say this for reasons of convenience, because it is the people who solve their own problems. In order to solve their problems, however, they must be made aware of them and must be motivated to work on them. In this, they need help, direction and technical assistance. We are there to give this technical assistance. In other words we are there to help the people solve their problems but we are not there to act on their behalf and solve their problems for them. It should come through their own efforts. Therefore, in any public health programme, people are the more important factor. It is not the physician, nor the nurse, nor the health inspector, nor the health educator, nor even all the health specialists combined. It is the people... (Khalil, 1960, p. 140).

Pearl and Riessman (1965) specify six factors that appear to account for the effectiveness of indigenous nonprofessionals in the delivery of services:

(1) The most obvious variable is their (peer) status attributes - they are poor, are from the neighborhood and are often members of minority groups. These attributes in and of themselves allow them to be perceived in certain ways and to be reacted to accordingly. Consequently, they have far less need to validate themselves...

(2) The nonprofessional is effective also because he can be an acceptable model - a "significant other"...

(3) Closely related to the model functions is the know-how of the low-income nonprofessionals. They know how to deal with neighborhood problems from the "inside," not from above.

(4) The "style" of the nonprofessional is significantly related to their effectiveness. As Brager notes: "The nonprofessionals are considerably less formal...(they) tend more often to be 'directive', 'active' and 'partisan'. ...the militancy often found among low-income nonprofessionals...is expressed in various ways: they demand action, motion - they are less accepting of delay and 'talk'; they introduce new demands..."

(5) The "bridge" function (bridging the gap between the agency and the low-income client) ...is intimately re-

> lated to the nonprofessional's interclass communication and mediation skills - another important determinant in his special effectiveness.
>
> (6) Finally, the nonprofessional's effectiveness is related to the satisfaction he receives from the work he does - team satisfactions, respect gained from performing a meaningful job in cooperation with professionals, learning a skill, and most important of all, helping others. The far-reaching significance of the helping role cannot be underestimated... (Pearl & Riessman, 1965, pp. 85-87).

In the health professions, and especially in public health programs, behavioral scientists have been called upon to assist in the search for ways of promoting better health practices. A not uncommon finding has been that methods of communicating health information, delivery of service, and the attitudes of persons toward illness and health require re-evaluation. Kariel (1962) points out a number of studies which support this view. One of the more significant findings was that a very definite relationship exists between socioeconomic status and practically every aspect of health-related behavior. By placing respondents into three classes, high, middle, and low, consistent differences were found between classes in terms of attitudes toward illness, use of physicians and dentists, as well as in other aspects of health-related behavior. For example, the lower the social class, the less likely an individual was to identify a sympton as one requiring treatment. Also, lower class patients received less psychological satisfaction from the physician and from the treatment process.

It was suggested that poor communication and lack of rapport between physician and patient might be the cause of unfavorable attitudes and unsatisfactory relationships in the treatment process. In general, it was thought "...in determining a person's behavior in relation to health, two elements appeared to be important; the individual's estimate of what constituted acceptable behavior for a member of his social group and the place of

health in the value system of the individual and his family" (Kariel, 1962, pp. 402-403). The author concluded that (1) individuals cannot take a course of action about which they lack information; (2) individuals tend to act in accordance with their perceptions as to how peers behave; (3) low exposure to health education requires that more effective means for disseminating health information, especially to lower status individuals, be found; and (4) experimentation by field workers should be done to validate existing findings and to open new areas of inquiry.

The use of indigenous nonprofessionals in efforts to resolve problems of communications and rapport between "hard to reach" communities and professional health workers have frequently had very favorable results. Kent and Smith (1966) described a program which employed neighborhood representatives in a low income urban area. In this effort to depart from traditional public health practices, the neighborhood representatives' purpose was to represent existing community life and values to the professional, and to relate health programs, which the professional had to offer, to the community. The nonprofessional was not closely supervised and he did not have sub-professional tasks imposed upon him. Rather, he was a resource within the community itself, a situation enhanced by recently acquired knowledge of referral sources, the services they offer, and methods of contact. In this manner he was enabled to assist area residents toward the solution of immediate problems which might otherwise serve as barriers to their use of health services. In this connection, it should also be noted that the training philosphy of the program involved the development of the neighborhood representatives as secure semi-agents using their natural styles and skills:

> Consistent with the action orientation of the indigenous worker, "doing" and not "talking" was the emphasis.

> Because of this, training is a dynamic two-way process. Formal classroom sessions and reading assignments were conspiciously absent in the training program. Essentially, the training of Neighborhood Representatives has been a continuous problem-orientated process and not a structured program terminated at a certain point (Kent and Smith, 1966, p. 6).

Once a neighborhood representative was functioning, they became trainers for other nonprofessional health workers, thus minimizing the role of the professional trainer. A similar philosphy prevailed in regard to supervision:

> Given the unique natural skills of the Neighborhood Representatives and the desire to accommodate the patient group, supervision in the traditional sense has been minimal. Since the Neighborhood Representative is in many respects, already an expert, supervision becomes a relationship of mutual respect where the Representative works "with" the supervisor rather than "for" him. The relationship becomes one in which the Neighborhood Representative (rather than the professional) identifies the "need" while the professional merely assists in resolving this need.
>
> Supervision in the more traditional sense occurs at various times. The indigenous worker must be protected from certain middle-class tendencies and discouraged from overidentifying with the professional staff. This occurs in a positive manner by praising the Representative for taking a patient's "side" in a case conference or negatively by criticizing the Representatives for communicating that subtle disdain for low-income patients so often typical of middle-class professionals. This protection is essential until Neighborhood Representatives become secure in their role and until other members of the professional team accept and become sensitive to this role (Kent & Smith, 1966, p. 7).

The authors reported that greatly increased use of clinic services followed the initiation of the nonprofessionals' services, with attendance increase being 42 percent higher than in comparable neighborhoods which did not have the services of neighborhood representatives. After four months of operation in one neighborhood, 60 percent of the users of a Mother and Infant Care Clinic had been referred by the representative. More unwed

mothers were being seen in those neighborhoods which had representatives than in other neighborhoods, and other expectant mothers were being recruited earlier in pregnancy. It was found, for example, that in neighborhoods with such services, "50 percent of the patient are being seen in their first or second trimester. This contrasts with 32 percent in unserved neighborhoods. Although the numbers are small, trends appear to be meaningful (Kent & Smith, 1966, p. 9).

Another study which described the use of health education aides in a project involving migrant agricultural workers and their families in California was reported by Hildebrand and Lee (1962). These aides were not from the migrant worker group and are not referred to as "indigenous", although they were selected on the basis of a working knowledge of seasonal agriculture and of communities engaged in seasonal agriculture. Their purpose was to serve as observers, interviewers, fact finders, and recorders. Since it was anticipated that they could make more effective contacts with community leaders, they were to advise the professional project personnel as to the best educational approaches, materials, and techniques to use among the migrant population.

The authors reported that many communications and cultural barriers which existed between public health nurses and the community residents were overcome through the efforts of the nonprofessional health education aides. It was found that better use was made of existing public health services, such as child health conferences, and the impact of the community worker's activities was felt throughout the Health Department's range of services. It was further concluded that "...their major project goal which was to bring the health needs of the seasonal worker and his family into effective

and practical relationships with local health resources was achieved. Certainly, this method of extending health manpower merits further study and application to various aspects of public health" (Hildebrand & Lee, 1962, p. 46).

Other studies have reached similar conclusions, while some have only concluded that a need exists for improved communications and a means for getting past cultural barriers, without specifically suggesting the use of indigenous nonprofessionals as the solution. For example, D'Onofrio (1966) in discussing the problem of immunizations for the "hard to reach" stated:

> In order to reach the unimmunized with effective person to person communications, a link, or more appropriately, a series of links, must be established between health services offering immunizations and the people needing the service together with whoever makes health decisions for such people. These links may be a health worker, other community workers, members of organizations in the community, informal opinion leaders. But whoever the link may be, they must be knowledgeable about both the immunization program and about the target group, and they must provide a channel of two-way communications between professional people offering immunization services and the unimmunized (D'Onofrio, 1966, p. 195).

Stewart (1967) presented a comprehensive review of the literature relating to the utilization of lay personnel in health programs. He gave particularly broad coverage to cross-cultural experiences, demonstrating the effectiveness of the nonprofessional personnel, particularly in regard to their communicative abilities and their cultural acceptance by the communities served. These numerous studies revealed a general agreement in their conclusions that the nonprofessional is more effective than the professional in motivating, educating, and delivering certain health services to the so-called "hard to reach" communities. Stewart's own study revealed that immunization rates for pre-school, school, and adult age groups were

raised significantly as a result of the intervention of indigenous nonprofessionals in an economically impoverished area where the community's use of health services had not previously been encouraging.

The trend in many agencies toward the utilization of nonprofessionals to perform certain duties and responsibilities previously done by professionals has received ample support as to its effectiveness where studies have been reported. However, such studies have generally given little attention to the role relationships which develop in organizations. The following section considers two studies which serve to illuminate some of the problems of role relationships within formal organizations.

Hierarchical Structures and Role Relations

Zander, et al (1957) stated that teamwork among persons in different disciplines, professions, or occupations is an important source of strength in modern society, and that the existence of teamwork implies a degree of ease in working relations. Since this sufficient "degree of ease" is not always present to assure either personal satisfaction or the efficient achievement of organizational goals, or since there frequently exists situational effects which result in insecurity and strain in interrole behavior, it is important to find means to assist members of different groups to examine their behavior and its consequences.

Zander, et al (1957) examined role relations in the mental health professions. Although no nonprofessional personnel were involved in the study, the results are believed to be important in relation to the present study, as interrole attitudes and behavior were investigated in terms of the hierarchical structuring of positions. The specific positions were those

of psychiatrist, psychologist, and social worker. The general findings indicated that both clinical psychologists and social workers view the role of the psychiatrist as high in power and prestige. Psychiatrists tended to have more comfortable role relations with social workers than with clinical psychologists, with the interpretation being that the profession of clinical psychology is yet a growing profession and when its members presume that some of the functions which psychiatrists have traditionally performed may also be within the province of clinical psychology, they pose a threat to the prestige and power of psychiatrists. On the other hand, social workers were not perceived as threatening to either of the other positions nor were there significant barriers between the social work position and the other positions.

In terms of power, it was found that psychiatrists with much power perceive members of the other two positions as respecting and admiring them, while those who attribute low power to themselves perceive the members of other positions as disliking them. Both the clinical psychologist and the social worker who have more power than the average for his group think more highly of his own profession than of psychiatry and tend to avoid socializing with psychiatrists. However, psychologists and social workers who are low in power indicate eagerness for more frequent contacts with psychiatrists and value that position over their own profession.

Among the numerous ideas presented by the authors, the following seem particularly relevant in the structuring of hierarchical role relationships. First, the occupant of high status roles will, if he perceives threat from below, (1) perceive subordinates as hindering more than facilitating, and (2) try to keep those roles in a subordinate status. On the other hand,

when the status of the occupant of a superior position is seen as being well-established, he will (1) perceive subordinates as supportive, (2) stimulate cooperative effort between roles, and (3) encourage growth of subordinates (Zander, et al, 1952, pp. 143-144).

Gross, et al (1958) pointed out that the social science literature has frequently viewed role "as an indivisible unit of rights and duties ascribed by a group or society." They argue that consensus on role definitions cannot be assumed to exist simply because an organization or "society" holds definitive prescriptions for the behavior of its members. Instead, the authors suggest that certain theoretical questions concerning consensus be investigated empirically. Some questions which they suggest include the following: "How much consensus on what behaviors is required for a society to maintain itself" How much disagreement can a society tolerate in what areas? To what extent do different sets of role definers hold the same role definitions of key positions in a society? On what aspects of role definition do members of different "subcultures" in a society agree or disagree? Why do members of a society differ in their role definitions?" (Gross, et al, 1958, p. 31).

The authors have developed the concept of role consensus as a distinct variable for empirical research. In their study of the school superintendency, they found the consensus variable to be a productive one in terms of identifying important problem areas within social systems which lead to interpersonal conflict. With the primary objective of describing and investigating degrees of consensus both between occupants of superintendent and school board positions and among members of the two positions,

they were able to predict the lack of consensus as well as the nature of the disagreement.

Included among their findings for interposition consensus, the majority of items (63 percent) revealed significant differences between the distributions of expectation responses of school board members and superintendents. Statistically significant results supporting three hypotheses predicting disagreement in regard to the specification of formal tasks belonging to occupants of the two positions were obtained. A fourth hypothesis that the role of the superintendent was such that he would be more willing to appropriate money for education than would school board members was also supported. The data supported a fifth hypothesis concerning differences in expectations held by incumbents of the two positions regarding "by-passes" in the line of authority. The data were further analyzed for the purpose of determining the nature of the variability on different role segments. This limited portion of the school superintendency study has been mentioned for its relevancy to the present research effort. Aside from its methodological implications and research suggestions, its special concern with relations in social systems has implications for a variety of studies of human behavior in organizations.

While the present study does not in any manner replicate a previous study, it has made use of both theoretical and methodological formulations of previous research efforts, especially those of Gross, et al. The Health Department which provided the opportunity for the research is the organizational structure or social system in which the subjects of the study were, in the measurement stage of the experiment, beginning to develop role relationships. The primary purpose of the study was to determine whether

consensus existed between professionals in nursing and environmental health positions and the newly employed nonprofessionals in terms of their role expectations.

The entire research was based on certain underlying assumptions about the services which the subjects had been employed to perform, about interpersonal relationships and personal need, and about the goals of the organization. These assumptions are stated as follows:

1. Nonprofessional workers who are indigenous to a "hard core" poverty area are more effective in initiating social and other services in those areas than are professional workers whose value systems differ from those of area residents and whose typical patterns of communication may frequently differ from those communication practices of the population to be served.

2. When indigenous nonprofessional persons are employed to work cooperatively and frequently as team members with professional staff members of an existing service organization, an important consequence will be the construction of a system of interoole relations characterized by dissent and conflict. This assumption follows, in part, from the first, presuming that the nonprofessional worker from the poverty area possesses many of the same values and communications practices as residents of the community in which he resides.

3. Consensus regarding roles is seldom complete; and although dissent may have its beneficial aspects, social system (including achievement-orientated organizations) require a degree of consensus such that individuals may perform differentiated and specialized functions, receive recognition, develop satisfying interpersonal relations, and direct their performances

in a more or less integrated and consistent fashion toward practicable ends.

The postulate of role conflict is that there will be a significant manifestation of disagreement between the two experimental groups in regard to their expectations for the division of labor and for the personal attributes and job behaviors of incumbents of the two positions, viz., the professional and the indigenous nonprofessional roles. The research hypotheses, stated in terms of the instruments of measurement, are as follows:

1. Incumbents of both the professional and nonprofessional positions will specify a division of responsibility such that more task functions are assigned to their own position than to the counter position.

2. In specifying the nature of responsibility:

   A. Incumbents of the nonprofessional position will assign relatively more of the "least technical" functions to professionals than will incumbents of the professional position.

   B. Incumbents of the nonprofessional position will assign relatively fewer of the "most technical" functions to professionals than will incumbents of the professional position.

3. Incumbents of the professional and nonprofessional positions will demonstrate a lack of consensus in regard to their expectations for the attributes and job behaviors of incumbents of both positions:

   A. Nonprofessional subjects will demonstrate higher expectation levels for the nonprofessional position than will professionals.

B. Nonprofessional subjects will hold higher expectations for incumbents of the professional position than incumbents of that position hold for themselves.

C. Professional subjects will hold higher expectations for the professional position than for the nonprofessional position.

D. Nonprofessional subjects will hold higher expectations for the professional position than for the nonprofessional position.

CHAPTER II

METHOD

Groups and Relational Specifications

All of the indigenous nonprofessional personnel who were employed in the project were selected for the experiment, while the professional group included only nurses and environmental health personnel. The reason for the limitation to the two specialties in the professional group was that these were the only professional staff employed at that time who would have extensive contact with the nonprofessional staff. For example, physicians, psychologists, and the like, had not been employed for the Project at the time the study was undertaken and could not be included in the professional group. The nonprofessional group consisted of 76 subjects, while the professional group consisted of 50 subjects.

It has been necessary in certain instances to focus on sub-groups within the two major groups. Specifically, the research design required an analysis of expectations for division of labor for both nurse-related functions and for environmental health functions. This required focusing on the responses of environmental health personnel for environmental health functions and on nurse-related personnel for nurse related functions.

When viewed as a single group, the nonprofessional personnel averaged approximately twelve years of formal education; were largely female (64 females, 12 males); consisted of more Negroes than Caucasians; and were generally unemployed before accepting this job. The few who had jobs at the

time could be considered under-employed. The professional group possessed approximately four years of higher education; consisted of more females than males and more Caucasians than Negroes; and they had adequate employment histories with moderately good income.

The experimental hypotheses required testing whether consensus existed between incumbents of (1) the professional position and (2) the nonprofessional position when incumbents apply evaluative standards to the position being focused upon. Consequently, it can be said that a "positional" model, consisting of a focal position and a counter position, was used as a means of specifying expectations which members of either experimental group hold for either professional or nonprofessional positions. It is recognized that positions may be associated with more than just one other position; but to deal empirically with the specific probelms identified in this study, it was necessary to limit the focus of investigation to a single focal and a single counter position. Gross et al (1958) consider such an approach to be a dyad model of relational specification.

Expectations which are held for incumbents of a particular position may be viewed in either the normative sense or the predictive sense. That is, an expectation might indicate what a person should do or it might indicate what is anticipated of him. In this study it was necessary that it be used in both senses. It is used in the normative sense, implying "oughtness" or what a person should do, in the case of expectations for division of labor. For example, subjects were asked to indicate whether specified tasks and responsibilities ought to belong to the nonprofessional or the professional position. But in asking subjects to indicate their expectations for attributes and behavior of incumbents of a position, expectations in this

sense are clearly anticipatory or predictive.

Instruments of Measurement

There were two basic instruments used for the assessment of role expectations. The Division of Labor Instrument included two task inventories: (1) "Inventory of Nurse Related Functions," and (2) "Inventory of Environmental Health Functions." The format of the two inventories was the same, but the nature of the items differed. This measure focused on the extent of consensus among role definers as to examples of specific tasks to be assigned. It required that subjects assign tasks to either the professional or the nonprofessional position, but a single task could not be assigned to both positions.

The "Inventory of Nurse Related Functions" include behaviors in which nurses or nurse-related personnel might be expected to engage. Items were selected from existing job descriptions of nurses and from a training manual for nurse aides. The "Inventory of Environmental Health Functions" included behaviors in which environmental health personnel might be expected to engage. Items for this instrument were selected from existing job descriptions of three different professional levels in environmental health and from statements in the Project Proposal relative to functions which environmental health aides could perform. In both inventories all items consisted of specific tasks to be performed, with each instrument containing 34 items (Appendixes A and B).

Both of these inventories were subdivided by extracting eight items which were judged to be "most technical" and eight items which were judged to be "least technical." However, it should be noted that "technical" is

used more as a shorthand term than to denote purely technical or non-technical functions. More precisely, "most technical" items are those tasks which were judged to require the most education, ability, and professional training for their satisfactory performance, while the "least technical" items were those tasks which were judged to require the least amount of education, ability, or professional training.

Three judges with extensive public health backgrounds were selected for judging the nurse-related items and three with equally extensive public health experience were selected to judge the environmental health items. They were individually presented a set of 34 cards, each of which contained a single item from the inventory being judged. Their instructions were first to select the 12 items which require the most ability, education, and professional training of the persons who perform the selected tasks. It was previously determined that only those items which all three judges selected would be used. In all cases, judges independently reached agreement on at least eight items. Consequently, each sub-scale contains eight items on which there is 100 percent agreement by judges who have been successful in public health. These sub-scales are presented in Appendix C.

The second instrument, "On-The-Job Expectations," was developed for the purpose of determining the expectations held by experimental subjects for attributes and behaviors of incumbents of professional and nonprofessional positions. This is a 35-item, seven-point rating scale, with the lower extreme of the scale identified as "very low" and the upper extreme of the scale identified as "very high." Items were selected on the basis of what this writer, as well as his associates, believed to be commonly discussed opinion items by middle-income persons in health, education, and

related fields regarding (1) positive qualities of their co-workers, (2) negative characteristics of impoverished or lower class persons, and (3) problem areas which exist in working relationships. Considering each of these opinion areas as they relate to the work situation, 35 phrases or statements were selected to serve as stimulus items for rating one's expectations of incumbents of a given position. The design of the instrument is such that either the professional or the nonprofessional positions can be rated by either subject group on the same form by checking which position is being rated and by indicating the position of the rater. Appendix D provides a complete listing of the stimulus items.

Administration of the Instruments

As a result of certain realities regarding work schedules of the staff from which the subjects of the experiment were drawn and regarding the training program for new employees, administration of the instruments of measurement was accomplished over a period of five to six weeks. For example, the assessment of environmental health personnel was dependent upon the weather, specifically waiting for a rainy day when field work is curtailed. Eventually all measurement was done, with three basic groups, nurses, environmental health personnel, and trainees - largely nonprofessionals being tested separately.

There were three points of explanation provided to all subjects in addition to the specific instructions for each measure. These were (1) the reasons for having them complete the forms; (2) the meaning of "professional" and "nonprofessional"; and (3) an explanation of the seven-point rating scale with its "very low" to "very high" continuum. The

first two points were covered briefly before subjects received any of the test forms. A few questions were raised in each instance which were answered to the apparent satisfaction of the individuals who needed further explanation. The rating scale concept was explained after the subjects had opened the specific instrument which employed such a scale. A continuum was drawn on a chalk board, showing seven points and ranging from a rating of "very low" to "very high". The brief discussion, including answers to questions raised by subjects, appeared to clarify the mechanics of the measurement device.

Both the introductory remarks and specific instructions are presented below:

> The Health Department is involved in research in a number of areas. One of these areas has to do with the relationships between professional and nonprofessional health workers and the expectations they hold. You will be asked to judge a number of statements regarding both professional workers and nonprofessional works and will be given an opportunity to indicate which tasks should belong to professionals and which should belong to nonprofessionals. You are urged to make these judgments according to your actual beliefs. Your name is not to be placed on the form; therefore, your opinions will have no effect upon your employment status.
>
> There is always some question about the meaning of "professional" and "nonprofessional." "Professional" is used here to indicate a position which requires both general and specialized education and training above the high school level, leading to either a license or certificate which permits the practice of that profession. For our purposes, this includes nurses and professional sanitarians. The term "nonprofessional" is used to indicate a position that does not require higher education, but a position in which a person may perform duties related to a professional specialty. For our purposes, this includes nurse aides, sanitation aides, health counselors, office nurse assistants, and the like.

The forms were distributed to the subjects in an envelope with the verbal instructions that the forms were placed in order and were to be

removed one at a time in order to avoid confusion. For the first measure, "Inventory of Nurse Related Functions," the following instructions were read aloud after that form had been removed from the envelope:

> Listed below are duties and responsibilities which might be performed by professional nurses or by aides, assistants and homemakers.
>
> Please decide for yourself whether you think the job function ought to be that of the professional nurse or of the aides, assistants, homemakers, etc. Indicate your decision by placing a check mark in the appropriate column. If you believe a given function to be the responsibility of both groups, make your decision on the basis of which group you would prefer to have that function.

Following completion of the first form, subjects were requested to remove the second form, "Inventory of Environmental Health Functions." The instructions for this form were the same as for the "Inventory of Nurse Related Functions" except for a change in wording to indicate environmental health personnel rather than nursing personnel. Two identical forms, "On-The-Job Expectations," remained to be completed, one rating professional staff and the other rating nonprofessional staff. For this measure, the following instructions were given.

> The remaining two forms are identical. Please remove one of them at this time. You will notice that this form asks that you rate someone as to how you expect they will perform on the job, and that ratings are made in terms of a number of statements about job behavior and personal characteristics. Note that you can assign a score of 1, 2, 3, 4, 5, 6, or 7, where number one is considered a "very low" evaluation and number two is considered a "very high" evaluation. Since extremes do not necessarily describe our beliefs and expectations, the scale has been developed so that you might indicate your expectations more exactly.

At this point, the concept of rating along a continuum was explained in more detail by drawing the scale on a chalk board and demonstrating how the various reference points of the scale relate to "very low", "average," and "very high" evaluations. Subjects were then asked to indicate

their job title and to place a check mark which indicated that the first form was an evaluation of professional staff. The following instructions were then read aloud:

> Please rate the group checked above on the scale provided to the right of each of the following statements. Place an X along the line at the point which most nearly describes the level at which you think the members of that group will perform. Rate this group as you honestly think they will perform on the job. Your first impression may be the best.

The second form of "On-The-Job Expectations" was identical except that the group being rated was nonprofessional staff. The only further assistance given was instructions to check that the rating was being done for expectations for nonprofessional staff.

CHAPTER III

RESULTS

The predictions of this study dealt with the matter of disagreement between incumbents of two differing positions regarding role definitions. Specifically, it raised the question of whether consensus existed between professional and nonprofessional health workers in terms of their expectations for division of labor and for attributes and behaviors on the job. Analyses of the data that were obtained will be presented in two parts, with the first analysis being that of the division of labor, and the second being that of incumbent's expectations for attributes and behaviors for occupants of the two positions.

Division of Labor

Response patterns for the division of labor expectations of professionals and nonprofessionals in both environmental health and nursing are presented in Table 1. A cursory veiw of the percentages of tasks assigned by subjects to their own positions and to the counter positions suggests that subjects assign more job functions to their own position than to the counter position and that subjects assign more functions to their own position than incumbents of the counter position assign to it. Also the percentage of responses in "most technical" and "least technical" categories reveals apparent differences between the two groups.

Hypothesis 1 stated that the groups would differ in that incumbents of each group would assign more task functions to their own position than to

Table I

Percentage of Tasks Assigned by both Experimental Groups to Professional and to Nonprofessional Subjects

Subjects	All Items		"Most Technical" Items		"Least Technical" Items	
	Pro	Nonpro	Pro	Nonpro	Pro	Nonpro
Environmental Health						
Professionals[a]	61.2	38.8	80.9	19.1	35.5	64.5
Nonprofessionals[b]	33.96	66.04	38.6	61.4	19.3	80.7
Nurse Related						
Professionals[c]	59.0	41.0	98.0	2.0	12.5	87.5
Nonprofessional[d]	40.4	59.6	65.5	34.5	12.1	87.9

[a]N = 19 [b]N = 11 [c]N = 31 [d]N = 58

the counter position. To test the significance of difference between the two distributions, t-ratios were computed, testing the difference between mean responses of professionals and nonprofessionals in both environmental health and nursing. The requirements of this hypothesis made it necessary to statistically test between professional and nonprofessional distributions in regard to their responses for only one position since, but the nature of the original measure, one position is a "mirror image" of the other. That is, subjects could assign tasks to either professionals or nonprofessionals, but not to both; consequently, the score in one category determines the score

Table 2

T-Ratios and Levels of Significance for Tasks Assigned to Environmental Health Professionals[a]

Environmental Health Functions	Mean Response		T	P
	Professionals[b]	Nonprofessionals		<
All Items	20.68	11.54	3.856	.0005
"Most Technical" Items	6.47	3.09	5.417	.0005
"Least Technical" Items	2.84	1.55	2.247	.025

[a]Respondents were professionals and nonprofessionals in environmental health.

[b]N = 19

[c]N = 11

in the other. It was arbitrarily determined that the response distributions of professionals and nonprofessionals when evaluating the professional position would be the basis of analysis. It was also determined that any probability level that was equal to or less than $<.05$ would be accepted with confidence as indicating a lack of consensus between the two groups.

Table 2 shows the t-ratios obtained and the levels of significance for tasks assigned to professionals in environmental health by both professional and nonprofessional subjects in that division. When comparing the two group's responses for the professional position, it can be seen that

professionals in environmental health view more task functions as belonging to, or appropriate for, their own position than do nonprofessional subjects at a level of significance of $<.0005$.

Hypothesis 2, concerning the nature of responsibility, predicts a further lack of consensus when the two groups of role definers judge the appropriate position to which "most technical" and "least technical" tasks should be assigned. Part A of Hypothesis 2 states that nonprofessionals will assign relatively more "least technical" functions to professionals than will incumbents of the professional position. The t-ratio for "least technical" items in Table 2 disconfirms this prediction, as the mean response of environmental health professionals in veiwing "least technical" tasks as appropriate to the professional position was greater than the mean response of the nonprofessional group at a level of significance of $<.025$.

Part B of Hypothesis 2 is concerned with the extent of consensus between the two groups regarding the appropriate group to which "most technical" functions should be assigned. It specifically states that nonprofessionals will assign relatively fewer "most technical" functions to professionals than will incumbents of the professional position. The data in Table 2 suggest that this hypothesis is tenable, as the mean response of nonprofessionals is lower, with a t-ratio which is significant at $<.0005$.

Professional nurses and nurse-related nonprofessionals provide similar data for the testing of Hypotheses 1 and 2. In the "all Items" category, mean responses of professionals and nonprofessionals differed, with professional nurses assigning more over-all tasks to the professional position at a level of significance of $<.0005$. As to the nature of

responsibility, both parts of Hypothesis 2 is supported when the mean responses of professionals and nonprofessionals are compared in the assignment of "most" and "least" technical items to the professional position than did incumbents of the professional position, at a level of significance of $<.0005$.

Of the statistical tests made comparing the difference between distributions of nonprofessional subjects and professional subjects' responses over the division of labor items, five of the six tests were significant in the direction predicted. The sixth test was also significant but not in the predicted direction. The response of nurses and nurse-related personnel support each hypothesis, while professionals and nonprofessionals in environmental health support all but Part A of Hypothesis 2, in which the conclusion seems warranted that environmental health professionals, more so than nonprofessionals in that division, see more of the "least technical" task as appropriate to the professional position. This finding also supports the general hypothesis which predicts a lack of concensus.

Expectations for Attributes and Behaviors on the Job

Before testing the hypothesis regarding subject's expectations for position incumbents as to their attributes and behaviors on the job, the response patterns on the instrument, "On-The-Job Expectations," are presented. It should be recalled that the general hypothesis predicts a lack of consensus and that the four parts of the hypothesis predicts some specific points of dissent.

The analysis of the data involved viewing response both in terms

Table 3

T-Ratios and Levels of Significance for Tasks Assigned to Professional Nurses[a]

Nurse-Related Functions	Mean Response		T	P
	Professionals[b]	Nonprofessionals[a]		<
All Items	20.06	13.74	7.39	.0005
"Most Technical" Items	7.84	5.24	11.30	.0005
"Least Technical" Items	.968	1.45	1.96	.05

[a]Respondents were professionals and nonprofessionals in environmental health.

[b]N = 31

[c]N = 58

of frequencies of placements in the seven categories of the rating scale and in terms of the central tendencies of individuals in groups. For the general overview, placement frequencies by categories are described. Also for these analyses only the two basic groups are considered. Since the number of subjects differed, with 50 professionals and 76 nonprofessionals, the data in Table 4 and in Figures 1 through 4 are presented as percentages, with subsequent presentations being made in terms of frequencies and "scores".

Noticeable differences between the ways in which professional and nonprofessional subjects respond are suggested on inspection of Table 4. An apparent tendency for either group to respond differently to the two positions

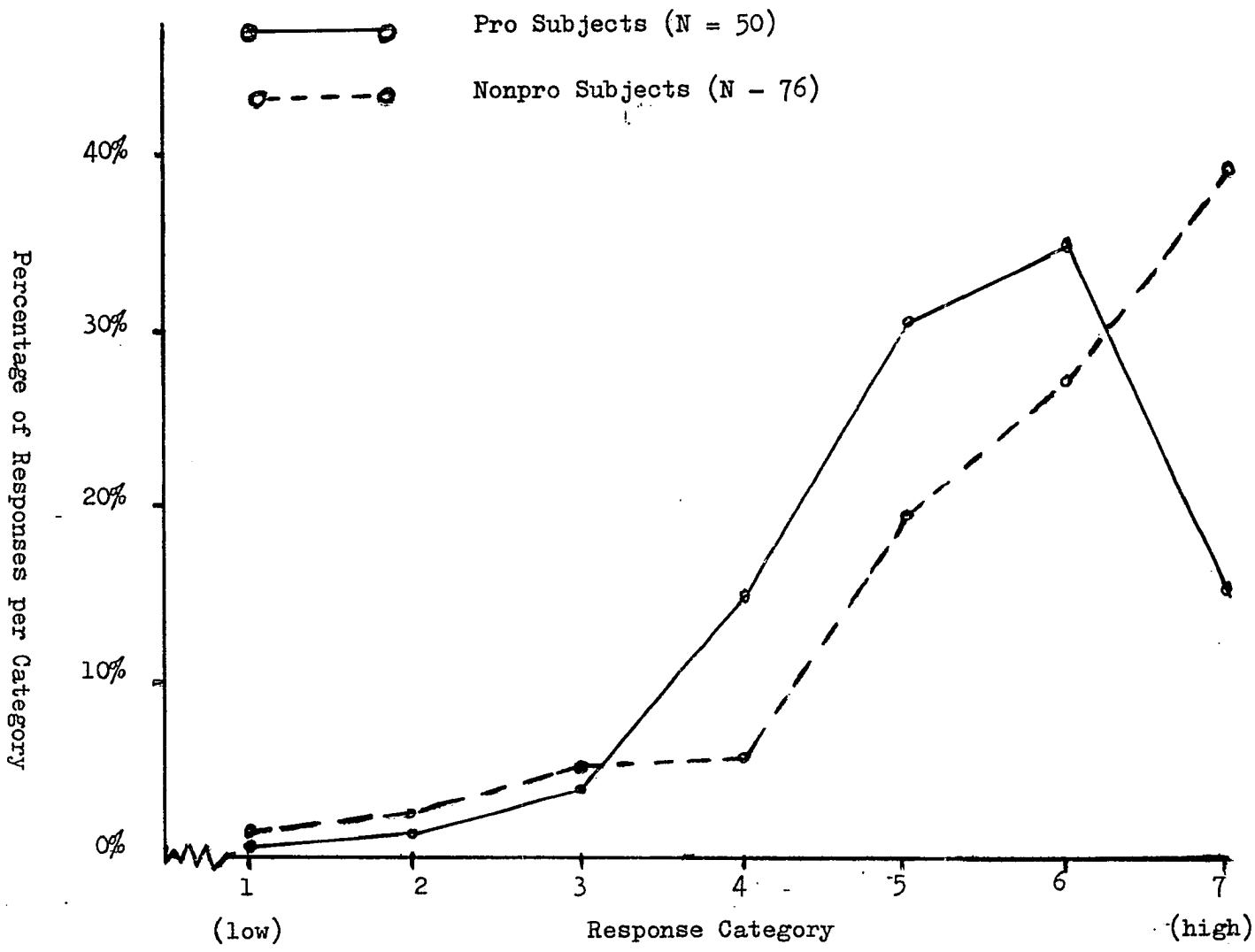

Figure 1. Percentage of Attribute and Behavior Items Placed in each Category by both Groups when Evaluating the Professional Position

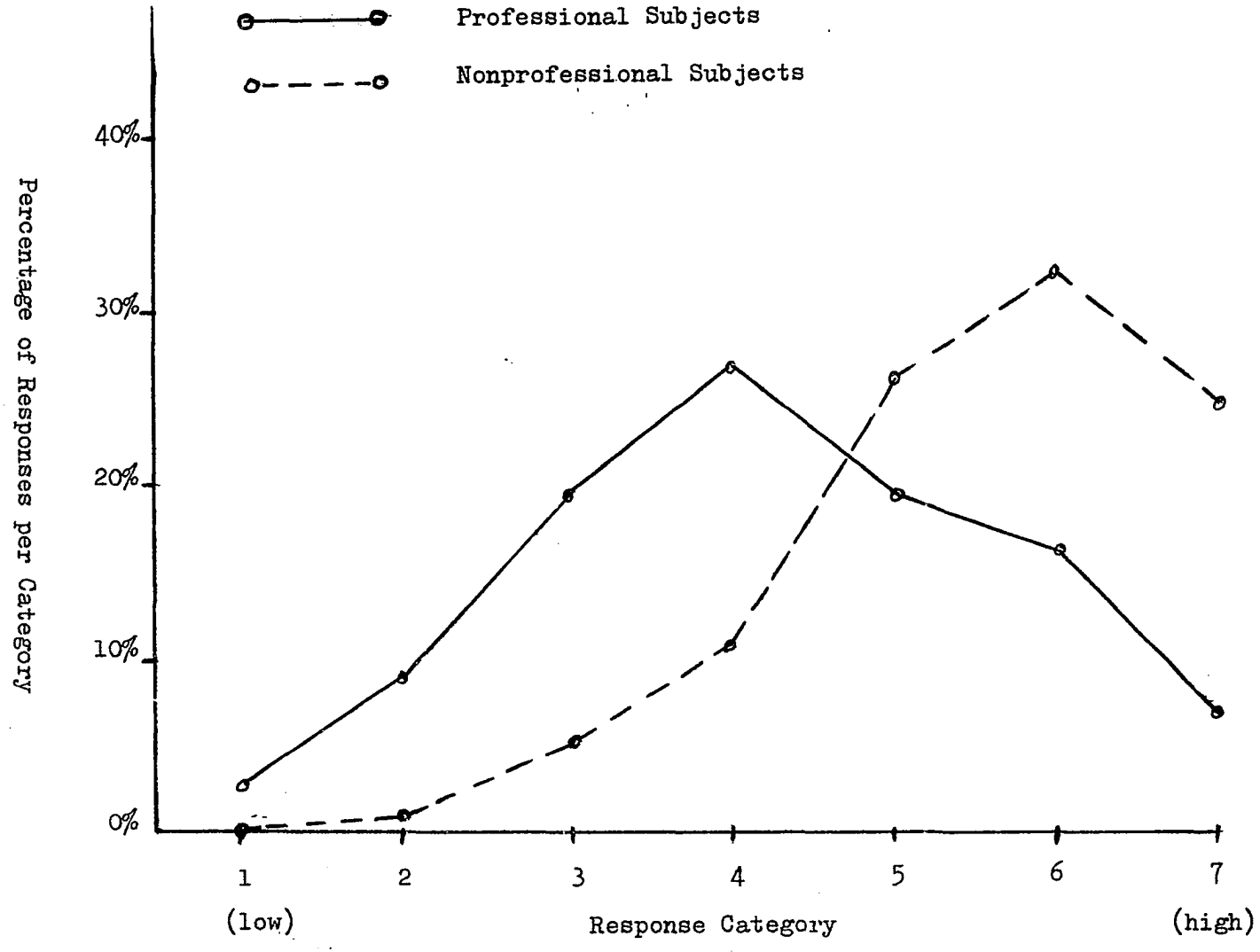

Figure 2. Percentage of Attribute and Behavior Items Placed in each Category by both Groups when Evaluating the Nonprofessional Position.

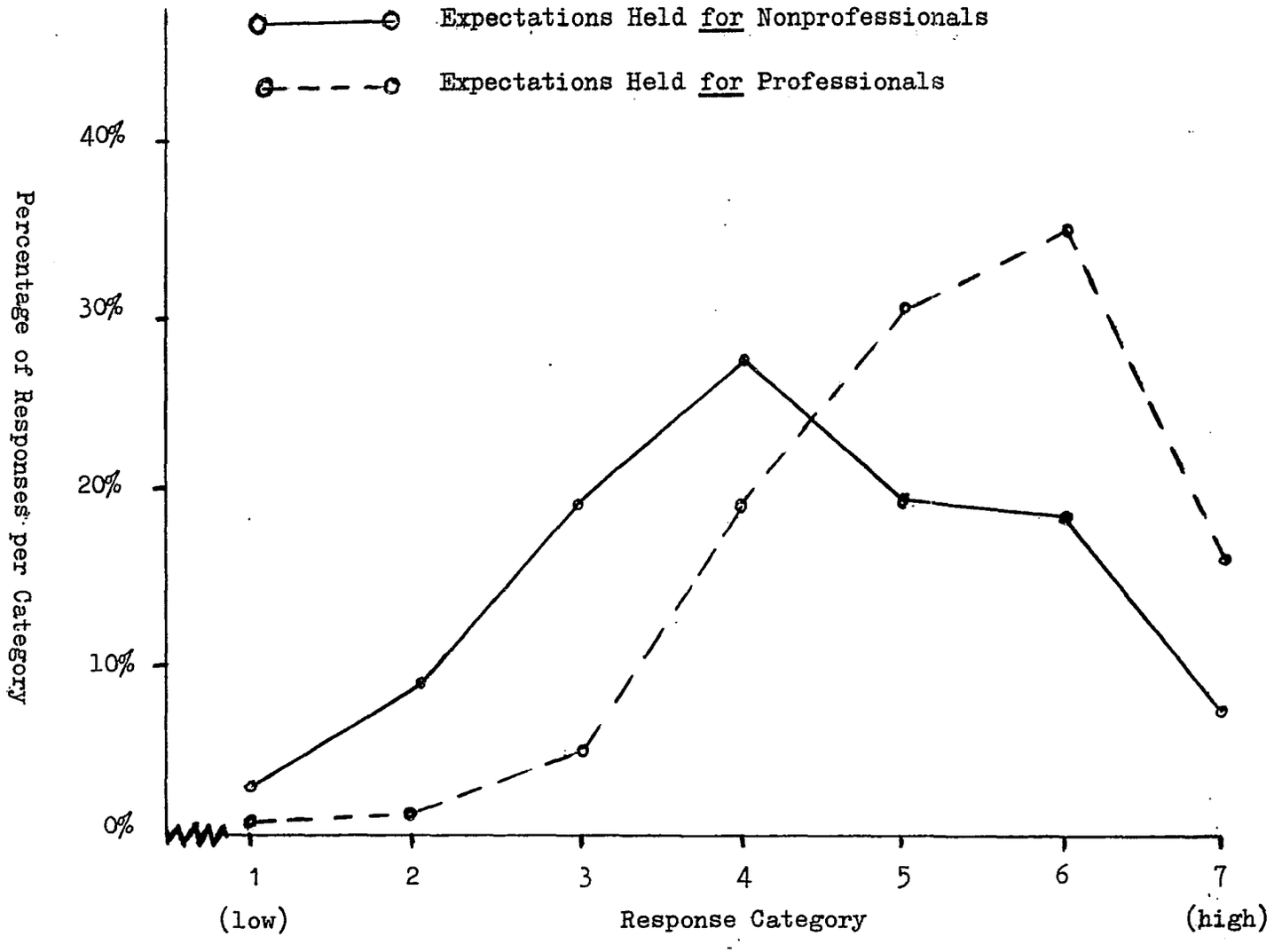

Figure 3. Percentage of Items by Categories Scored by Professionals for their Expectations for Attributes and Behaviors of both Professional and Nonprofessional Subjects.

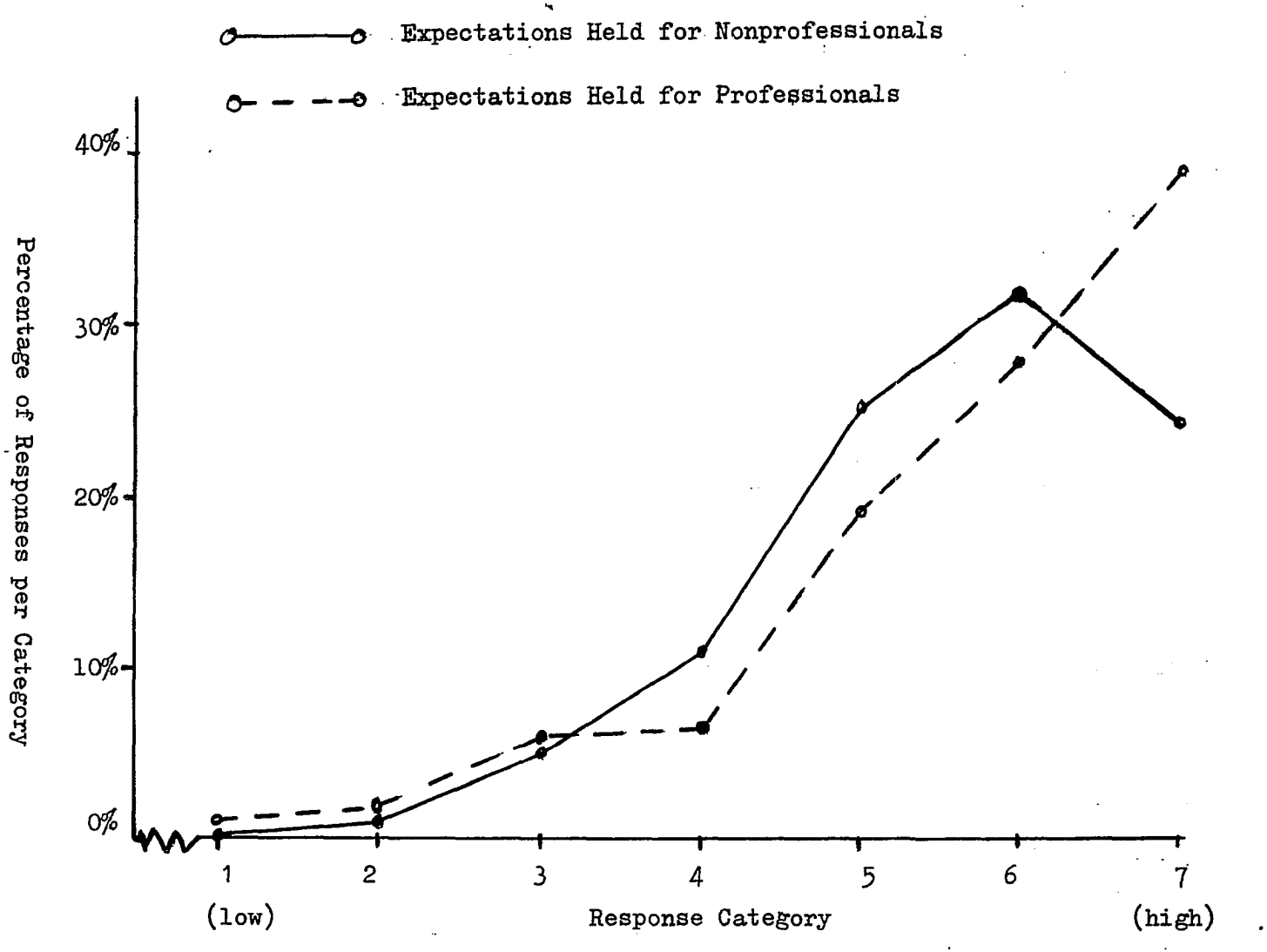

Figure 4. Percentage of Items Scored by Nonprofessionals, by Categories, for their Expectations for Attributes and Behaviors of both Professional and Nonprofessional Subjects

Table 4

Placement Category	Responses to Professional Position by: Professionals[a]	Nonprofessionals[b]	Responses to Nonprofessional Position by: Professional	Nonprofessional
1	0.5	0.6	2.3	0.0
2	1.4	1.5	8.4	1.5
3	4.4	5.1	18.7	4.9
4	13.8	6.8	26.7	10.9
5	30.6	19.6	19.1	25.4
6	33.5	27.4	17.6	32.5
7	15.9	38.9	6.7	24.5

[a] N = 50

[b] N = 76

might also be noticed. Figures 1, 2, 3 and 4 serve as aids to better visualize the relationships of the response patterns. The percentage of responses in each of seven categories when professional subjects and nonprofessional subjects evaluate the position of the health professional is presented in Figure 1. There appears to be little difference in the relative frequencies of responses at the "low" end of the scale, categories 1, 2, and 3. From category 4 to 7, the "middle" to "high" end of the scale, are 92.7 percent

of the nonprofessionals' responses and 93.7 percent of the professionals' responses. The two patterns separate in each of these categories, leaving wider distances in between.

Figure 2 reviews the expectations for the two groups with the nonprofessional as the object of evaluation. Here it can be recognized that the patterns are separated at all seven points, suggesting the likelihood of greater disagreement regarding expectations which the two groups hold for the nonprofessional position.

Figures 3 and 4 demonstrate precentage of responses which a single group scores for the two positions. Figure 3 gives the percentage of frequencies by categories, with professional subjects evaluating their own position and that of nonprofessionals. This comparison suggests that professionals hold higher expectations for attributes and behavior of professionals than for nonprofessionals. The nonprofessionals, on the other hand, reveal a pattern in Figure 4 which suggests that they expect much the same of themselves in the way of attributes and job behaviors as they expect of the professionals, except for a wider difference in category 7, the "highest" category.

It was determined that a single statistical test of the hypothesis would not be adequate even if it supported the general hypothesis and each of its four parts. Testing for the significance of the differences between the various means was desirable, but this alone would not reveal the location of differences that might exist, and it would tell nothing about the responses made on given items. The *t* test was selected to satisfy the former need and Chi Square for the testing of categorical differences on each item was selected to satisfy the latter need. For the 70 Chi Square tests that would be required to evaluate both positions on the 35 item

instrument, it was decided to dichotomize the frequencies into "low" and "high" categories and utilize the widely accepted 2 X 2 contingency formula, with a correction for continuity which, according to Siegel (1956), markedly improves the approximation of the distribution of the computed Chi Square by the chi square distribution.

In testing Hypothesis 3, t-ratios were first computed in order to test the significance of difference comparing four pairs of means. Part A predicts that nonprofessional subjects will demonstrate higher expectations for the nonprofessional position than will professionals. Inspection of the data in Table 5 reveals that the mean for professionals' responses was 144.16, while that for nonprofessionals was 193.79. The computed t yields a probability of $<.0005$, lending positive support to Part A of this hypothesis.

Part B states that nonprofessionals will demonstrate higher expectation levels for the professional position than will incumbents of that position. In this case, the mean score was 186.96 for professionals and 202.53 for nonprofessionals, yielding a t-ratio which was significant at $<.0005$, which supports Parts B of Hypothesis 3.

The final two parts of Hypothesis 3 require that the responses of each subject group in their ratings of professionals and nonprofessionals be considered separately. Part C states that professional subjects will hold higher expectations for the professional position than for the nonprofessional position. Since the data here are correlated, comparing professional responses toward the two positions, the computation of t utilized the sum of squares for the difference of the two sets of scores. The results (Table 5) support this part of the hypothesis at a level of significance of

Table 5

T Ratios and Levels of Significance when Comparing Professionals and Nonprofessionals on Expectations for Attributes and Behavior on the Job

Object[a] Group	Mean Response: Professionals	Mean Response: Nonprofessionals	T	P <
Professionals[b]	186.96	202.53	3.69	.0005
Nonprofessionals[c]	144.16	193.79	12.08	.0005
Subject Group[d]	Pro as Object	Nonpro as Object		
Professionals	186.96	144.16	11.72	.0005
Nonprofessionals	202.53	193.79	2.51	.01

[a]Compares responses between the two groups in rating (1) professionals and (2) nonprofessionals

[b]N = 50

[c]N = 76

[d]Compares rating of each group separately on the two measures

$< .0005$.

Since the sum of squares had previously been computed for each set of scores, the experimenter was willing to accept, for Part D of the hypothesis, the more stringent test based upon obtaining the standard error of the difference between the two means from the sum of squares rather than from the sum of squares for the difference (the procedure for uncorrelated data). This method yielded a t-ratio of 2.51, which was significant at

$< .01$, and which supports the prediction that nonprofessionals hold higher expectations for professionals than they hold for themselves.

Chi Square tests were made for the responses of both professional and nonprofessional subjects over each of the 35 items by casting the frequencies into "low-high" dichotomies. Since there was a tendency on the part of subjects to avoid the low placement categories, specifically categories 1-3, it was decided to separate "low" responses from "high" responses at a point near the center of the distribution. The combined medians of the two groups when evaluating nonprofessionals was nearest category 5, specifically 4.7, and for ratings of professionals was nearest category 6, specifically 6.3. Consequently, all ratings of nonprofessionals which were equal to or greater than five were assigned to the "high" category, while those that were four or less were assigned to the "low" category. Similarly, all ratings of professionals which were equal to or greater than six were assigned to the "high" category, while those that were five or less were assigned to the "low" category.

The data in Table 6 reveal an almost complete lack of consensus in regard to evaluation of the nonprofessional position, with statistically significant Chi Squares on 34 of the 35 items. Part A of Hypothesis 3 which stated that nonprofessionals will hold higher expectations for nonprofessionals is again supported, as the nonprofessional subjects on each of the 34 items held the higher expectations. Of these 34 items (97.1 per cent of the total) which had significance levels of $< .05$, 33 items, or 94.3 per cent of the total, were significant at $< .01$, with 30 of the items, 85.7 per cent of the total, being significant at $< .001$.

With this kind of consistency relative to the expectations held for

the nonprofessional position, there is little analysis that can be done in regard to how the two groups differ along items. Except in Item 2, "equality on the job," the responses of professionals fall uniformly into the low category and those of nonprofessionals into the high category. Although there are more items revealing what might cautiously be termed "consensus" when the two groups evaluate the professional position, the same basic pattern hold in terms of direction. For the evaluation of professionals, on only two items do the professionals hold higher expectations for themselves than nonprofessionals hold for them, and these two items do not have the statistical significance to imply more than a chance difference. On the 18 items (51.4 per cent of the total) where the two groups do not differ significantly, one must interpret whether this implies the existence of consensus, or if it merely implies the absence of any strong disagreement.

Part B of Hypothesis 3 is given further support by the analysis of individual items. That part of the hypothesis stated that nonprofessional subjects will hold higher expectations for incumbents of the professional position than incumbents of that position hold for themselves. While the two groups do not differ significantly on 51.4 per cent of the items, their differences on the remaining 48.6 per cent of the items find all of the highest expectations being held by the nonprofessional group. That is, in all cases where professionals and nonprofessionals differ in regard to their expectations for attributes and behavior of professionals, it is the nonprofessional who holds the highest expectations.

Although it was previously determined to accept as significant any probability values of $< .05$, it might be instructive to note the intensity of those significant differences. When the professional position is

Table 6

Chi-Squares and Levels of Significance for "Attributes and Job Behavior" Expectations held by both Groups for Incumbents of Professional and Nonprofessional Positions

Item (Brief Description)	Group Holding Highest Expectations for: Nonprofessional Position			Professional Position		
	Group	Chi-Square	P <	Group	Chi Square	P <
1. Positive Influence	Nonpro	4.98	.05	Nonpro	0.22	.70
2. Equality on job	Nonpro	1.51	.30	Pro	0.11	.80
3. Intelligent behavior	Nonpro	21.90	.001	Nonpro	16.30	.001
4. Initiative	Nonpro	45.25	.001	Nonpro	6.90	.01
5. Punctuality	Nonpro	20.15	.001	Nonpro	6.30	.02
6. Judgment	Nonpro	20.15	.001	Nonpro	8.90	.01
7. New Ideas	Nonpro	10.78	.01	Nonpro	4.80	.05
8. Accept Supervision	Nonpro	18.23	.001	Nonpro	4.50	.05
9. Effective use of experience	Nonpro	7.18	.01	Nonpro	0.85	.50
10. Loyalty	Nonpro	17.43	.001	Nonpro	4.40	.05
11. Neatness, Cleanliness	Nonpro	15.08	.001	Nonpro	12.50	.001
12. Maintain own health	Nonpro	23.99	.001	Nonpro	13.80	.001
13. Accuracy	Nonpro	29.23	.001	Nonpro	1.10	.30
14. Honesty	Nonpro	16.51	.001	Nonpro	0.10	.80
15. Handling problems	Nonpro	14.75	.001	Nonpro	0.22	.70
16. Liking Professionals	Nonpro	20.01	.001	Pro	0.23	.70
17. Cooperation	Nonpro	25.98	.001	Nonpro	0.998	.80
18. Effectiveness without Supervision	Nonpro	34.79	.001	Nonpro	0.10	.80

Table 6 (Continued)

Item		Group Holding Highest Expectations for: Nonprofessional Position			Professional Position		
		Group	Chi-Square	P <	Group	Chi-Square	P <
19.	Supporting nonpros	Nonpro	14.83	.001	Nonpro	0.22	.70
20.	Helpful relationships with clients	Nonpro	15.23	.001	Nonpro	1.65	.20
21.	Comfort with supervisors	Nonpro	26.40	.001	Nonpro	4.30	.05
22.	Respecting ability of nonprofessionals	Nonpro	32.25	.001	Nonpro	2.17	.20
23.	Making good decisions	Nonpro	18.81	.001	Nonpro	6.91	.01
24.	Socializing with professionals	Nonpro	9.20	.01	Nonpro	.70	.80
25.	Effective Planning	Nonpro	20.72	.001	Nonpro	4.22	.05
26.	Supporting nonpros	Nonpro	17.13	.001	Nonpro	1.07	.30
27.	Positive Staff influence	Nonpro	21.70	.001	Nonpro	4.63	.05
28.	Socializing with nonprofessionals	Nonpro	24.68	.001	Nonpro	2.39	.20
29.	Potential as health worker	Nonpro	20.06	.001	Nonpro	2.33	.20
30.	Asking opinions of professionals	Nonpro	23.84	.001	Nonpro	6.37	.02
31.	Supporting professionals	Nonpro	16.02	.001	Nonpro	5.01	.05
32.	Asking opinions of nonprofessionals	Nonpro	19.04	.001	Nonpro	2.33	.20
33.	Dependable	Nonpro	40.96	.001	Nonpro	22.18	.001
34.	Liking professionals	Nonpro	40.68	.001	Nonpro	1.03	.50
35.	Respecting ability of professionals	Nonpro	24.37	.001	Nonpro	9.07	.01

evaluated by the two groups, only four items (1.1 per cent of the total) are significant at $< .001$. Eight items (22 per cent of the total) are significant at .01, and 17 items (48.6 per cent of the total) are significant at $< .05$. On the other hand, when the nonprofessional position is evaluated by the two groups, 30 of the 34 items (85.7 per cent of the total) find the two groups differing at a significance level of $< .001$, with the remaining four items having significance levels of $< .01$ (three items) and $< .05$ (one item).

Three general hypotheses regarding role expectations for the professional position and the nonprofessional position as evaluated by two experimental groups, one consisting of professional health workers and the other of indigenous nonprofessional health workers, were tested. Of the first two hypotheses, concerning expectations for division of labor, the first was supported in that the two groups did assign more task functions to their own position than to the counter position, with the extent of such assignments being statistically significant, as reported. The second hypothesis, divided into two parts, was supported by professionals and nonprofessionals in nursing. For environmental health personnel the results were statistically significant but not in the direction predicted. That is, nurse-related nonprofessionals assigned more of the "least technical" functions to professionals than professionals assigned to themselves, while the reverse held true for professionals and nonprofessionals in environmental health. The second part, Part B, was supported by both groups, including nursing and environmental health sub-groups, as nonprofessionals assigned relatively fewer of the "most technical" functions to professionals than professionals assigned to themselves.

Hypothesis 3 was supported in each of its four parts, with t-ratios

well under the level of acceptable probability. That is, the prediction of a lack of consensus between professional and nonprofessional subjects in regard to their expectations for attributes and job behaviors of incumbents of both positions was positively supported. In addition, Chi Square values were computed to compare the two groups' responses by items. These values and their associated probabilities, when applied to Parts A and B of Hypothesis 3, lend additional support to the general prediction that the two groups disagree in regard to their expectations for attributes and job behaviors, while specifically supporting Parts A and B.

CHAPTER IV

DISCUSSION OF RESULTS

The general concern of this study was with the role relationships which were developing between newly employed nonprofessional health workers and professional health workers, most of whom were previously employed by the health department in which the study was made. More specifically, the experimental procedure was directed toward determining whether consensus existed between the two populations in regard to how they view or define their roles, as measures were made of how each individual evaluates both the professional and nonprofessional positions. Such evaluations were stated in terms of expectations which role definers within the two groups hold in terms of (1) the division of labor, and (2) attributes and job behaviors of professional and nonprofessional position incumbents.

The assumption that was frequently made by cultural anthropologists, social psychologists, and sociologists that consensus exists on the expectations applied to the incumbents of particular social positions has been challenged in recent years, notably by Gross et al (1958). This study has sought to provide an empirical contribution to the theoretical question of role consensus and, at the same time, to provide immediately usable knowledge concerning role relations between professional and indigenous nonprofessional members of health and social service organizations. The nonprofessional members in this study were labeled "indigenous nonprofessionals" to differentiate nonprofessional employees who are residents of a "hard core" poverty area from the essentially middle class white collar

workers. The results of the research are stated in terms of these two populations: professional health workers, such as nurses and environmental health personnel; and indigenous nonprofessional health workers.

Among the assumptions of this study are two which are particularly relevant to a discussion of the results. One of these assumptions was that when indigenous nonprofessional health workers are placed in a team relationship with professional health workers, a consequence will be the construction of a system of interrole relations characterized by dissent and conflict. Such an assumption was prompted by an awareness of certain conditions which appear to exist with professionals who enjoy majority membership but who, by virtue of their occupancy of a majority position, do not enjoy high status. For example, nurses in public health programs, as well as the professionals in environmental health in public health programs, constitute a majority of the employees of a health department, but their positions do not appear to rank high within the hierarchical arrangements of the general medical community. Lefcowitz (1964) has commented on this situation in terms of the marginal man concept, in which he suggests that a high level of "professionalism" does not exist in such circumstances because the professional sees little worth attached to his position relative to other professional positions and that he maintains a stance which is essentially defensive in regard to his status and worth.

The other critical assumption was that role consensus is seldom complete, but that social systems require a degree of consensus such that individuals may perform differentiated and specialized functions, receive recognition, develop satisfying interpersonal relations, and direct their performances (activities) in a more or less integrated and consistent

fashion toward practicable ends. What are the consequences, then, of imposing upon a "professional majority" an even larger number of "indigenous nonprofessionals" who have similar needs for performance, recognition, relationships, and integrated and consistent goal direction? It would appear that resultant problems of role consensus are at least confounded, if new ones are not actually created, by role ambiguities already existing for public health professionals, particularly in terms of their striving to achieve an appropriate structural location within the general health profession. But it was thought equally important to investigate such a question from the vantage point of the nonprofessional position. From these and related questions, the hypotheses of conflict were developed in terms of consensus between the two populations regarding the differentiation of functions (division of labor) and the more general expectations which the two groups hold relative to attributes and job behavior of incumbents of the two positions. The concern might be stated in another way, i.e., it seems important to know how occupants of positions fit into the social system and to know some of the important sources of conflict. Perhaps the findings are necessary first steps toward developing means for ameliorating conditions of unnecessary strain.

The general prediction of the existence of a lack of consensus was supported by the measurements made. That is the two groups, professionals and nonprofessionals, were not in agreement regarding the expectations which they held for incumbents of either position. The expectations which professionals held for professionals were greater than the expectations which they held for nonprofessionals, but not as great as the nonprofessionals' evaluation of the professional position. These conclusions are supported

by the analysis of the attributes and behavior measure, and lend support to the notion previously suggested that professional public health workers, such as those described in this study, do not view their position as being particularly high, especially in comparison to the high level of expectations which nonprofessionals hold for that position.

On the other hand, the evaluations which nonprofessionals make of the professional position might well be an "idealized" conceptualization, viewed from an impoverished background in which even the samllest successes were significant. This again raises the question of whether the subjects' expectations were normative or predictive. Were nonprofessionals predicting what the attributes and performances of professionals would actually be, or were they expressing expectations for the ideal pattern? These questions deserve further study, but the fact remains that when the two groups are asked to evaluate the actual performance expected of professionals, there is little consensus to be found in their response patterns.

On the matter of attributes and behaviors expected on the job, the lowest scores were assigned to nonprofessionals by professionals, while incumbents of the nonprofessional position tended to hold much higher expectations for themselves than the professionals held for them. This area of disagreement may be of particular significance in terms of actual role relationships which are negotiated between members of the two groups in their routine contacts. The professional appears to exhibit an attitude toward the nonprofessional such that he expects far less from him than the nonprofessional expects to contribute. The point was made by Grant (1965) that the nonprofessional must be taken seriously as a contributing member and that expectations for performance must be high. It was further suggested

that sanctions should be imposed for failure to meet expectations, just as they are imposed on the professional.

It follows that if expectations for the attributes and performance of the indigenous nonprofessional are not high, then sanctions for his behavior must be correspondingly low. If both expectations and sanctions are established at a low level, it would seem difficult for a position occupant to feel that he is being taken seriously as a contributing member of the organization. In such a situation the available alternatives for behavior appear equally self-defeating. Acceptance of the inferior role by the nonprofessional has obvious faults, but it might also be the reaction involving the least strain for the individual. There appears to be two other general alternative modes of behaving, one of which is to assert one's right to be a contributing work member and to expect of others that they hold similar expectations of him. The anticipation of such behavior might well be a basic reason why expectations for the nonprofessional is low, in that such behavior may be perceived as threatening to occupants of the higher position. Zander et al (1957), found, for example, that when the occupant of a higher status position perceives threat from below, he will try to keep those roles in an inferior position.

Another alternative mode of behaving when one feels that he is not being taken seriously as a contributing work member might include avoidance of the occasion, segregation, or some form of covert behavior designed to avoid the requirements that do exist for him. The point of such speculation is that failure to achieve some degree of consensus on role definition is socially dysfunctional and poses a threat to both the individual worker and

to the organization.

The two instruments used for measuring consensus in terms of division of labor also provide interesting results. One might guess that if the attitudes of nonprofessionals are such that they hold high expectations for their own attributes and performances that they would also expect to acquire a number of meaningful task functions in their work as contributing members of a health team. Similarly, it might be anticipated that if the attitudes of professional health workers are such that a need exist to protect what has been the majority position and to defend against the threat of professional marginality that they would yield few tasks to the nonprofessional, with those which they did yield being primarily low-level or the "least technical" functions.

On both instruments, one concerning nursing and the other concerning environmental health functions, the predictions of dissent were supported. The fact that nonprofessionals expect to acquire a number of meaningful functions to perform, and the fact that professionals do not expect them to have many of those functions, provides a basis for conflict which militates against the development of satisfactory relationships. While the two groups differed significantly on all predictions, an interesting point is that one prediction, that nonprofessionals would assign more of the "least technical" functions to professionals than the professionals assign to themselves, resulted in a significant difference in the direction opposite that which was predicted. Nonprofessionals found such functions suitable to their perceptions of the nonprofessional role, but the environmental health professionals assigned even more of the "least technical" functions to themselves than were assigned to them by nonprofessionals. This finding was somewhat

unexpected, as it was anticipated that those in professional positions would wish to yield those functions which required no professional knowledge and skill to perform.

The interpretation of the cause of such phenomena remains a matter of conjecture within the limitations of the present study. However, the previous suggestions of professional marginality and the defense of one's position might be considered among the possible causes. It has been the primary objective of the present research to test the proposition that, in the process of developing role relations, professioanls and nonprofessionals will differ in their definitions of appropriate roles for members of the two different positions. Significant differences were found between the two groups to the extent that interrole conflict might exist in sufficient intensity to unnecessarily limit the effective attainment of the organization's goals as well as the personal satisfactions of individual members of the organization.

It has been argued elsewhere that conflict within and between groups is not only inevitable but also desirable in that dissent leads to growth and change. Such arguments have merit, but it seems equally important to know how much consensus is required for a social system to maintain itself, and also be able to identify or, more importantly, to predict some of the critical bases for the development of conflict. Racial prejudice, for example, might be such a base, but experience has taught us that changing basic attitudes of prejudice, when successful at all, consumes more time than is usually available for a given situation. The analysis of roles might be a more effective means of identifying sources of dissent, and if a degree of consensus can be achieved such that improved interpersonal relations

and greater job satisfaction and accomplishment is obtained, underlying attitudes might well be improved in the process.

The present study supported the contention of Gross et al (1958) that consensus cannot be presumed. The results of the inquiry clearly indicate that occupants of different positions do not hold the same expectations. Additionally, the location of conflict areas reveal that expected attributes and behaviors of position occupants, as well as expectations for the assumption of responsibilities and performance tasks, are among those conflict areas that are critical enough to warrant attention. When disagreement is a matter of contention between occupants of two separate positions, each of which contain large numbers of individuals, intergroup relations and coordination of activities risk becoming no more than empty gestures. The practical consequences of the failure of groups to achieve more satisfactory relationships should be a major cause for concern.

It is strongly recommended that other similar experimental studies of the role relations between professionals and nonprofessionals, particularly in socially oriented action programs, be developed. The potentials of indigenous nonprofessionals in such programs have been demonstrated. It remains now an important challenge for behavioral scientists to assist employing organizations in finding the most effective ways to free this potential.

CHAPTER V

SUMMARY

A review of the theoretical background for the study or roles, as well as a brief history of the utilization of indigenous nonprofessional workers in medical and socially oriented action programs was presented. The subjects chosen for the present research consisted of 76 nonprofessional health workers and 50 health professionals, from whom responses were elicited concerning role relationships between the two groups. The primary concern was to examine for the existence of consensus on role expectations in terms of the division of labor and for attributes and behavior on the job.

The need for such a study is related to the failure in behavioral science to bring together the empirical methodologies of role theory and the problems of role consensus and conflict presumed to exist when indigenous nonprofessionals are employed as a team member along with professional personnel in service agencies. The rapid growth of such relationships have not been accompanied by adequate investigations of their consequences for interpersonal and intergroup relations and resultant implications for organizational effectiveness and individual job satsifaction.

Instruments of measurement developed for the study included (1) a measure of expectations for attributes and behavior on the job, and (2) two related instruments for assessing expectations for the division of labor, one for nures-related personnel and the other for environmental health personnel. The division of labor instruments included two submeasures each, one for the "most technical" tasks and the other for the

"least technical" tasks.

The following hypotheses were tested:

1. Incumbents of both the professional and nonprofessional positions will specifiy a division of responsibility such that more task functions are assigned to their own position than to the counter position.

2. In specifying the nature of responsibility:

A. Incumbents of the nonprofessional position will assign relatively more of the "least technical" functions to professionals than will incumbents of the professional position.

B. Incumbents of the nonprofessional position will assign relatively fewer of the "most technical" functions to professionals than will incumbents of the professional position.

3. Incumbents of the professional and nonprofessional positions will demonstrate a lack of consensus in regard to their expectations for the attributes and job behaviors of incumbents of both positions:

A. Nonprofessional subjects will demonstrate higher expectation levels for the nonprofessional position than will professionals.

B. Nonprofessional subjects will hold higher expectations for incumbents of the professional position than incumbents of that position hold for themselves.

C. Professional subjects will hold higher expectations for the professional position than for the nonprofessional position.

D. Nonprofessional subjects will hold higher expectations for the professional position than for the nonprofessional position.

Results of each of the measures and sub-measures supported the hypotheses. The results of the attributes and behavior measure revealed

statistically significant differences in expectancy levels held by the two groups for both the professional and nonprofessional position. The expectations which professionals held for incumbents of the professional position were greater than the expectations which they held for incumbents of the nonprofessional position. However, expectations held by professionals for their own position were not as great as those held by nonprofessionals for that position.

There was no consensus between the groups on the division of labor measures. Each group assigned more functions to his own position than to the counter position, and they disagreed in regard to the assignment of "most technical" and "least technical" functions. Nonprofessional subjects expect to perform a number of meaningful functions which the professional believes to be appropriate to the professional position. Nonprofessionals assigned more of the "least technical" functions to the professionals than professionals in nursing assigned to themselves, but the reverse of this situation was true for professionals and nonprofessionals in environmental health.

With the results clearly indicating that the occupants of the different positions did not reach consensus, conflict areas were located which seemed critical enough to warrant attention. Also the postulate of consensus, which has frequently been asserted or implied by role theorists, was rejected. It was suggested that the analysis of roles might be among the more effective means for identifying sources of dissent, and that such identification is an important first step toward the improvement of interpersonal relations and job satisfactions in organizations.

It was recommended that further experimental studies relative to the

problems of role relations be undertaken. A suggestion was that studies similar to the present one be developed to better understand the relationship between indigenous nonprofessionals and professionals in socially oriented, action programs.

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A P P E N D I X

A P P E N D I X A

ITEMS FOR THE INVENTORY OF NURSE RELATED FUNCTIONS

1. Providing health teaching.
2. Providing elements of first aid.
3. Formulating a nursing plan of care.
4. Administering injections.
5. Teaching irresponsible mothers improved methods of household management and child care.
6. Running errands for a patient.
7. Obtaining medical and family histories of patients.
8. Giving Tuberculin skin tests.
9. Preparing food for homebound patients.
10. Administering premartial blood tests and other diagnostic tests.
11. Applying surgical dressings.
12. Discussing the nutritional value of foods.
13. Disposing of waste material from sick room.
14. Assisting physician in the examination of patients.
15. Planning and conducting educational programs.
16. Assisting home patients in carrying out personal hygiene and sanitation measures.
17. Following a plan of treatment written by the doctor.
18. Bathing the patient.
19. Explaining precautionary measures to patients with communicable diseases in order to prevent transmission of the disease.
20. Providing back rub for the patient.

21. Discussing importance of regular mouth care.

22. Feeding the disabled patient.

23. Providing heat therapy.

24. Measuring urine output.

25. Explaining to mothers how to take of newborn babies.

26. Recording patient information.

27. Encouraging patient to become more self-directing within medically determined limitations.

28. Discussing inexpensive ways to prepare food for children.

29. Keeping inventories.

30. Making home visits in pre-natal and post-natal cases.

31. Contacting school officials in connection with school health programs.

32. Making patient's bed.

33. Planning health education programs.

34. Assisting in problems of family spending and budgeting.

APPENDIX B

ITEMS FOR THE INVENTORY OF ENVIRONMENTAL HEALTH WORKERS

1. Inspecting for the presence of rats or other rodents.
2. Investigating complaints relating to meat quality and taste.
3. Visiting in a home to explain health problems of an unsanitary environment.
4. Planning and assigning work to other sanitarians.
5. Arranging for charts, film, or other audio-visual aids for training classes.
6. Condemning food products found unfit for human consumption.
7. Inspecting garbage and toilet facilities after a complaint has been received.
8. Explaining sanitation rules and regulations to public groups.
9. Maintaining a route book.
10. Assisting in sanitary inspections of public use facilities.
11. Operating slide and film strip projectors.
12. Collecting samples for laboratory tests.
13. Investigating complaints regarding unsanitary conditions.
14. Photographing "blight" areas.
15. Encouraging members of a community to conduct clean-up campaigns.
16. Making sanitary inspection of restaurants.
17. Compiling information about sanitary conditions brought to the attention of the Department.
18. Using a chlorine test kit.
19. Inspecting sewage, waste treatment and disposal systems.

20. Testing for toxicity and adulteration in foods.

21. Making percolation tests and borings.

22. Inspecting wholesale meat establishments.

23. Making sanitation surveys in a district or community.

24. Maintaining records of sanitary conditions.

25. Detecting indiscriminate dumping.

26. Identifying areas with excess vegetation growth.

27. Taking notes on an environmental survey.

28. Reporting obvious violations of the sanitation codes.

29. Planning food training classes for food handlers.

30. Conducting food training classes.

31. Assisting in school sanitation surveys.

32. Making routine checks to determine if recommendations are being carried out.

33. Inspecting tourist courts and similar establishments to enforce sanitation laws.

34. Working with other community health workers to improve sanitary conditions in a community.

APPENDIX C

Tasks and Functions judged to be "Most Technical" and Least Technical"

Nurse-Related

"Most Technical" Items	"Least Technical" Items
1. Providing health teaching	6. Running errands for a patient
3. Formulating a nursing plan of care	9. Preparing food for homebound patients
4. Administering injections	13. Disposing of waste material from sick room
7. Obtaining medical and family histories of patients	16. Assisting home patient in carrying out personal hygiene and sanitation measures
15. Planning and conducting education programs	18. Bathing the patient
25. Explaining to mothers how to take care of new born babies	21. Discussing importance of regular mouth care
31. Contacting school officials in connection with school health programs.	22. Feeding the disabled patient
33. Planning health education programs.	32. Making patient's bed

Environmental Health

1. Inspecting for the presence of rats or other rodents	9. Maintaining a route book
4. Planning and assigning work to other sanitarians	11. Operating slide and film projectors
6. Condemning food products found unfit for human consumption	14. Photographing "blight" areas
8. Explaining sanitation rules and regulations to public groups	15. Encouraging members of a community to conduct a clean-up campaign

20. Testing for toxicity and adulteration in foods

22. Inspecting wholesale meat establishments

24. Making sanitation surveys in a district or community

33. Inspecting tourist courts and similar establishments to enforce sanitation laws

25. Detecting indiscriminate dumping.

26. Identifying areas with excess vegetation growth

28. Reporting obvious violations of the sanitation codes

32. Making routine checks to determine if recommendations are being carried out.

A P P E N D I X D

ITEMS FOR THE ATTRIBUTES AND BEHAVIOR INSTRUMENT

1. Influencing patients in a positive manner.
2. Working as an equal with other employees.
3. Acting intelligently on the job.
4. Showing initiative.
5. Being punctual.
6. Using good judgement.
7. Offering new and useful ideas.
8. Accepting supervision.
9. Using experience to advantage on the job.
10. Being loyal
11. Being neat and clean
12. Maintaining good personal health
13. Being accurate.
14. Being honest.
15. Handling difficult problems.
16. Liking professional employees.
17. Encouraging cooperation.
18. Working effectively without supervision.
19. Giving support to nonprofessional staff.
20. Establishing helpful relationships with residents in the project area.
21. Being comfortable with supervisors.

22. Respecting the ability of the nonprofessional staff.
23. Making good decisions.
24. Socializing with professional staff.
25. Planning effectively.
26. Giving support to nonprofessional staff.
27. Influenzing staff in a positive manner.
28. Socializing with nonprofessional staff.
29. Becoming an effective health worker.
30. Asking opinions of professional staff.
31. Giving support to professional staff.
32. Asking opinions of nonprofessional staff.
33. Being dependable on the job.
34. Liking nonprofessional staff.
35. Respecting the ability of professional staff.

APPENDIX E

Dichotomized Frequencies on Expectations for Attritutes and Behaviors when the Nonprofessional Position is Evaluated

Item	Sample: Pro (N = 50) Nonpro (N = 75)	Frequencies Low	High	Item #	Sample:	Frequencies Low	High
1	Pro	31	19	15	Pro	35	15
	Nonpro	30	45		Nonpro	25	50
2	Pro	28	22	16	Pro	32	18
	Nonpro	15	60		Nonpro	15	60
3	Pro	26	24	17	Pro	30	20
	Nonpro	9	66		Nonpro	11	64
4	Pro	39	11	18	Pro	34	16
	Nonpro	12	63		Nonpro	11	64
5	Pro	27	23	19	Pro	22	28
	Nonpro	11	64		Nonpro	9	66
6	Pro	31	19	20	Pro	26	24
	Nonpro	17	58		Nonpro	13	62
7	Pro	31	19	21	Pro	32	18
	Nonpro	23	52		Nonpro	13	62
8	Pro	24	26	22	Pro	30	20
	Nonpro	9	66		Nonpro	13	62
9	Pro	13	37	23	Pro	33	17
	Nonpro	13	62		Nonpro	19	56
10	Pro	18	32	24	Pro	34	16
	Nonpro	4	71		Nonpro	29	46
11	Pro	19	31	25	Pro	34	16
	Nonpro	6	69		Nonpro	20	55
12	Pro	25	25	26	Pro	28	22
	Nonpro	7	68		Nonpro	14	61
13	Pro	35	15	27	Pro	36	14
	Nonpro	15	60		Nonpro	21	54
14	Pro	21	29	28	Pro	36	14
	Nonpro	7	68		Nonpro	19	56

29	Pro	25	25
	Nonpro	11	64
30	Pro	26	24
	Nonpro	8	67
31	Pro	22	28
	Nonpro	8	67
32	Pro	29	21
	Nonpro	17	58
33	Pro	29	21
	Nonpro	4	71
34	Pro	28	22
	Nonpro	12	63
35	Pro	19	31
	Nonpro	2	73

A P P E N D I X F

Dichotomized Frequencies on Expectations for Attributes and Behaviors when the Professional Position is Evaluated

Item #	Sample: Pro (N = 50) Nonpro (N = 76)	Frequencies Low	High	Item	Sample	Frequencies Low	High
1	Pro	24	26	14	Pro	18	32
	Nonpro	32	44		Nonpro	25	51
2	Pro	23	26	15	Pro	26	24
	Nonpro	37	39		Nonpro	35	41
3	Pro	19	31	16	Pro	18	32
	Nonpro	5	71		Nonpro	33	43
4	Pro	24	26	17	Pro	23	27
	Nonpro	18	58		Nonpro	31	55
5	Pro	26	24	18	Pro	41	9
	Nonpro	28	48		Nonpro	29	45
6	Pro	24	26	19	Pro	31	19
	Nonpro	16	60		Nonpro	32	42
7	Pro	33	17	20	Pro	35	15
	Nonpro	31	45		Nonpro	28	46
8	Pro	30	20	21	Pro	43	7
	Nonpro	29	47		Nonpro	31	43
9	Pro	12	38	22	Pro	37	12
	Nonpro	12	64		Nonpro	31	44
10	Pro	20	30	23	Pro	42	8
	Nonpro	16	60		Nonpro	49	26
11	Pro	15	35	24	Pro	39	10
	Nonpro	4	72		Nonpro	54	21
12	Pro	23	27	25	Pro	39	11
	Nonpro	11	65		Nonpro	47	27
13	Pro	22	28	26	Pro	37	13
	Nonpro	24	52		Nonpro	37	38

27	Pro	44	6
	Nonpro	37	38
28	Pro	45	5
	Nonpro	51	24
29	Pro	35	15
	Nonpro	27	48
30	Pro	32	17
	Nonpro	17	58
31	Pro	31	19
	Nonpro	27	48
32	Pro	37	13
	Nonpro	37	38
33	Pro	26	23
	Nonpro	9	67
34	Pro	33	16
	Nonpro	9	67
35	Pro	18	32
	Nonpro	9	67

APPENDIX G

Responses of Nurses and Environmental Health Professionals on the Attributes and Behavior Items

Environmental Health Professionals			Nursing Professionals		
Subject #	Object of Evaluation: Nonpro	Pro	Subject #	Object of Evaluation: Nonpro	Pro
1	137	193	1	138	168
2	140	183	2	168	190
3	137	151	3	115	176
4	146	149	4	174	241
5	118	191	5	138	202
6	117	203	6	127	179
7	182	185	7	150	172
8	169	200	8	168	195
9	115	164	9	155	165
10	146	200	10	158	174
11	136	202	11	152	159
12	168	225	12	112	198
13	128	176	13	230	208
14	118	182	14	175	179
15	147	226	15	220	244
16	95	184	16	140	204
17	141	152	17	120	181
18	57	230	18	149	212

Appendix G (continued)

19	135	136	19	134	166
			20	113	152
			21	174	162
			22	123	201
			23	139	157
			24	121	162
			25	140	185
			26	155	200
			27	138	202
			28	140	167
			29	156	180
			30	162	213
			31	192	212

A P P E N D I X H

Scores of Nonprofessional Personnel on Attributes and Behavior Items

Subject #	Object of Evaluation		Subject #	Object of Evaluation	
	Nonpro	Pro		Nonpro	Pro
1	154	195	21	198	204
2	194	204	22	149	231
3	198	208	23	223	198
4	190	177	24	213	198
5	226	222	25	157	192
6	181	108	26	139	189
7	192	175	27	180	199
8	179	215	28	195	157
9	161	201	29	234	204
10	189	157	30	197	233
11	197	180	31	153	199
12	233	189	32	200	222
13	189	209	33	151	172
14	181	163	34	210	225
15	168	203	35	186	195
16	197	212	36	203	231
17	204	221	37	205	206
18	222	233	38	231	201
19	183	207	39	187	204
20	214	193	40	209	242

Appendix H (continued)

41	180	185	65	187	165
42	167	232	66	180	221
43	217	224	67	218	211
44	174	216	68	191	221
45	178	190	69	234	215
46	241	198	70	203	200
47	200	171	71	179	158
48	224	237	72	172	227
49	NR	187	73	201	164
50	176	210	74	243	182
51	199	188	75	153	211
52	190	232	76	149	224
53	191	188			
54	266	230			
55	186	234			
56	230	188			
57	213	190			
58	209	228			
59	200	225			
60	209	216			
61	196	219			
62	190	190			
63	178	197			
64	138	206			

APPENDIX I

The following is a frequency distribution of Attributes and Behavior items of professionals and nonprofessionals when the nonprofessional position is the object of evaluation.

Item	Responses of: Pro (N = 50) Nonpro (N = 76)	Statement Placement Category 1	2	3	4	5	6	7
1	Pro	3	6	5	17	8	7	4
	Nonpro			7	23	23	17	5
2	Pro	1	2	12	12	13	6	3
	Nonpro			4	11	15	30	15
3	Pro	1	3	10	12	8	12	3
	Nonpro			3	6	11	27	28
4	Pro	2	8	15	14	7	4	
	Nonpro			4	8	18	32	13
5	Pro	1	1	7	17	11	8	3
	Nonpro		1	3	7	19	22	23
6	pro	1	3	11	16	10	6	3
	Nonpro		1	5	11	19	27	12
7	Pro	2	6	10	13	13	4	2
	Nonpro			7	16	29	17	6
8	Pro	1	4	9	10	9	14	3
	Nonpro		1	3	5	9	33	23
9	Pro	2	4	3	4	15	16	6
	Nonpro		3	3	6	13	28	21
10	Pro		2	8	8	14	13	3
	Nonpro				4	10	27	34
11	Pro	1	2	5	9	10	15	5
	Nonpro			1	3	5	24	42
12	Pro	1	1	7	16	12	8	5
	Nonpro		1	1	5	12	27	29

Appendix I (continued)

13	Pro	1	7	12	15	5	6	4
	Nonpro		1	4	10	22	23	15
14	Pro	1		6	13	12	10	6
	Nonpro		1	1	4	16	20	32
15	Pro	3	12	11	8	7	7	1
	Nonpro		3	8	14	34	10	6
16	Pro		3	19	10	6	10	2
	Nonpro		2	5	8	25	18	16
17	Pro	1	7	7	15	6	9	5
	Nonpro			2	9	20	27	17
18	Pro	1	10	14	9	7	5	4
	Nonpro		2	2	7	18	24	21
19	Pro	1	3	7	10	9	11	7
	Nonpro		1	1	6	23	27	15
20	Pro	1	5	11	9	9	10	5
	Nonpro			3	9	15	27	19
21	Pro	1	7	8	16	11	5	2
	Nonpro		1	5	6	19	29	14
22	Pro		3	11	15	7	8	3
	Nonpro		1	2	4	23	27	16
23	Pro	1	1	12	19	9	6	2
	Nonpro			6	12	30	19	6
24	Pro	3	7	11	12	6	7	3
	Nonpro		6	10	13	25	17	4
25	Pro	1	6	14	13	5	10	1
	Nonpro			8	12	27	19	8
26	Pro	1		11	16	9	9	4
	Nonpro		1	1	12	23	22	16
27	Pro	1	8	13	14	8	5	1
	Nonpro	1	1	6	13	30	16	8
28	Pro	1	9	12	14	9	4	1
			3	8	8	32	18	6

Appendix I (continued)

29	Pro	1		6	17	10	12	2
	Nonpro		1	2	8	16	29	19
30	Pro	1	1	5	13	12	13	4
	Nonpro		2	1	5	9	35	23
31	Pro		3	4	14	8	14	4
	Nonpro		2	3	3	20	24	23
32	Pro	1	6	7	15	8	9	4
	Nonpro		4	5	8	20	25	13
33	Pro	1	2	8	18	10	7	4
	Nonpro			2	2	8	24	38
34	Pro	1	2	6	18	15	4	2
	Nonpro			3	7	17	27	20
35	Pro	1	2	6	10	13	11	6
	Nonpro		1	1		5	27	41

A P P E N D I X J

The following is a frequency distribution of Attributes and Behavior items of both groups when the professional position is the object of evaluation.

Item	Responses of: Pro (N = 50) Nonpro (N = 76)	Statement Placement Category 1	2	3	4	5	6	7
1	Pro			1	5	18	20	6
	Nonpro	1	1	5	6	19	10	34
2	Pro			4	9	11	18	8
	Nonpro	2	2	7	6	20	20	19
3	Pro			1	4	14	20	11
	Nonpro			1		4	24	47
4	Pro			4	5	15	18	8
	Nonpro		1	2	6	8	18	39
5	Pro			2	8	16	19	5
	Nonpro		4	5	6	13	19	29
6	Pro			1	2	21	18	8
	Nonpro			3	4	9	18	42
7	Pro			2	7	24	11	6
	Nonpro			3	8	19	19	25
8	Pro			5	10	15	13	7
	Nonpro		3	7	8	11	15	31
9	Pro			1	3	8	26	12
	Nonpro			2	5	5	21	43
10	Pro			2	7	11	20	10
	Nonpro		1	4	1	10	15	45
11	Pro			1	4	10	19	16
	Nonpro			2	1	1	12	60
12	Pro			1	9	13	16	11
	Nonpro				5	6	18	47
13	Pro			2	7	13	16	11
	Nonpro			4	4	16	29	23

Appendix J (continued)

14	Pro			2	7	9	16	16
	Nonpro			4	6	14	15	36
15	Pro				8	18	21	3
	Nonpro			4	5	26	22	19
16	Pro				6	12	23	9
	Nonpro	1		5	3	24	19	24
17	Pro				8	14	16	11
	Nonpro		2	1	4	13	22	32
18	Pro		1	1	4	16	18	10
	Nonpro	1		2	6	20	26	19
19	Pro		1	3	7	12	17	8
	Nonpro	1	4	2	8	16	17	16
20	Pro			4	10	17	9	9
	Nonpro		1	8	3	25	13	26
21	Pro		1	1	7	21	12	8
	Nonpro	1		2	9	18	29	17
22	Pro	1	4	4	11	15	10	5
	Nonpro	1	6	8	6	21	18	16
23	Pro			1	7	19	17	5
	Nonpro			2	4	17	24	28
24	Pro			2	9	14	19	6
	Nonpro	1		3	8	19	36	19
25	Pro			2	6	31	17	5
	Nonpro			4	4	18	25	24
26	Pro		1	2	6	17	16	8
	Nonpro		3	6	4	22	16	22
27	Pro		1	1	10	17	14	7
	Nonpro			4	3	20	26	22
28	Pro	3	8	13	10	12	2	2
	Nonpro	4	4	16	16	21	8	7

29	Pro				6	12	23	8
	Nonpro			2	3	12	23	33
30	Pro				9	16	16	9
	Nonpro			3	4	12	23	33
31	Pro	1		1	1	15	20	10
	Nonpro			1	4	9	34	37
32	Pro	4	5	9	7	15	6	4
	Nonpro	4	6	8	9	22	16	19
33	Pro		1	2	5	18	16	7
	Nonpro				2	7	27	40
34	Pro		2	1	15	15	20	6
	Nonpro		2	4	9	27	20	13
35	Pro				3	15	19	13
	Nonpro			2	1	6	21	46

A P P E N D I X K

Scores of Professional Subjects on Division of Labor Items when Evaluating the Professional Position

Subject #	All Items	"Most Technical" Items	"Least Technical" Items
	Environmental Health Professionals		
1	19	4	5
2	31	8	1
3	24	6	5
4	12	5	6
5	26	8	2
6	17	7	0
7	19	7	2
8	18	7	1
9	12	6	0
10	19	7	3
11	24	7	4
12	16	5	2
13	26	8	2
14	19	7	2
15	21	7	2
16	21	7	2
17	16	4	2
18	33	5	4
19	20	8	8
	Professional Nurses		
1	23	8	0
2	22	8	0

3	18	7	5
4	25	8	0
5	23	8	1
6	17	8	2
7	21	8	1
8	13	8	1
9	23	8	4
10	20	8	0
11	22	8	0
12	21	8	1
13	28	8	1
14	16	8	2
15	20	8	0
16	18	7	0
17	19	7	4
18	16	8	1
19	19	8	0
20	17	7	0
21	14	8	0
22	28	8	1
23	17	8	2
24	16	8	3
25	22	8	0
26	20	8	0
27	18	8	0
28	22	8	1
29	30	7	0
30	16	8	1
31	18	8	0

APPENDIX L

Scores of Nonprofessional Subjects on Division of Labor Items when Evaluating the Professional Position

Subject	All Items	"Most Technical" Items	"Least Technical" Items
	Environmental Health		
1	2	2	1
2	16	3	2
3	15	2	2
4	12	5	4
5	6	2	0
6	3	1	0
7	10	2	1
8	15	3	2
9	7	2	2
10	18	5	2
11	23	7	1
	Nurse-Related		
12	14	7	0
13	11	4	0
14	14	3	1
15	8	4	0
16	10	6	0

17	15	6	0
18	19	8	1
19	18	6	2
20	15	5	1
21	15	5	1
22	18	7	1
23	10	5	0
24	13	6	1
25	9	1	0
26	13	6	1
27	11	6	0
28	10	3	0
29	14	5	1
30	14	6	1
31	13	4	1
32	11	5	1
33	16	6	2
34	12	5	2
35	12	3	3
36	14	7	1
37	17	8	1
38	22	7	1
39	13	4	1
40	14	7	0
41	14	2	1

42	10	0	0
43	12	5	1
44	13	4	1
45	10	4	1
46	7	4	1
47	15	6	1
48	15	2	3
49	10	5	1
50	15	8	1
51	10	2	0
52	14	7	0
53	13	6	1
54	17	7	0
55	18	6	0
56	14	5	2
57	11	4	1
58	14	5	1
59	17	7	0
60	21	7	1
61	15	8	2
62	15	5	3
63	17	7	2
64	14	6	1
65	11	4	1
66	10	4	0
67	18	7	1

68	11	6	0
69	19	6	1

70 - 76 Clerical Personnel - not specifically related to either nursing or environmental health, and not included in the analysis.