OBSERVATION OF COMMUNICATION BEHAVIOR

THE DEVELOPMENT OF A RESEARCH METHOD

for use in

HEALTH CARE ORGANIZATIONS

by

Mary Elizabeth McGill

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We accept this thesis as conforming to the required standard:

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Mary Elizabeth McGill

Department of Commerce and Business Administration

The University of British Columbia
2075 Wesbrook Place
Vancouver, Canada
V6T 1W5

Date August 9, 1976
ABSTRACT

The objective of the Dissertation was to validate Robert Bales' Interaction Process Analysis, and to adapt the method for analysis of staff and patient communications on a hospital ward. A comprehensive review of the group, organizational, and health care literature emphasized the lack of instruments for observing actual communication behavior in this organizational context. The study therefore focused on refining the research method, rather than on analyzing specific interaction patterns.

A four-month field study was conducted in a 300-bed rehabilitation and extended care hospital in Southern Saskatchewan. Two wards were selected for study—an adult physical rehabilitation unit and a chronic setting. Subjects included all patients on the two wards, their families, and all staff involved in direct or indirect provision of care.

A team of two non-participant observers coded dyadic communication behavior in-process on the wards. Hypotheses were tested regarding the relative importance of organizational position and context in explaining the variance of the interaction profiles. Support was also sought for the construct and face validity of the instrument.
The Dissertation included details of the method and the training required to enable other researchers to employ the technique. Procedures for providing feedback to the subjects were also delineated, as active participation was considered crucial to the project's success.

Partial support was obtained for two aspects of the construct validity of Interaction Process Analysis—the inclusiveness of the categorization and the independence of the category frequencies. Evidence of face validity was also given. A multivariate analysis of variance demonstrated that the position dyad was the most significant explanatory variable for the interaction profile, but the particular observer was also an important factor. The impact of organizational context varied with the dimension. Alternative explanations were given for the observer effect, and directions explored for future research.

The study concluded that Bales' Interaction Process Analysis has a definite contribution to make to the study of behavior in health care organizations.

Vance F. Mitchell,
Thesis Supervisor
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No man is an island,
No man stands alone.

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Between 1967 and 1972, teamwork with staff and patients at Wascana Hospital caused me to rethink my career objectives, and stimulated my return to university in search of a broader understanding of organizational behavior and health care research. The past four years of study at U.B.C. were creative because of the variety of personal contacts, particularly the faculty and graduate students in the Organizational Behavior Division of the Faculty of Commerce and Business Administration, and members of the
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Betty McGill
Vancouver, British Columbia
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A. **INTRODUCTION:**

Development and validation of a method for observing and analyzing communication behavior of staff and patients on a hospital ward are the objectives of this dissertation.

The study begins with an examination of the problems of functional specialization and coordination facing today's health care organizations. Communication is one method of achieving horizontal coordination between members of the treatment team, but instruments are not available for observing actual interaction behavior in the organizational setting. Their potential contribution to an understanding of coordination in health care organizations is recognized, and thus the rationale for the thesis is developed.

Four key areas are emphasized in the literature review--role theory, the communication process, communication studies in health care, and observational methods. Robert Bales' *Interaction Process Analysis* (IPA) is seen as the most promising approach to studying communication behavior in health care organizations. However, theoretical validation and methodological refinements of this instrument are required before specific interaction patterns can be interpreted.
Eight hypotheses concerning the construct validity of IPA and its use on the hospital ward are generated from issues raised in the literature and the results of a pilot study conducted by the researcher.

Design of the present research follows logically from the foregoing analysis. Location and sample for the four-month field study are described, the research model delineated, and variables operationally defined. Developmental aspects of the research are discussed before the final data collection is described.

After summarizing the results of the study, an outline is given of the process for feedback to the participating organization. The functional utility of the method is thereby assessed. In discussing the findings, implications for communication theory, observational studies, and organizational research are also examined.

The investigator's long-term goal is to develop a set of methods which could be used by researchers and staff in health care organizations to observe their communication behavior and analyze its efficiency and effectiveness.

B. RATIONALE:

"As medical practise has become more specialized, it has become more impersonal .... It has also become more interdependent .... Since specialization creates interdependence, it creates the need for coordination (Thompson, 1961, p. 48,50)."
One of the major dilemmas confronting organizations in the 1970's is the need for functional specialization as opposed to coordination. This problem was discussed by many early management theorists. Fayol (1949, p. 20) recognized that specialization of functions was the natural result of the division of work duties advocated by Taylor. Gulick (1937, p. 6) emphasized that the subdivision of work led inevitably to the necessity for coordination. Recent analyses by Lawrence and Lorsch (1967) and Hall (1972) support the interdependence of these two dimensions.

Organizations have several alternative mechanisms for achieving coordination. Vertical coordination, as discussed by Mooney (1937) and Gulick (1937), is generally handled either through structural approaches such as organizational design or through the use of formal authority and power. Horizontal coordination is achieved by the development and exchange of ideas, frequently referred to as "communication".

According to Roberts, O'Reilly, Bretton, and Porter (1974), "Communication seems to tie organizations together. Consequently, the relationship of various facets of communication to other processes such as coordination and decision-making appears to us to have high pay-offs in terms of understanding organizational behavior (p. 520)."

However, "communication" as an organizational process has received little attention from theorists and empirical researchers (Porter & Roberts, 1972).
Because of the exponential growth of medical knowledge during this century, providers of direct or indirect patient care have been forced to specialize. Health care organizational structures reflect this development. Total units such as treatment centres or hospitals are frequently separated according to age of patient (pediatric, adolescent, adult, geriatric), level of care (acute, rehabilitation, activation, chronic), and/or disease classification (e.g., arthritis, psychiatric, cancer). Within all of the above types of institutions, specialization occurs by function (nursing, housekeeping, medical staff). Functional specialization is thus a key dimension of today's health care organizations.

Such specialization, however, necessitates coordination.

The "team approach to patient care" has evolved as a method for coordinating these highly specialized disciplines. Considerable disagreement exists over conceptual and operational definitions of the "health team". Many authors have assumed it to be an organizational objective; a number have attempted to operationalize the concept; a few believe that they have succeeded\(^1\). Significantly, a recent study by Crichton (1975) found that staff in relatively well-defined units were unable to

\(^1\) For a thorough review of this literature, see Warner's (1975) annotated bibliography of health care teamwork (p. 1-119).
establish the boundaries of their team.

Wessen's (1958) analysis of "Hospital ideology and communication between ward personnel" determined that health personnel limited their volume of inter-departmental interaction. They channeled the majority of their communications within occupational lines. Georgopoulos and Mann (1962) reported similar findings in their study of perceived patterns of information exchange in community general hospitals.

Differing behavior patterns of health specialists have been hypothesized to create barriers to coordination of patient care, but few empirical attempts have been made to explore this dimension. Researchers have studied such organizational variables as climate and leadership styles as perceived by members. Less attention has been paid to developing methods for recording actual behavior in situ. Dubin (1962), in "Business behavior behaviorally viewed", presented many of the early studies which explored this dimension. He stated,

"If behavioral science means what it says, then behavior and the situations of behavior must be the first level of analysis.... Perhaps it would be productive of immediate and very substantial advances if good behavioral scientists rediscovered behavior as their central datum (p. 11,51)."

Kerlinger (1966, p. 503-525), and Sellitz, Jahoda, Deutsch, and Cook (1959, p. 199-234), have provided a foundation for students of the observational method. However, in spite of the availability of such references, few recent empirical studies have used observational methods.
to study organizations. This may be because such investigations often take the researcher into methodologically muddy water. The large number of uncontrollable variables in the organizational context makes behavioral studies prone to systematic error variance (Thorndike, 1949, p. 75).

Measurement of communication behavior is a particularly challenging task because of the absence of a theoretical foundation on which to build empirical investigations. The lack of instrumentation can be partly attributed to the dynamic aspects of the process (Roberts & O’Reilly, 1974b). The amorphous nature of the concept of communication is also a contributing factor (Roberts & O’Reilly, 1974a).

In summary, to understand the process of coordinating specialized departments in health care organizations, more comprehensive and reliable techniques for measuring actual communication behavior of staff and patients must be developed. Only in this way can subjects’ perceptions of interaction be combined with their observed behavior patterns to give a comprehensive picture of the total organizational communication system.

C. BACKGROUND:

Between 1967 and 1969 the researcher conducted a pilot study of "Staff communication in a rehabilitation hospital,"
and its relation to integration of patient care" (McGill, 1968) at Wascana Hospital, a 300-bed rehabilitation and chronic-care facility in Regina, Saskatchewan. The first year was spent attempting to develop a method for content coding of verbal interactions. During this period, it became increasingly apparent that the critical behavioral dimension was how staff and patients interacted, rather than what they said, since the content of their communication was primarily determined by the nature of the problem at hand. Efforts were then focused on developing a set of categories for "how" people communicated. As the result of an extensive literature search and dialogue with other researchers, the decision was made that Robert Bales' Interaction Process Analysis (IPA) (1950a) was the most appropriate instrument for the situation.

There were several reasons for this choice. The first was the desire to use an existing instrument which was at least partially validated rather than to develop a new one. The second was the decision to monitor the process of communication rather than its content. This narrowed the alternatives to three--Flanders' (1970) Interaction Analysis, Chapple's (1949) Interaction Chronograph, and Bales' (1950a) Interaction Process Analysis. Flanders' was eliminated because the categories would have required extensive modification for use in a hospital setting. Of the other two, Bales' categorization was considered to have a more comprehensive theoretical foundation.
Bales' method, which was developed for the small group laboratory, required modification of data collection procedures before it could be used in the organizational context. Appropriate changes were made, and a pilot study was attempted on all six hospital wards. Data from two wards were not useable because of the age of patient (children) or the informality of the ward atmosphere (veterans). Analysis of interaction patterns on the other four wards indicated that the modified form of IPA could isolate communication profiles for specific occupational groups at a particular ward location. Findings also offered some support for the construct validity of the instrument (see Appendix A). However, because of difficulties in computerizing the pilot study data, further validation was required before the instrument could be comprehensively assessed.

D. OBJECTIVE:

The objective of the research was to determine whether Interaction Process Analysis, a general set of communication process categories, can give reliable and valid interaction profiles across a broad spectrum of staff and patient positions in a health care organization. This goal was to be accomplished by:
(a) refining the method of data collection for use on a hospital.
(b) assessing the construct validity of Bales' communication categorization.
(c) developing and documenting a procedure for training health care personnel to use the instrument.
(d) examining the utility of the data for health care administrators and practitioners.

E. LITERATURE REVIEW:

The present research evolved to fill gaps in the theoretical and empirical literature on organizational communication. Since an integrated approach to the problem of measurement did not exist, four areas were examined which had a relevant contribution to make: role theory, the communication process, communication studies in health care, and Bales' Interaction Process Analysis. The first three are discussed briefly; emphasis is given to the fourth, as it provided the major methodological foundation for the study.

1. Role Theory:

The term "role" has different connotations across the social sciences (Gordon, 1966). Its psychological usage is conceptually broader—a role is a set of behaviors exhibited by all incumbents of a particular social position—e.g. the "role" of the nurse. Sociologists generally view a role as one subset of consistent norms within a social position.
Role thus governs particular types of behavior of the incumbent—e.g. the nurse in the "role" of supervisor. The latter, narrower definition is used throughout this presentation.

Bates (1955-6) clarifies the concepts "position", "role", and "norm":

"1. Position: A location in a social structure which is associated with a set of social norms.

2. Role: A part of a social position consisting of a more or less integrated or related sub-set of social norms which is distinguishable from other sets of norms forming the same position.

3. Norm: A patterned or commonly held behavior expectation. A learned response, held in common by members of a group (p. 314)."

He maintains that within a given culture there are a limited number of roles which are combined in various ways for different social positions. For example, the role of "mother" could be shared by persons in many positions: "nurse", "social worker", and "housekeeper". The position of "nurse" could contain a number of roles: "mother", "subordinate", "supervisor", "woman", "clerk", "friend", "coordinator", "nurturer", "medicine dispenser", etc.

The definition of "position" is clarified by Biddle and Thomas (1966). They describe it as,

"...a collectively recognized category of persons for whom the basis for such differentiation is their common attribute, their common behavior, or the common reactions of others toward them (p. 29)."

The concept of "role," in the narrower sense discussed above, is not as easily understood. D. J. Levinson (1959) identified three of its uses:
(a) organizationally given role demands--role expectations of others.

(b) personal role definition--role expectations which the incumbent places upon himself.

(c) role behavior--actual performance.

It would appear that a unifying concept of "role" is not available to parallel "position". One of the hallmarks of a particular social position is that it is easily identifiable. In contrast, a specific role may be difficult to ascertain. The investigator must distinguish whether reference to a role means self-expectations, others' expectations, or overt behavior. For example, a social worker in the role of "supervisor" may have certain expectations about appropriate interaction behavior. These expectations may be quite different from those of social work aides, the director of social services, patients, and families, which, in turn, can differ from each other. Actual role behavior may reflect a combination of all of the above expectations, as well as personality and situational influences.

Figure 1 depicts McGill's (1975) model of the organizational position "staff nurse". A personality core is added to Bates' conception of the position-role relationship. Between the personality and the set of role expectations of the position a dotted line has been drawn to denote a permeable interface allowing for (and, indeed, necessitating) their interaction.
McGill suggests that for each recognizable staff or patient position there is a "position-set" analogous to Merton's (1966) description of "status-set" as a "...complex of distinct positions assigned to individuals both within and among social systems (p. 74)." Social workers on a hospital ward, for example, would have stable patterns of interaction with those in their position-set (staff nurse, physiotherapist, occupational therapist) but not with those outside it (electrician, dietary aide).

Returning to Figure 1, boundary relationships between the position and the organizational environment can be depicted by the outer line of the ellipse. It, too, should be drawn with a broken line to indicate permeability. The length of the interface between a position and a particular social environment can be considered proportional to the amount of reciprocity which the incumbent has with others in that position-set. For example, the outer boundary for a nurse, who is in contact with many persons on the ward during an eight-hour shift, would be longer than that for the hospital administrator, who visits the ward only occasionally to converse with the head nurse.
Gouldner (1960) examined reciprocity in exchange relationships within a dyad, concluding that power can be balanced or unbalanced in the short-run, but in the long-run will reach equilibrium. While he restricted his analysis to complementary roles such as father/son or supervisor/subordinate, reciprocity also can be examined between organizational positions such as physiotherapist/pharmacist. Thus it may be postulated that within a position-set, stable reciprocity relationships can be identified.

Reciprocities can also be examined using the model in Figure 1. When two positions are placed in organizational proximity and the incumbents are required to interact, reciprocal role expectations may complement, supplement, or conflict with each other. For example, given the positions "staff nurse" and "nursing attendant," the role expectations for supervisor/subordinate would generally be complementary. Those for medication-dispenser/bed-maker would supplement each other. Areas of potential conflict could be created if incumbents of both positions were expected to coordinate other staff or nurture the patient.

Given the above complexities, distinguishing between role expectations and role behavior in an organizational context is a complex task. Initial analyses of reciprocal communication behavior can therefore be more fruitfully undertaken at the level of the "collectively recognized" social position.
2. The Communication Process:

The communication literature has been reviewed on three levels of analysis—the underlying structure of conversations, and studies of the organization and of the group. Most discussions have focussed on intra-individual processes—experience, encoding, decoding, perception and interpretation. In contrast, very little attention has been paid to the inter-individual dimension of information transmission.

Individual communication theory, which relies heavily on the findings of developmental and abnormal psychology (e.g. Lewin, Rogers), was of tangential relevance and was not reviewed in depth. Since the study's objective was to develop a consistent, reliable, and useful instrument, inclusion of ambiguous non-verbal interaction was not considered to be appropriate. Literature dealing with this dimension was therefore only briefly examined (Swenson, 1973, P. 81-114).

a) The structure of conversations. Anthropologists have developed the ethnographic method for comparative study of cultures. In this research technique, the organized practises of everyday social life are meticulously observed and analyzed in an objective manner. Sociologists have refined the technique for application to smaller analytical units, including the interpersonal communication setting. Texts on ethnography of communication edited by Sudnow
and Turner (1974) shed considerable light on how conversations are structured. Such issues as how "openings", "sequencing", and "talking to" versus "talking for" are accomplished are particularly relevant as they provide a framework into which the communication process can be fitted.

b) The organization. Much of the literature on organizational communication (e.g., Thayer, 1961, 1968) has a strongly prescriptive bias. Few original theoretical contributions have been made. Roberts et al. (1974b) decry the lack of theoretical models for integrating communication with other variables. Their multi-level approach to the definition of organizational communication (interpersonal, within-organizational, organizational-environmental) is a first step in this direction. Gibb's (1972a, 1972b) Trust Openness Realization of Interdependence theory (TORI) is another attempt to bridge this gap. Likert (1961), Miles (1975), and many other organization theorists use communication principles as a part of their analyses of organizational climate and behavior, but have not developed original conceptual frameworks.

While recent empirical studies of communication by O'Reilly and Roberts (1974; Roberts & O'Reilly, 1974a) focused on perceived communication, these researchers emphasized the incompleteness of such data. The need for research programs to describe organizational communication
behavior is recognized, but such research has generally been limited to tabulating the frequency of verbal or written acts.

One exception is Rackham and Honey's (1972) discussion of behavioral evaluation of training in two organizations. They considered Bales' approach but rejected it as not providing the desired type of data for training.

Significant progress has also been made in the educational sphere. Several field studies of communication processes were reported at the American Psychological Association's 1961 "Symposium on conceptual frameworks for analysis of classroom social interaction." Two of these are of particular relevance.

Lewis and Newell (1962) observed classroom behaviors using fourteen categories which seemed to be an extension of Bales' dimensions. They focused on two major classifications of communicator—sender and receiver. The 1962 article was described as a "preliminary report", but no later references have been located.

Flanders (1962, 1970) developed an observation scheme for analyzing teacher-pupil verbal communication in a classroom. While his ten interaction categories are specific to the educational setting, his method for training observers has been well documented. He studied interaction between singular and grouped social positions ("teacher" and "pupil" respectively), but this combination does not appear to have detracted from the utility of the tool. This is an
important finding since many other organizations have both
types of positions within a single position-set.

Amidon and Hough's (1967) collection of papers on
Flanders' method brought together the experiences of a
number of researchers who have attempted to quantify
classroom interaction behavior. Many of the methodological
issues considered in their text (e.g. research design,
observer training, reliability, applications for inservice
training programs) are relevant to other organizational
contexts.

c) The group. The major thrust of investigation of
communication behavior has occurred at this level. McGrath
and Altman's (1966) Small group research provided an
excellent "synthesis and critique of the field". Both
Chapple's (1949) Interaction Chronograph and Bales' (1950a)
Interaction Process Analysis were developed for use in the
small group laboratory.

3. Communication Studies In Health Care:

Two texts particularly related to the concerns of the
research were The community general hospital by
Georgopoulos and Mann (1962) and The psychiatric hospital as

1 Two computerized literature searches of this topic have
been conducted by the researcher, covering all articles
cited in Index Medicus from 1950 to the present.
a small society by Caudill (1958).

Georgopoulos and Mann analyzed the structure and function of ten general hospitals. Their questionnaire, which included perceived communication networks, was administered to the board of trustees, medical staff, administrators, non-medical administrative department heads, nurses, and X-Ray and laboratory technicians. Interaction of non-supervisory nurses was also examined in depth. The authors' exclusive reliance on perceptual data limits its usefulness for observational studies.

Caudill explored the social system of the psychiatric hospital. He obtained his data through camouflaged observation on the ward, followed by open recording of patient behavior using the ethnographic method of data collection. This approach has considerable promise for research in health care organizations as a main or an adjunctive source of data.

A second section of Caudill's study examined communication in administrative and clinical staff conferences using a modified form of IPA. One of his major findings was the effect of status and role (used in the broader sense) on the amount and type of participation in the conferences. He also analyzed the effects of certain interaction processes upon the total hospital system.

Wessen (1958) studied the frequency of verbal information exchanges between hospital staff. Systematic observation techniques were used on two wards, together with
formal and informal interviews with seventy-five doctors, nurses, dieticians, laboratory technicians, and non-professional ward personnel. He restricted his data to absolute frequency of interactions. Stevens (1967) applied Wessen's method to a health education complex. She found an increase in lateral communication which she attributed to the unit's unique organizational structure.

Lum (1970) assessed interaction patterns of nursing personnel in a large private general hospital in Honolulu. She developed a questionnaire which measured the frequency, content, perceived importance, and satisfactoriness of self- and other-initiated contacts.

Wilkinson (1973) examined interaction patterns and communication channels using a sociometric analysis of a series of questions and an interview format. No direct behavioral coding was done. The focus was on interaction within a total institution.

Werner's (1974) description of "Teaching medical students interactional skills"; while interesting from a methodological standpoint, used content rather than process as the basic phenomenon for investigation.

Nursing researchers have developed several systems for coding the behavior of students or professionals interacting with patients.

Topf (1969) formulated a Communication Skills Checklist to assess the interaction skills of nursing students. The instrument assesses effective and ineffective behaviors in
eight categories, relying heavily on raters’ perceptions.

Johnson (1964) examined the interaction between eighteen nursing students and their patients in the psychiatric setting. Each student interacted with one patient. The observation instrument had ten content and process categories. No reasons were given for their selection. Combining content and process dimensions in one instrument is considered by the present researcher to be methodologically unwise.

Johnson also mentioned that, "The pressure of the observer in the room with the student-therapist and the patient did alter the interaction (p. 341)." This effect, which was evidently not anticipated, should be controlled and/or minimized in such research studies through extensive orientation and familiarization programs for subjects.

Diers and other researchers at the Yale University School of Nursing (Diers & Leonard, 1966) used objectives of nursing care to develop a category system for studying nurse-patient interaction. In Nurse Orientation System (NOSY) a conversation may be oriented towards an object, patient, nurse, or other person. Each direction is sub-categorized according to the primary emphasis on feeling, thinking, or doing.

In McBride’s (1967) study of the effects of three nursing approaches to patients in pain, NOSY was used to assess how well the independent variable "nurse's approach to patient" was operationalized in the experiment (see also
Diers, Schmidt, McBride, & Davis, 1972).

Diers and Schmidt (1968) assessed the loss of data through transcribing tape-recorded conversations. Their major source of error was the transcribing secretary, who had little familiarity with the context from which the data were collected. This is not a problem in studies which code interactions in-process. Nevertheless, it emphasizes the need for coders to understand certain aspects of the organization under investigation.

A program of interaction research was initiated by Hess (1969) through the Center for the Study of Medical Education at the University of Illinois. He modified Withall's method for studying teacher-pupil interaction, developing eleven behavioral categories (Heifer & Hess, 1970, p. 328; see also N. C. Scott, Donnelly, Gallagher, & Hess, 1973, p. 175 for a slight modification). The unit of recorded behavior was "an uninterrupted, apparently purposeful action by the student (Hess, 1969, p. 935)." This is less precise than Bales' definition of an "act", and requires additional interpretation by the observer. In Hess' initial study, patient interviews by medical students were videotaped. They were later coded by three physicians who received four hours of training in rating. A questionnaire designed to gather similar information was also completed by the raters, and inter- and intra-rater reliability was assessed. The interaction analysis scores were found to be more reliable than the questionnaire
results in determining effective versus ineffective communication behaviors.

Heifer (1970; Heifer & Hess, 1970) modified Hess' instrument, comparing interviews by senior and freshmen medical students. Three actors played the role of the mother of a seriously ill child. Five trained observers coded the resultant videotapes. Heifer's use of a quasi-experimental design, with actors trained to exhibit specific communication behaviors, holds considerable possibilities for other researchers.

H. C. Scott et al. (1973) used Hess' approach to evaluate a course in physician-patient relationships for medical students. Seventy-six simulated interviews were videotaped and then coded by two raters with a reliability of over .85. These were compared with ratings by ten expert judges of the effectiveness of students' interview behavior.

The final studies which were noted were those conducted by Howland and his associates. Early articles by Howland (1963a, 1963b, 1963c; Howland & McDowell, 1964) outlined the development of a general Hospital Systems Model for studying health care behavior. These theoretical references explored possibilities for examining the "nurse-patient-physician triad" (1963a, p. 229) and discussed the need for behavioral data on interaction processes (1964, p. 295). A recent article by Daubenmire and King (1973) discussed the theoretical aspects of the research. Howland (1966) gave brief details of the gathering of technological data by two
observers in an operating theatre, but no information about the observation of interactions. They are now conducting a research program to test the model using observational data gathered by extensive videotaping in patient rooms. Future reports on this research should be followed to determine the categorization system and the methodological findings on videotaping.

In summary, four researchers—Topf, Johnson, Diers, and Hess—have developed their own coding systems for studying the process of nurse-patient interaction. In each, categories were designed to measure specific types of desired nursing behavior, rather than general interaction patterns across a broad spectrum of staff and patient positions. As such, the above nursing categories are not appropriate for analysis of inter-position behavior.

4. Bales' Interaction Process Analysis:

In 1950, Robert F. Bales and his associates at the Harvard Laboratory of Social Relations reported the development of a method for investigating communication behavior in the small groups laboratory (Bales, 1950a) based on Parsons' Pattern Variables. Interaction Process Analysis (IPA) employed a set of twelve mutually exclusive categories of communicative behavior which, when placed in a who-to-whom matrix by a trained observer, enabled the researcher to construct "interaction profiles" for individuals and groups. All face-to-face verbal and overt
non-verbal interactions were recorded. Bales (1950a) stated that,

"The present set of categories is meant to be a general purpose framework for observation which can be used to obtain a series of standard indices regarding the structure and dynamics of interaction in any small group.... The set of categories is meant to be completely inclusive in the sense that every act which can be observed can be classified in one positively defined category (p. 33,35)."

The twelve categories focus on how the social actor communicates. They are arranged in two hierarchies which are combined into a single, mirror-image list. Neutral emotional content is in the middle, and strong positive and negative affect at the top and bottom, respectively. The categories are paired, working outwards from the central task problems of communication and evaluation to the peripheral emotional problems of tension reduction and reintegration as depicted in Figure 2.

While this instrument has been used extensively in small group research for over twenty-five years, none of the studies covered by the present review gives statistical support for the construct validity of Bales' theory of communication. Particular areas of concern are the inclusiveness of the categorization, the independence of each dimension, and the interdependence of the category pairs. Each requires further construct validation.

In Bales' original research he used two to seven "trained observers" behind a one-way screen, each having an electro-mechanical Interaction Recorder with a continuously moving paper tape. For each communication "act" (simple
### FIGURE 2

**BALES’ SYSTEM OF CATEGORIES USED IN OBSERVATION AND THEIR MAJOR RELATIONS**

<table>
<thead>
<tr>
<th>Social-</th>
<th>Social-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional</td>
<td>Task</td>
</tr>
<tr>
<td>Positive</td>
<td>Neutral</td>
</tr>
<tr>
<td>1 Shows solidarity, raises other’s status, gives help, rewards</td>
<td>2 Shows tension release, jokes, laughs, shows satisfaction</td>
</tr>
<tr>
<td>3 Greets, shows passive acceptance, understands, concurs, complies</td>
<td>4 Gives suggestion, direction, implying autonomy for others</td>
</tr>
<tr>
<td>5 Gives opinion, evaluation, analysis, expresses feeling, wish</td>
<td>6 Gives orientation, information, repeats clarifies, confirms</td>
</tr>
<tr>
<td>7 Asks for orientation, information repetition, confirmation</td>
<td>8 Asks for opinion, evaluation, analysis, expression of feelings</td>
</tr>
<tr>
<td>9 Asks for suggestion, direction, possible ways of action</td>
<td>10 Makes note, shows passive rejection, formality, withholds help</td>
</tr>
</tbody>
</table>

**KEY:**
- a Problems of Communication
- b Problems of Evaluation
- c Problems of Control
- d Problems of Decision
- e Problems of Tension Resolution
- f Problems of Reintegration

(From Bales, 1950a, p. 9)

subject-predicate combination or an overt non-verbal action) the sender and receiver were recorded under the appropriate category. Because the category frequencies differed widely in magnitude, those at the extremes (i.e. Categories 1 and
12) were given priority over those in the centre. This was done to inflate the numbers in the less frequent categories to a statistically significant level, a practice which is considered methodologically unsound.

Although Bales outlined an extensive training program for observers, he gave insufficient coding details for others seeking to use the technique. Procedures employed by most other researchers have not been reported. A notable exception is the thorough instructional manual for IPA research using typed transcripts which was developed by Mishler and Waxler (1968). Considerable modifications to this manual are required for in-process scoring. Training in IPA is thus an area which requires further attention.

One methodological concern which has been very thoroughly covered in the literature is that of reliability. Bales devoted an entire chapter of his original text (1950a) to "Appraising observer reliability." An exhaustive process was proposed for assessing both intra- and inter-rater reliability. He discussed three key problems of reliability as those of "unitizing," "categorizing," and "attributing" (p. 101). The first refers to dividing a conversation into separate communication acts, the second to placing each act in a specific category, and the third to identifying the sender and receiver of the message. The first two are of particular concern during in-process monitoring of dyadic communication.
For **intra-rater** reliability (test-retest), Bales (1953) reported coefficients of .65 to .98 for the twelve categories (Pearson's r). The mean for the twelve was .92, with the following values under .85: Category 4 (.81); Category 8 (.65); Category 9 (.83); Category 10 (.70). For **inter-rater** reliability, Heinicke and Bales (1953) compared two sets of laboratory studies at Northwestern and Harvard. Each used a slightly different set of categories. The main difference was that in the Northwestern groups scoring was done by recording one category for each speaker's total utterance, rather than one per "act" as done at Harvard. Reliability was determined for two trained observers on the basis of gross totals for each category, and thus did not give any indication of act-by-act congruence. The results showed higher reliability for the Northwestern observers, using the larger unit of analysis. Those for the Bales technique ranged from .90 (Category 2) to .74 (Categories 9 and 7), with a median of .86.

Bales (1953) also examined the consistency of subject behavior for two separate sets of studies. The results are far from encouraging, in spite of the statement that,

"...the general picture of the correlations indicates that a positive relationship exists between the behavior of the same subject from one time to another in all the categories... (which) is sufficiently good to give the researcher some confidence (p. 568)."

Table I duplicates his findings for one of the sets.
While all categories except 1, 4 and 11 had at least one stability coefficient above .90, there was no consistent pattern of high and low coefficients across all groups. The differences in the profiles of stability and the negative correlations (one as high as -.62) should either be accounted for or minimized if the utility of the instrument is to be demonstrated. No allowance was made in the Bales stability study for the effects of task, time, and other factors which may have led to different interaction patterns during subsequent meetings of the same group.¹

¹ Methods whereby the present study handled this stability problem are discussed below, page 41.
Psathas (1961) compared Bales' technique of in-process scoring with the use of written and taped protocols. In the latter, the observer focused on non-verbal behavior, relying on the tape transcripts for verbal content. Psathas compared the number of in-process acts per time period to the number of "pooled" (verbal plus non-verbal) acts, and found that in-process scoring missed 23% of the pooled total. When he corrected the pooled scores for differences in number of acts, he found that the frequency distributions of acts by category corresponded very closely except for Categories 10 through 12. These three categories are all in the negative socio-emotional area (10, disagrees; 11, shows tension; 12, shows antagonism). In-process scoring was higher on Category 10, while the pooled method was higher for Categories 11 and 12.

Waxler and Mishler (1966) reported the most critical review of IPA reliability problems to date. Their extensive analysis of marginal differences versus act-by-act comparisons is an important one for this research. When 10,910 acts were scored using both approaches, two raters disagreed on the categorization of 38.1%. Over half of these disagreements were due to incorrect categorization of categories 3 into 5, 5 into 6, 10 into 5, and 10 into 6. Thus, of one hundred and thirty-two possible types of disagreement, four contributed most of the errors.
In an early article, Bales (1951) summarized some of the "Statistical problems of small group research", identifying four difficulties with scoring:

(a) the unit of analysis is not sufficiently defined that all observers can come up with the same number of acts.

(b) there is no way of obtaining a "correct" answer in an absolute sense, since all scoring involves human judgment.

(c) events cannot be repeated for recount.

(d) the speed with which the interaction moves precludes recording each and every act (p. 314).

All of these concerns are extremely relevant. Numbers one, two, and four can be managed by thorough observer training with documentation of inter-rater reliability on an act-by-act basis. Number three can be resolved in the laboratory by using videotaping, but presents major problems in the organizational setting.

Bales proceeded to outline four ways of analyzing observations:

(a) Interaction profiles - based on total meeting, sub-periods and individuals. These can be tabulated as raw scores or as percentages of the total interaction.

(b) Sequencing of acts - each act is recorded twice, as the first and second number of a pair.

(c) Phases - e.g. dividing a meeting into three equal parts.

(d) Matrices - the distribution of participation between members, placing the total number of acts in a who-to-whom matrix. Senders can also be arranged in rank order of participation frequency (p. 315).

Most early researchers using IPA emphasized the latter two approaches. Recent work in the field has relied more on
the analysis of profiles. There has been very little research done on sequencing. This may be because of the arduous nature of the analysis, where every act must be examined twice—once as the first act of a sequential pair, and once as the second.

Bales postulated that sequential acts were interdependent. By dealing with a process of interaction, he reasoned that the frequency of acts falling into any cell would affect those in adjacent and paired cells. This would mean that standard tests of statistical significance such as Chi-square could not be used. No evidence was found in the literature to support the assumption of interdependence of the category pairs.

Turning from issues of reliability and statistics to those of methodology, studies were examined which took IPA out of the small groups laboratory and into the field.

O'Rourke (1963) observed the same three-person family groups at home and in the laboratory. His basic premise was that "The quality of interaction in social groups can be expected to vary as the situational contexts of the interactions and the structures of the groups (p. 422)." He used a non-participant observer present in the room in both settings, but did not discuss the impact of the observer (an issue of vital concern to organizational researchers). A shortened form of IPA with only three categories was employed. No indications of reliability were given. His finding that the balance between socio-emotional and
instrumental interactions was contingent upon the familiarity of the environment was considered particularly relevant.

The major focus of the review of field studies was on the use of IPA in health care settings. Caudill (1958) was the earliest researcher to report such a study. His work has been discussed above.

Korsch and Negrete (1972) observed physician-parent communication during diagnostic visits to a large pediatric clinic, and were able to relate mutual dissatisfaction with the visit to certain types of interaction profiles (Francis, Korsch, & Morris, 1969; Freemon, Negrete, Davis, & Korsch, 1971; Korsch, Gozzi, & Francis, 1968).

M. S. Davis (1968) used IPA to code 154 patient interviews by fourth year medical students or attending physicians. Coders worked from tape recordings; details of training or reliability were not given (except that reliability averaged .85). In addition to the construction of interaction profiles and Bales' indices, Davis did an extensive factor analysis of the doctor-to-patient data. Profiles of the twelve interaction categories for both physician and patient were correlated with each other and with themselves, forming a twenty-four by twenty-four matrix. From this, ten factors were extracted which represented different types of patient-doctor communication behavior. The study then related these interaction factors to compliance by the patient, finding some patterns which
helped to explain noncompliance.

Conant (1965) used IPA to "examine the development and nature of the role relationships of public health nurses and patients in home visits (p. 304)." Twelve public health nurses made a total of forty-eight home visits to twenty-four antepartum patients. The interactions were tape recorded and then scored by two persons trained in IPA. The instrument was chosen because of the apparent appropriateness of Bales' task/emotional problem-solving model. Observed behaviors were related to perceived satisfaction, as obtained by separate interviews with nurses and patients.

Conant devoted considerable time to examining the limitations of IPA. The exclusion of interaction content from the coding scheme was discussed. She felt that this was a handicap to be overcome. Diers and Leonard (1966), in considering the dual objective of assessing communication process versus content, stated,

"It is possible to combine both kinds of categories in one system, but for the sake of the mental health of the researcher, it is probably better to confine any one system to either content or process. If both kinds of categories are included in one system, the coder and researcher are faced with deciding whether there is an important difference between, for instance, a question that is 'supportive' and a statement that is 'unsupportive' (p. 226)."

The researcher agrees with Diers, believing that it is better to do an accurate evaluation of interaction processes, rather than attempt to use a scheme which combines process and content.
Conant also raised questions of intra- and inter-rater reliability. She found that Bales' categories were not always mutually exclusive.

"An act is not necessarily either completely task or emotional in nature. It may contain elements of both and have several purposes and effects (p. 308)."

This finding, together with her observation that Categories 3 and 11 were relatively undifferentiated between patient and nurse behaviors, has considerable importance for the construct validity of the instrument. Whereas Conant saw these findings as limitations, an alternative approach would be to build on Bales' conceptual framework, modifying it where appropriate in the light of additional empirical evidence.

Conant found that the intervening variable of patients' race emerged in an "ex post facto analysis." It is important to consider such intervening variables, as they have an important contribution to make in understanding the total interaction process.

Conant's final critique of IPA was related to the scoring of negative socio-emotional categories. She stated,

"In the nursing visits that were analyzed the showing of tension (category 11) sometimes seemed to be related to the situation or the topic under discussion rather than to the relationship of the participants (p. 309)."

She seems to have ignored Bales' requirement that acts referring to the outer situation be scored as actor-to-X rather than to the co-communicator (Bales, 1951a, p. 185). This finding regarding Category 11 could also be important to the instrument's construct validity.
Mishler and Waxler (1966, 1968) studied the relationship between patterns of family interaction and the presence of schizophrenia. They used family discussions of questionnaire feedback and the method of revealed differences as the basic source of data. Sessions were tape recorded and transcribed before being subjected to eleven types of coding procedures (see 1966, p. 69 for a summary of the codes). These varied in complexity from a simple who-to-whom categorization to Bales' IPA. While the authors raised many questions about the reliability of IPA, they nevertheless made extensive use of these data in interpreting their findings.

In summary, M. S. Davis, Korsch, and Mishler and Waxler all employed IPA extensively in physician-patient interviews, and made constructive use of it as an evaluative tool. Conant was more critical, but her interest was focused on obtaining specific nursing care data rather than on understanding the total process.

All of the studies reviewed above which used IPA in health care organizations found that stable interaction profiles could be measured for role or position groups in a health care organization. They therefore support the

1 Whereas these studies examined communication between one health profession and a single type of patient, the present research looked at the interaction network of a larger unit—the hospital ward. Many staff groups were included. Patients also differed in type and extent of disability.
premise that each social position within the organization has a consistent set of interaction profiles.

Another focus of the literature review was on studies which used IPA as a tool to further an understanding of other social phenomena.

F. G. Scott (1962) observed three-generation families in the laboratory. She used a modification of Bales' scoring to determine how patterns of support between any two family members were affected by group size and family position. Her use of "family position" is a departure from the general emphasis on the analysis of individual behavior. It parallels a focus on the organizational position.

Hanheim (1960) investigated intergroup interaction, focusing on the relationship between the amount of intergroup differentiation and conflict. His study design involved two triads which were experimentally manipulated to create differences in perceived status (high/low) and leadership (assigned/emergent). The two groups communicated with each other via written notes which were later analyzed using IPA. Manheim employed Bales' Index of Expressive Malintegrative Behavior (EMB), which is calculated by taking the number of negative socio-emotional acts as a percent of all positive and negative socio-emotional acts.

Landsberger's (1955) analysis of the "Mediation of labour-management disputes" found some evidence of the predictive validity of IPA. He stated,
"...ultimate success of the session could be partially predicted from the parties' state of mind when they embarked upon the session; the more hostile their expressed feelings, the less likelihood of success (p. 558)."

His assumption of equality of parties is generally not present in the health team. According to Pellegrino (1970),

"...the physician is the most potent force in decision making, not only in regard to care of individual patients but in regard to the setting of policies, goals and commitments of the hospital (p. 303)."

However, some teams appear to be working towards a more egalitarian form of decision-making within their group meetings or conferences. Landsberger's approach might therefore be used to compare teams perceived by their members to be egalitarian with those perceived to be authoritarian. Greater predictive validity would be expected with the former group, since each member would see an opportunity to influence the outcome of the conference.

In Bales' latest book, Personality And Interpersonal Behavior (1970), he expands the twelve categories, plotting each on three dimensions of the values structure of the individual. He conceptualizes these three as personality dimensions which affect the individual's interaction profile. They were derived from a study of sixty subjects who:

"...met in twelve groups of five for a series of five two-hour meetings, each time with a somewhat different task. There were two interviewing and inference tasks, one somewhat formalized self-analytic task, and two value-dilemma tasks based on cases. The data for all five meetings were pooled for each individual (p. 391)."

Extensive factor analyses were performed on five types
of variables:

(a) personality traits, measured in advance by written tests.

(b) observation of overt behavior, using IPA.

(c) content classification of value statements made during the groups.

(d) ratings of the individual by other group members.

(e) guesses by the individual of the ratings he would receive from others (p. 391-392).

The three personality dimensions were derived from these data. The first, "upward/downward" (U/D), refers to the tendency on the part of the individual towards dominant (U) versus submissive (D) interaction behavior. This is conceptualized as a pure leadership factor. The second, "forward/backward" (F/B), is concerned with whether the individual's communication behavior contributes to (F) or retards (B) the accomplishment of the task at hand. The third dimension, "positive/negative" (P/N), describes the expression of affect or feeling.

The original twelve IPA categories given in Figure 2, page 25, were revised to create a new categorization, which was hypothesized to be directionally consistent along the three dimensions. The only major change involved Categories 2 (tension release) and 11 (shows tension), although most of the others were clarified and re-named. Bales then developed directional labels for each category, based on frequencies above or below the median range of interactions. Norms for the medians were inferred from predicted changes between the old and the new schemata but have not yet been
empirically verified. Table II gives the suggested interpretation for acts initiated.

### TABLE II

**BALES' NEW IPA--ESTIMATED NORMS AND DIRECTIONAL INDICATORS**

<table>
<thead>
<tr>
<th>Category of Acts Initiated</th>
<th>If Low</th>
<th>Medium Range***</th>
<th>If High</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sees Friendly</td>
<td>N</td>
<td>2.6-4.8</td>
<td>P</td>
</tr>
<tr>
<td>2. Dramatizes</td>
<td>DP</td>
<td>5.0-7.4</td>
<td>UB</td>
</tr>
<tr>
<td>3. Agrees</td>
<td>NB</td>
<td>8.0-13.6</td>
<td>FF</td>
</tr>
<tr>
<td>4. Gives Suggestion</td>
<td>DB</td>
<td>3.0-7.0</td>
<td>UF</td>
</tr>
<tr>
<td>5. Gives Opinion</td>
<td>B</td>
<td>15.0-22.7</td>
<td>P</td>
</tr>
<tr>
<td>6. Gives Information</td>
<td>U</td>
<td>20.7-31.2</td>
<td>D</td>
</tr>
<tr>
<td>7. Asks for Information</td>
<td>DB</td>
<td>4.0-7.2</td>
<td>UF</td>
</tr>
<tr>
<td>8. Asks for Opinion</td>
<td>N</td>
<td>2.0-3.9</td>
<td>P</td>
</tr>
<tr>
<td>9. Asks for Suggestion</td>
<td>UB</td>
<td>4.6-1.4</td>
<td>DF</td>
</tr>
<tr>
<td>10. Disagrees</td>
<td>P</td>
<td>3.1-5.3</td>
<td>N</td>
</tr>
<tr>
<td>11. Shows Tension</td>
<td>UF</td>
<td>3.8-6.0</td>
<td>DB</td>
</tr>
<tr>
<td>12. Sees Unfriendly</td>
<td>P</td>
<td>2.4-4.4</td>
<td>N</td>
</tr>
</tbody>
</table>

* (from Bales, 1970, p. 96)
** These norms are estimated by a long process of inference, described in Appendix 4.
*** Rates lower than the Medium Range shown are classified Low; rates higher than the Medium Range shown are classified High.

For example, if an individual's frequency in Category 1 is below the median range it reflects a negative (N) tendency. Conversely, a high proportion of acts in Category 1 reflects a positive (P) value orientation.

In discussing his new formulation of the theory, Bales (1970) stated,

"It should be recognized that sixty subjects in twelve groups is a very small number for such a mountain of data analysis and so many hypotheses. No claims are made for the reliability or representativeness of the findings. These problems must be dealt with in the future. The present study, for all its complication, is only exploratory (p. 391)."
In spite of the above caveats, plus the fact that the directional hypotheses are based on personality dimensions which may or may not be applicable at the positional level, Bales' new formulation is considered preferable to the old one for data collection on the hospital ward.

5. Summary:

The following conclusions emerge from the review of the literature on Interaction Process Analysis (IPA):

(a) No statistical validation has been found for the theoretical foundations of IPA.

(b) Acceptable levels of intra- and inter-rater reliability can be achieved for scoring of category totals.

(c) Act-by-act comparison, while giving indications of reliability, must be convincingly demonstrated in any IPA study.

(d) It is essential to establish stability of subject interaction behavior, or to account for a major portion of its variance through situational moderators.

(e) Although IPA has been taken out of the laboratory, no studies were found which measured the impact of this methodological change.

(f) IPA does have tentative indications of predictive validity, helping the researcher to understand other dimensions of organizational behavior.

1 Both categorizations were assessed during the training period of the present study, and the decision made that the new one was more suitable for this organizational context. Support for this conclusion is given in Chapter II.
The present research has been designed to consider the above factors. The construct validity of Interaction Process Analysis was examined. Act-by-act reliability was documented, as was the training process whereby this was achieved.

Bales' stability problem was handled in two ways. Firstly, all interactions for a particular position dyad were combined, disregarding the individual except when there was only one position incumbent on that ward. Thus, individual variations due to short-term intra-personal factors such as fatigue, mood-swings, etc., were eliminated. By changing a systematic source of error variance into a random one, it was suggested that greater profile stability could be achieved. Secondly, the project confronted the stability issue through the measurement of intervening contextual variables. These were hypothesized to moderate the relationship between the communication dyad and its interaction profile.

Support was given for taking the method out of the laboratory into various organizational locations. Questions of experimenter artifact, which were critical to the research design, were considered in detail. Finally, the functional utility of IPA was a vital focus of attention. The method should be sufficiently powerful for broader investigations of organizational behavior if it is to make a significant contribution to the discipline.
F. DEVELOPMENT OF HYPOTHESES:

The researcher's original intention in formulating Hypothesis 1 was to test two aspects of Bales' communication theory—the overall category independence, plus the interdependence of the category pairs. H1, as it was originally stated, did not reflect this intention:

H1 The paired Categories (i.e. 1-12, 2-11, etc.) are interdependent.

It was therefore reformulated as follows:

H1-a The paired Categories (i.e. 1-12, 2-11, etc.) are sequentially interdependent.

H1-b The relative frequencies of the twelve categories are independent.

Hypothesis 2 was suggested by data from the pilot study (see Appendix A), where Categories 2 (tension release), 6 (gives information), and 11 (shows tension) tended to occur in conjunction with others. They were postulated to be adjunctive communicative behaviors which worked in concert with the others to clarify (Category 6) and modify (Categories 2 and 11) the total interaction sequence. Conant's (1965) finding that Category 11 was relatively undifferentiated between patient and nurse behaviors also supported this hypothesis.

The formal statement of Hypothesis 2 was:

H2 Three of the Categories (2, 6, and 11) are more strongly correlated with the others than are the remaining nine.

The third hypothesis also evolved from the need to
contribute to the construct validation of Bales' theory of communication through an assessment of the inclusiveness of the categorization:

H3 Bales' twelve interaction Categories are inclusive of all types of verbal communication behavior.

The remaining five hypotheses were designed to test the research model described in detail in Chapter II. Together, they assessed stability of subject behavior (H4), the impact of situational moderators (H5, H6), the effect of various organizational loci (H7), and the question of experimenter artifact (H8).

H4 A major independent variable which influences the communication profile on a hospital ward is the position dyad.

H5 Task factors have a weaker, but still significant, effect on the interaction profiles.

H6 The contextual factors of day, week and time do not have a significant effect, when controlled for other intervening variables.

H7 The location of interactive behavior (i.e., ward, locus) has a strongly significant mediating effect on the profiles of all dyads.

H8 The effect of a specific observer does not produce variation in communication profiles.

Having developed the research hypotheses, details of the study method will now be discussed.
A. LOCATION:

In order to test the above hypotheses, a four-month field study was conducted at Wascana Hospital, a division of the South Saskatchewan Hospital Centre, in Regina, Saskatchewan. This was the site of the pilot study. The researcher had been employed by that hospital for five years as a physiotherapist and researcher, and had gained acceptance by the hospital staff. Twenty-three percent (144/614) of the staff who were employed during the pilot project were still at Wascana when the present study began, including sixteen of the twenty department heads and assistant directors of nursing, plus the head of the medical staff. Considerable interest in the outcome of the pilot project was expressed by ward and treatment staff when the researcher returned to work in the hospital physiotherapy department in the summer of 1974.

The two wards selected for the study were "Second West" (extended care) and "Station Five" (adult physical rehabilitation). Each ward was a functional subsystem within the hospital, with commonly accepted geographic boundaries and a single "nursing station" where patient care activities were coordinated. Figure 3 gives a map of the hospital and the two study wards.
B. **SUBJECTS:**

The study population was operationally defined as follows:

1. **Patient:** a person who resides on one of the above wards during the study. Patients visiting from other areas of the hospital were excluded. Maximum patient population was sixty-one on Second West, and thirty-three on Station Five.

2. **Staff:** all community and consultant physicians treating patients; all persons employed by the hospital who provide direct or indirect (e.g., housekeeping) services to patients; individuals employed by other organizations who participate in direct patient care. Numbers in each staff classification are given in Appendix B.

3. **Volunteer:** a person not employed by the hospital or another agency, but who works with patients under the direction of the coordinator of volunteer services. Approximately twenty volunteers were active during the study.

4. **Family:** immediate relatives of a patient who take responsibility for his/her well-being. This number varied according to particular patients on the wards.

Thus, all persons involved in direct or indirect care of patients on a particular ward were considered potential subjects, whether or not they belonged to a recognized "team". Contributions of patients and families were also monitored.
C. **RESEARCH MODEL**

The relationship between the independent, dependent, and intervening variables is depicted in **Figure 4**.

**FIGURE 4**

**RESEARCH MODEL**

<table>
<thead>
<tr>
<th>INDEPENDENT</th>
<th>INTERVENING</th>
<th>DEPENDENT</th>
<th>INTERACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSITION</td>
<td>Environmental</td>
<td>Methodological</td>
<td>Task</td>
</tr>
<tr>
<td>DYAD</td>
<td>Context</td>
<td>Artifact</td>
<td>Factors</td>
</tr>
<tr>
<td>PROFILE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For purposes of categorizing the **independent** variable, the following definitions were accepted:

1. **Position**: "a collectively recognized category of persons for whom the basis for such differentiation is their common attribute, their common behavior, or the common reactions of others toward them (Biddle & Thomas, 1966, p. 29)."

2. **Patient Position**: a sub-categorization of patients, based on the common reactions of staff towards them regarding length of hospital stay, physical mobility, and communication disability.

3. **Staff Position**: a collectively recognized category of staff whose common attribute is a specific job title (e.g. "housekeeping aide", "director of housekeeping").

4. **Staff Department**: a small group of persons from different positions in a single hospital department (e.g. Maintenance) who perceive that on the wards they all perform
similar communication functions with staff and with patients. For example, the one electrician, one plumber, one carpenter, etc., were all classified as "maintenance".

5. **Dyad**: a pair of communicators, identified by position (e.g. "social worker-physiatrist").

The dependent variable, communication, was restricted to face-to-face verbal and overt non-verbal transmission of information from one person to another on the ward. It was operationalized as the Interaction Profile, a percentaged graph of the frequency of Bales' twelve new communication categories. For each dyad, two profiles were generated—e.g. nurse-doctor and doctor-nurse.

**Intervening variables** were of three types. The first was labeled "environmental context". "Week", "day", and "time" of observation were hypothesized to have differing effects on the interaction profile. "Locus" of interaction (i.e. where it occurred on the ward) was another contextual variable. The two loci used in the pilot study had a strong moderating effect. One of those, the "nursing station", was included in the present research. The other, a "ward walk", was subdivided into "patient rooms", "corridors", and "charting room".

The intervening variable "ward" had a strongly significant effect in the pilot study. The present research was carried out on two types of ward, making Nagi's (1965) distinction between "impairment" and "disability" relevant.
Patients on Second West all had a long-standing "disability" or "pattern of behavior that evolves in situations of long-term or continued impairments that are associated with functional limitations (p. 103)." In contrast, Station Five patients exhibited a range of behaviors from early "impairment" through recognition of "functional limitations" to long-standing "disability".

A second group of intervening variables was that produced by methodological artifact. The only one quantified by the study was the particular "observer" who was recording.

The third type of intervening variable, "task factors", referred to the task being accomplished during the communication. The literature suggests that task parameters have an impact upon the interaction profile in the small group setting, but a suitable classification scheme for this dimension is not available. Therefore, a general task categorization was to have been developed during the study. The basis which was to have been used for this classification was Dubin's (1958) classification of four basic behavior systems, which he postulated were characteristic of every job--i.e., technological (job-specific task activities), formal (behaviors governed by organizational rules), non-formal (the actual way in which the job gets done), and informal (direct voluntary interpersonal relationships).
The above model, while using the terms "independent" and "dependent" variables, did not test the assumptions of causality implicit in this usage. The direction of the relationship seemed to be a logical one—it is not as plausible to postulate that interaction profiles cause a particular dyad to interact, particularly in the hospital setting where much of the interaction is necessitated by the task of patient care—but this could not be tested in the present study.

The researcher recognizes that communication on a hospital ward does not occur in isolation—it is influenced by a host of extrinsic and intrinsic factors. However, the objective of this study was to validate a method, not to generalize the results. Therefore, only one subset of contextual moderators was examined. The decision to limit the scope of the research model is essential in the initial stages of any research program—the dependent variable must be capable of being accurately measured before its interaction with other dimensions can be comprehensively assessed.
D. **STUDY DESIGN:**

1. **Research Assistance:**

   Because documentation of the training required to use the technique was a major objective of the study, a full-time research assistant was employed for the field study. A twenty-two year old male was selected who had recently graduated in Psychology. He had a sound background in research, including ethnography, but no experience in hospitals (as patient, staff or visitor). This choice of a person with no previous knowledge of the health care system was deliberately made in order to balance the researcher's extensive involvement and reduce any bias which might thereby be introduced.

2. **Development of Method:**

   A scenario of the field study, including preparatory meetings and follow-up sessions with the hospital, is given in Figure 5.

   Because many of the methodological details were developed during the field study, each issue is examined separately in this section before summarizing the method used for the final data-collection.
FIGURE 5
TIMING OF FIELD STUDY

July, 1974 - possibilities explored for conducting the field study at Wascana Hospital

October 2, 1974 - presentation made to the management committee of the SSHC

November 12, 1974 - hospital commitment obtained

January 20-22, 1975 - preliminary meetings held with hospital administration

May 5-17 - ward staff oriented to study

May 20-30 - training of research assistant begun; staff orientation completed; study explained to all patients

June 2-30 - coding system developed for staff and patients; part-time ward observation commenced; new staff and patients oriented as necessary

July 2-15 - full-time ward observation undertaken; time periods finalized

July 15-16 - frequency study completed to finalize loci

July 21 - August 3 - Bales' old vs. new formulations evaluated

August 5-7 - "shakedown" of final method completed

August 9-22 - final data collected

August 25 - September 4 - wind-down of study

December 9-19 - first stage of feedback to hospital undertaken

February 10-21, 1976 - second stage of feedback completed

a) Preliminary contact with hospital. Possibilities for conducting the field study at Wascana Hospital were first discussed with the assistant executive director of the South Saskatchewan Hospital Centre (SSHC) in the Summer of 1974. A "Summary and implications" of the study (see Appendix C)
was prepared for submission to the October meeting of the SSHC management committee.

After permission was received for Wascana Hospital's participation, the researcher met with the administrator, the head of the medical staff, the director and four assistant directors of nursing, and all sixteen clinical and service department heads for three days in January, 1975. The research instrument was explained, and the type of data which the hospital could expect to receive was discussed. Given the choice of two wards, they selected Second West and Station Five in order to see the contrast between a custodial care and an active treatment ward. A summary of the meetings was distributed to all participants (see Appendix D). The process used to obtain organizational commitment was similar to H. Levinson's (1972) approach to obtaining consent for diagnostic intervention (p. 14).

Particular attention was paid to ethical considerations surrounding the issue of "informed consent" (Argyris, 1968; Ring, 1967). Freedom of exclusion or withdrawal, particularly for persons in singular positions (i.e. the only incumbent on that ward), was made explicit. Persons in singular positions who chose to participate were to receive the initial feedback on their interaction profiles. It would be their prerogative to decide the extent of distribution of that data. All patients were to be given the option of exclusion from the data-collection.
b) **Staff orientation.** At the beginning of the field study a one-half hour orientation was given to all staff with possible involvement on the two wards. Each person was provided with a summary sheet, plus a copy of Bales' categorization (see Appendix E, plus Figure 2, page 25). Most sessions were conducted individually or in small groups. Several larger meetings were held when department heads wanted to give all staff an overview of the project (e.g. Housekeeping, Physiotherapy). When all persons on staff had been informed, newcomers were briefed during the regular hospital orientation for new staff or by individual appointments. A policy was established that people's communications would not be monitored until they had received full details of the project and had given permission for inclusion. Over the course of the study, three staff members elected to be excluded for various reasons, indicating that this was a viable alternative. Staff in conversation with a patient were requested to ask the researcher to leave if they considered it advisable.

c) **Patient orientation.** Explanations to patients were tailored to their level of understanding. Some patients with normal communication ability received all information given to staff, including the two handouts. Others (e.g. with brain damage) were given a simplified explanation. A number of patients on the chronic care ward were oriented through a staff member interpreting in their
first language (e.g. German, Ukrainian). Patients with normal receptive ability but severe expressive impairment often required several discussions before having the opportunity to have all their questions answered.

Only one patient requested to be excluded, and he, after two weeks of being omitted, questioned why he was being "left out." When told that this was at his own request, he said exasperatedly, "Oh, that was then!", and demanded to be observed from that point on. One other patient with paranoid tendencies was excluded at the suggestion of the staff.

New patients did not receive the orientation until their second day on the ward, and were not observed until after this was completed. Most families were given an explanation of the study by one of the observers. Where this was not possible, patients were asked to relay the information to their families.

d) Training. A major emphasis was placed on training during the study. The first step in the retraining of the researcher and the initial familiarization of the research assistant was the reading of Bales' *Interaction Process Analysis* (1950a), with emphasis on the Appendix, "Definitions of the categories (p. 177-195)."

Tapes of radio interviews and "open-line" shows were then used, together with extensive discussion, to establish consensus on how a particular act should be coded. This
Method of training was helpful for improving categorizing ability, but not for unitizing (i.e. dividing conversations into separate acts).

Mishler and Waxler's (1968) "Interaction Code Book" was useful as a starting point for the latter. The observers then moved to an intensive one-week study of English grammar handbooks in order to be able to quickly identify simple versus complex sentences, clauses versus phrases, etc. At the end of this period, decisions about unitizing were made to facilitate in-process scoring (as opposed to Waxler and Mishler's focus on tape-transcripts).

The observational method focused on verbal behavior. Only those non-verbal interactions which were overt and easily classifiable into a particular category (e.g. smile, anger) were recorded. The impact of other non-verbal aspects on the reception of the verbal message is recognized—e.g. support, modification, or negation of the manifest content. However, considerable interpretation is generally required to assign such behavior to one of the IPA categories. This is time-consuming and a potential source of observer expectancy bias. Therefore only simple non-verbal acts were categorized.

During the training period, a careful comparison was made between Bales' old and new categorizations. The old one was used for the first half of the training period, and the new one for the second half.
The final selection was made in favor of the new one for two reasons. The first was that the observers found the directional indicators very helpful in categorizing. For example, when there was doubt whether an act belonged in Category 4 (gives suggestion) or 5 (gives opinion), the decision could be made on the basis of ascendance (U), Category 4, versus forward task movement (F), Category 5. The second reason for selecting the new version was that the modified Category 2 (dramatizing) appeared to be a more meaningful type of interaction behavior on the hospital ward than was the old Category 2 (tension release).

Because Category 2 included a significant proportion of dramatizing about "out-group" activities (i.e. not related to the ward), these acts were coded separately as Category "M". This method was chosen over Bales' "sender-to-X" approach because it preserved the identity of the co-communicator. It was also a useful distinction during the feedback to the hospital staff.

After the new categorization had been selected, the sections on "Definitions of the interaction categories" (p. 99-135) and Appendix 4, "Revision of the interaction categories" (p. 471-491) of Bales' (1970) *Personality and interpersonal behavior* were studied exhaustively. Each observer made notes on key points. These were discussed and collated. The resulting twelve-page summary in point form was re-read every evening during the final three weeks of data collection to ensure regularity of coding.
e) **Reliability.** The major avenue for assessing this dimension was the use of the above-mentioned radio tapes. These were selected because the variety of two-party conversations resembled the types of interchange being monitored on the wards. The hospital refused to allow any taping of conversations on the premises, making reliability checks on data identical to the study material impossible. Taping had been used briefly in the pilot study to establish intra-rater reliability. Although extensive explanations and assurances had been provided to staff, this taping had had a very upsetting effect on communication patterns, reducing trust in the research team for several weeks.

Using the radio-taped conversations, a maximum of eighty "acts" was coded simultaneously by both observers without interruption. This number was chosen because a majority of conversations on the ward were of less than sixty acts' duration. Therefore, the eighty-act criterion was considered sufficiently rigorous. The tape was replayed act-by-act and consensus reached on the "correct" unit and category. It was repeated a third time, with frequent interruptions, in order that the observers could check their original coding and determine the number of "correct" acts, and the number of errors in categorizing and unitizing (both "missed" acts and "extra" ones). A rough reliability check was then made for each observer by expressing the number of correct acts as a percent of the total number of acts. Errors were also subdivided into those of categorizing
versus unitizing. This procedure provided the observers with feedback on their types of mistakes, and thus guided the learning process.

During the final three weeks of data collection, at least two eighty-act reliability checks were made at the end of each day's observations to monitor the observers' minimum reliability. One week after the conclusion of data collection, six conversations from the beginning, middle, and end of the three weeks were recoded to establish intra-rater reliability.

f) **Staff position coding.** A three-digit code was developed for all staff positions and departments. The first digit was generally either a "1" or a "0", depending on whether the position was singular (i.e. "1" incumbent per ward) or grouped ("0"). The last two digits were then allocated according to position or department.

Three grouped codes were also used, each beginning with a "2":

- 260 = group of staff
- 261 = group of patients
- 262 = group of staff and patients

In addition, when a staff group consisted entirely of one position, the last two digits used were those of that position (e.g. a group of staff nurses was coded "200").

Wherever possible, the nursing directors, department heads, and other singular positions were coded with the last
two digits of other department members (e.g. housekeeping aides were coded "010"; the director of housekeeping was "110"). Appendix_B gives the complete staff code.

9) Patient position coding. Three factors were considered to influence the communications sent to and received by patients—length of stay on that ward, physical mobility, and communication impairment. Thus each patient was assigned a three-digit code, one number for each factor (see Appendix_B).

The actual coding procedure varied with the dimension. Length of Stay was calculated for each patient on the first day of every week. Mobility for patients on Second West was coded by the researchers according to their observed physical mobility over the previous week. On Station Five, this was done in consultation with nursing staff. Patients on both wards remained in the same mobility classification unless their level changed for more than one day. For example, a patient of code "4" (moves freely about the ward but cannot transfer from bed to wheelchair independently) who developed pneumonia and was confined to bed was recoded to a "0"; a bedridden patient of code "0" who left her room once per week to make a telephone call was not recoded.

Initially the research team worked with the two assistant directors of nursing to code each patient's communication impairment. This classification was then discussed with ward staff, who disagreed with a number of
the patients' codes. Because the critical determinant of staff-patient communication was considered to be the staff's perception of patient ability, it was decided that patient classification on this dimension should be done by staff working with them. Nursing was chosen as the classifying department because of consistent contact with all patients and availability for coding. Methods differed on the two wards:

**Second West:** Once per week for six weeks prior to the final data collection, every staff nurse and nursing attendant working with a group of patients classified each patient according to receptive and expressive impairment. This was intended to be an individual assessment, but sometimes consultation did occur. At the end of the six weeks, all perceptions were tabulated, the receptive and expressive modes obtained for each patient, and a communication "code" assigned. The patient retained this code during the final data-collection unless communication ability changed markedly. For example, a patient who had a "stroke" and could no longer speak would be recoded.

**Station Five:** Because the communication ability of many patients on the rehabilitation ward was changing rapidly, the above method of classification could not be used. Instead, at the beginning of every week (including those of the final data collection) all nursing staff on the ward met for fifteen to twenty
minutes, discussed the patients, and reached a consensus on their communication impairment. These values were then used for the remainder of the week, except in cases of a marked change as mentioned above. New patients were coded the day after their arrival by the admitting and/or senior nurse.

While it is recognized that this difference in methods between the two wards is not ideal, it was one of the exigencies which the researcher was forced to accept. Staff on the two wards were accustomed to functioning differently, and since they were being requested to take time from their busy schedule to do the weekly coding, they needed flexibility in their method of accomplishing it most efficiently and effectively.

h) **Day and time selection.** Since only minimal staff were maintained on weekends, the five weekdays (Monday through Friday) were selected for intensive study.

During the early weeks of observation it was determined that peak periods of inter-disciplinary communication occurred between 0800 and 1430 hours. Three one-and-one-half-hour time periods within this span were chosen to provide optimum coverage—0800 to 0930, 1030 to 1200, and 1300 to 1430 hours.

This selection of day and time excluded communication between nursing staff during and immediately after the change of shift, and also conversations between nurses and
patients or families in evenings and on weekends, but inter-disciplinary interaction was given priority.

At the outset of the research, nursing administration requested feedback on shift changes, as they felt that communication at this time was poor. To meet this request, four days following the study were used to code all three shift changes on both wards. These data were tabulated separately and presented after the second feedback session.

i) Choice of loci. This was accomplished through trial of a number of sites on the wards during the first six weeks of observation, plus an intensive 2-day study of communication frequency at various locations. Decisions made were:

(i) nursing station - the issue was whether to separate the inner medications/service area from the outer desk. It was decided to keep this as one locus rather than two, as frequency in both areas was often interdependent. A conversation would begin in one part and then move to the other, or might be conducted with one person in each.

(ii) charting room - frequency here varied markedly with the time and day, as the room was also used for staff conferences and patient clinics. During a week, sufficient communication occurred to warrant its inclusion as a locus. A further pragmatic consideration was that the inclusion of one lower-frequency locus gave
the observer the opportunity to sit for five minutes out of every thirty and record in a more leisurely fashion—a welcome respite from the continuous coding while standing or walking at the other loci.

(iii) **corridors** — reasons for subdividing differed on the two wards:

**Second West** was H-shaped, with patient rooms down the outer sides of both limbs of the "H," and the nursing station, charting room, and elevator at the crosspiece (see Figure 3, page 45). Patients were divided into four "teams". The two on the South side had mostly bedridden patients with low communication skills. The two teams on the North side had patients on all communication and mobility levels. From ethnographic impressions in the early weeks of observation, it seemed that patterns of care on the North side differed from those on the South, and therefore the decision was made to separate corridors into "North" and "South." Although one could walk the length of either corridor in 45 seconds, the start of conversations at one end were missed if the observer was at the other or had his back turned at the time.

**Station Five** was more compact, L-shaped, with the nursing station and charting room at the junction of the two limbs (see Figure 3). Therefore, the observer in one corridor could not see if conversations were occurring in the other. Because of this, corridors were subdivided into "North" and "East" for this ward.
(iv) **rooms** - these were divided according to their adjacent corridors.

(v) **solarium** - this was excluded because it was rarely used during the day except for overflow of conferences or clinics from the charting room.

(vi) **service rooms, bathrooms, etc.** - conversations in these areas were included with "corridors."

To improve reliability, rules were made specifying inclusion/exclusion of conversations between loci, at the boundaries of the ward, etc. While staff and patients were aware of the boundaries on each ward, they seldom made an obvious effort to talk outside the area.

j) **Week.** In the original research design, it was planned that complete data would be collected from the two wards for a two-week period. Observers would alternate wards every day. After a trial of this system, it was recognized that each locus was being covered for only five minutes out of every thirty. Infrequent or brief communicators (e.g. physician, occupational therapist, or family) could come, communicate, and leave during the twenty-five minutes that the observer was at other loci. Thus, much inter-disciplinary communication was missed. In order to rectify this, it was decided to have two observers on the ward at the same time, but spaced three loci apart. This meant that coverage was provided for a particular locus five minutes out of fifteen, rather than out of thirty.
Consequently, the variable "week" could not be fully assessed, since one ward was covered for one week, and then both observers moved to the other ward.

k) **Task design.** One of the intervening variables proposed for the research was "task design." While the researcher recognizes that this may be a significant moderator, it could not be tested during the study. The observers had reached their maximum recording capacity without this additional variable. The decision was therefore made to leave exploration of this variable to a later date, when fewer contextual factors were being monitored.

E. **METHOD**

The final method for data collection evolved from the foregoing decisions (see Figure 5, page 52). A three-day "shakedown" of the procedure was conducted on Station Five, August 5 through 7. The only additional problem encountered was that of exact synchronization of both observers' watches with the ward clock. The only solution to this was the use of stop watches. Held in the palm of the left hand, and only clicked at the beginning and end of each ninety-minute period, they were no more obtrusive than the ordinary watches which had previously been used, and were not a concern for staff or patients.
The study was designed to spend the week of August 11 on Second West and the week of August 18 on Station Five. However, the observers switched wards for one day each week for two reasons. First, a regular conference was being held on Station Five on Thursday, August 14, but not the following Thursday because of vacations. Second, since a possible general staff shutdown was imminent due to secondary picketing by an external party involved in a labor dispute, the ward switch was made in order to have one day's final data on Station Five for comparison with the shakedown data. Thus, each week's data were composed of Monday, Tuesday, Wednesday and Friday on one ward, and Thursday on the other.

Each week's observation began on Sunday, with orientation of new staff, patients, and families. The patient classification was also revised, and one or two hours' practice observation was done to familiarize new subjects. Extensive reliability checks were also made and finer points of coding were discussed.

Observations from Monday through Friday were conducted during the previously discussed time periods (0800 to 0930, 1030 to 1200 and 1300 to 1430 hours). A time sampling of behaviors was employed, with four minutes and thirty seconds spent at each locus, and thirty seconds allowed for moving to the next one.

Data were recorded directly onto eighty-column Fortran coding forms. The intervening variables were entered in
columns one through sixteen before the ninety-minute observation period began. Then, when a conversation started, interaction was immediately recorded as who speaks to whom (using the position codes) and how (an act-by-act Bales categorization). The process was similar to that of simultaneous translation. For example, the sequence:

DOCTOR TO NURSE: Good morning. How is Mrs. Smith? Do you think we can stop the I.V.?
NURSE TO DOCTOR: She had a good night, but she's restless today.

would be recorded as follows:

040 : 189-
000 : 56-

In the above example, the doctor (040) greeted, ("1") and asked for an opinion ("8") and a suggestion ("9"). The nurse (000) did not return the greeting, gave an opinion ("5") and information ("6"). This could be a breakdown in communication. The sequencing aspects of interaction were not examined in the data analysis. However, if the phenomenon was consistent, the profile for doctor-nurse would show a higher percentage of Categories 1, 8, and 9. The nurse-doctor profile would have a deficit of Category 1, and peaks for 5 and 6. Such profile comparisons could then be followed by random or selective examination of sequences.

Two lines of the coding sheet were used for each conversation—one for each person's utterances—moving from left to right as the dialogue progressed. For example, if a nurse was talking to a nursing attendant, the coding might
look like this:

```
000 : 167 36 66444 41-
001 : 65122 3 3 1-
```

In this case, the conversation began with three acts by the nurse ("000"), followed by five by the nursing attendant ("001"), then two by the nurse, etc.

When no communications were occurring at a particular locus, the observers used the back of the coding sheet to record ethnographic impressions.

Loci were rotated systematically in the following order:

0 = nursing station
2 = S. corridors (Second West) or N. corridors (Station Five)
3 = S. rooms (Second West) or N. rooms (Station Five)
1 = charting room
4 = N. corridors (Second West) or E. corridors (Station Five)
5 = N. rooms (Second West) or E. rooms (Station Five)

Each day observers began at successive loci (e.g. Monday at "0" and "1," Tuesday at "2" and "4") in order to obtain as comprehensive coverage as possible. Because only five days' observations were completed per ward, loci "3" and "5" only reached the starting position once per week, whereas the others did so twice (once for each observer).
Depending on the locus, observers were sometimes required to circulate in order to remain accessible to potential conversations. As discussed above, in the charting room they sat in a central location where all conversations could be heard. In the nursing station, they positioned themselves centrally and could move immediately to monitor a conversation when it began. At both these sites it was possible to code two conversations simultaneously unless one had a very rapid pace. Others were ignored until the initial one was complete. In corridors, the observers placed themselves centrally when no conversation was occurring, and moved to communications as they commenced. Monitoring in rooms required continuous walking from room to room in order to provide equal coverage. Because other conversations could not be seen, observers switched to a new room when a conversation terminated or reached a duration of one minute, whichever occurred first, in order to avoid overrepresentation of one pair of communicators.

Because of the obvious presence of the research team, careful consideration was given to questions of artifact and control (Rosenthal and Rosnow, 1969). The observers had a definite impact on the ward communication structure in the early weeks of the project. However, after two to three weeks of part-time observation, the staff became accustomed to the presence of the observer. Webb, Campbell, Schwartz, and Sechrest's (1966) discussion of Unobtrusive measures was
carefully studied for ways to reduce the reactivity of the method, but their suggestions were not particularly applicable. Instead, the researcher elected to follow Argyris' (1968) approach to minimizing the "Unintended consequences of rigorous research" by building in motivation factors for the subject and the organization, and by developing meaningful participation.

Throughout the study, data sheets were open to examination by subjects. Staff and patients soon realized that nothing which they said could be traced to them as individuals, since only coded positions and interactions were recorded. This further reduced apprehension, and thus the observer's impact. On Sundays, when ward activities were minimal, observers were available to give further reassurance and explanations.

Having the observer record constantly, noting ethnographic impressions in the conversation breaks, was another means of reducing the obtrusiveness of the method. It was felt that subjects were less likely to notice someone who writes continuously than one who does so intermittently.

It had been suggested that a combination of audio-tape, video-tape and/or interviews be used after the major data collection to assess subjects' perceptions of the obtrusiveness of the method\(^1\). This was not possible because

\(^1\) This suggestion was made at a workshop of the Organizational Behavior Division of the U.B.C. Faculty of Commerce.
of time limitations. However, informal discussions with staff and patients during and after the study indicated that they became quite comfortable communicating in the presence of observers except when discussing their home situations and personal lives. A relatively high frequency of negative socio-emotional acts during the month of July indicated that subjects were able to communicate negatively when the occasion arose.

In discussions with staff, a third factor which they mentioned as contributing to open communication was the promise of feedback on their interaction patterns. During orientation sessions, the researcher explained that the data which staff would receive could only be as accurate as their input of data to the study. In other words, the onus was placed on the staff to communicate as "normally" as possible if they wished to receive accurate, helpful feedback.

F. DATA PREPARATION:

All data from the developmental three weeks ("1", "2", and "3") and the final three weeks ("5", "6", and "7") were keypunched, visually examined for errors, corrected, and then reorganized by a special computer program\(^1\). In this manner, the sequential material was transferred to a form

\(^1\) This program was developed by L. Chen.
suitable for further analysis, condensing 13,684 cases of raw data to 10,654.

These data were further verified before being compiled into two major files (one for weeks 1 to 3; the other for weeks 5 to 7) using the *Statistical packages for the social sciences*, Version 6.02 (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975). Considerable time was required for the editing process in order to eliminate not only keypunching errors missed in the initial visual editing, but also logical observer errors (such as miscoding sender/receiver "005" as "003" for one day). Ethnographic data provided considerable assistance for finding the latter errors.

As discussed above (page 30), Bales outlined four ways of analyzing interaction data—profiles, sequencing of acts, phases, and matrices. In the present study a who-to-whom position matrix was used. For each cell in the matrix, two interaction profiles were determined—one for the sender, and one for the receiver. Percentaged profiles were calculated (the frequency of each category converted to a percent of the total interactions) to standardize the data. This created some concern for ipsativity (Hicks, 1970), since there is a weak mathematical interdependence of the twelve percentages—i.e. when one increases, another must decrease. However, indications from the pilot study data were that this interdependence would be minimal. Matrices and profiles were tabulated for each observation period, and the moderating situational variables noted.
Complete sequencing of acts was not examined because of the magnitude of the data-handling problem. However, this information was available from the raw data to answer specific questions during the feedback process. For example, if the interaction profiles for a particular dyad showed a potential source of communication inconsistency, a random or selected sample of their interactions could be analyzed sequentially.

When Bales and Strodbeck (1951) examined the phases of problem-solving groups, they defined phases as "qualitatively different sub-periods within a total continuous period of interaction in which a group proceeds from initiation to completion of a problem involving group decision" (p. 485). They found that for a problem-solving group, movement occurred over time from problems of communication through evaluation to control (see key to Figure 2, page 25). The group concurrently had an increase in the relative frequency of both positive and negative reactions.

Phases were not assessed in the present research for two reasons. The first was that ongoing communication on a hospital ward is not identical to a "continuous period of interaction" in which a problem is identified, its ramifications explored, and a solution reached. More often the problem is solved through a number of discrete interactions over an extended period of time. The second reason was that, as discussed above (page 37), a "group
decision" is rarely, if ever, made in the medical context.

The two major data sets were grouped according to dyad, and interaction profiles calculated for each who-to-whom combination. Those with less than five time periods or less than fifty acts were eliminated (unless they completed a dyad pair in which the other half met these criteria), and the remaining profiles were examined for consistency over time.

These two sets were not directly comparable for two reasons. The first was that weeks 1-3 used Bales' old categorization system, and weeks 5-7, the new. This may have resulted in major differences in Category 2, and minor differences in several others. Because of the weak ipsativity of the percentaged profiles, these changes contributed an unknown variance to the two sets.

The second, and more significant alteration, occurred because of an unanticipated intervening variable which was not being monitored during the study—the weather. Wascana Hospital, a two-storey frame building, had no air conditioning (except in certain offices) and little air circulation because of ward design. Therefore, when temperatures in the first week in July reached 38 degrees Celsius, and humidity was over 70%, wards quickly became unbearable for staff and patients (and observers!). Working and living under such conditions, tempers flared quickly and tension levels rose.

Interestingly, the observational instrument proved
sufficiently sensitive to pick up these changes in emotional climate. When the profiles for the July data set were examined, the percentages of acts in Categories 11 and 12 were almost double those for August, when temperatures were lower. This finding was consistent for most staff-to-staff, staff-to-patient, and patient-to-staff interactions. Because of the mathematical interdependence of the percentages, the relative frequencies of the other ten categories were lowered and the two sets could not be directly compared. The importance of the alteration in the profiles corresponding to fluctuations in the weather will be discussed in Chapter IV.

Chi-square statistics were calculated for Categories 1 through 12, and for 3 through 10, on forty-six of the profiles. Both analyses showed a consistent pattern across the two data sets, giving some indication of profile stability over time (greater on the 3-10 analysis). Two split-half checks were also done on the major profiles "nurse-nurse" and "nurse attendant-nurse attendant" within the second set, with similar results.

Profiles for the second data set with greater than five periods and fifty acts (a total of 309—118 for Second West and 191 for Station Five) were plotted, using another special computer program. These formed the basic feedback data for the hospital. Graphed profiles for both pairs of a

---
1 This program was written for the study by P. Cahoon.
dyad (e.g. nurse-doctor, and doctor-nurse) were reduced in size and transferred to a single sheet of paper. Figure 6 gives an example of the profiles for one dyad. Sets of profiles were compiled for each staff position and staff department participating in the study. A single information sheet was written to accompany the profile sets, with instructions for their interpretation (see Appendix G). Department heads received copies of all profiles of their staff, accompanied by tables giving the exact values for the graphs.

The final three weeks' data were then divided into three days' "shakedown" on Station Five and five days' final data for each ward. All dyads with less than five time periods or less than one hundred acts were eliminated, together with those involving groups ("260", etc.), self ("900"), or patients ("300" through "659"). The remaining staff-to-staff data were used for the statistical tests of the hypotheses.
WSCRA W HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR
SECOND VEST
REGISTERED NURSE
TO
GENERAL PRACTITIONER

PERIODS= 9
ACTS= 64.

WSCRA W HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR
SECOND VEST
GENERAL PRACTITIONER
TO
REGISTERED NURSE

PERIODS= 9
ACTS= 40.

FIGURE 6
A. PRELIMINARY ASSESSMENT OF CATEGORY USE:

When the data had been edited and collated, Phi coefficients were calculated on every ward/week combination to determine differential category usage for the two observers.

Phi is a measure of association similar to Chi-square. It tests the difference between two categorical ratings but is independent of the sample size (N). It has a minimum value of -1.00 and a maximum of +1.00. The optimum value is 0.00.

Table III reports Phi coefficients greater than ± 0.09, and mean values (X) for the two data sets by ward. For weeks 1-3, ten out of seventy-eight Phi coefficients reached a value of ± .10; for weeks 5-7, seven out of fifty-two were at or beyond this level.

Tests of the significance of Phi (i.e. the null hypothesis that Phi=0) can be obtained from the knowledge that N times Phi-square equals Chi-square. However, because of the large sample size in this study, the null hypothesis would be rejected in all cases even though Phi is very small. This would be entirely an effect of the large sample size, and not a reflection of any strong association.
### TABLE III

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<td></td>
<td>85</td>
<td></td>
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<tr>
<td>5</td>
<td>(2W)*</td>
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<tr>
<td></td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>6</td>
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<td>7</td>
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<tr>
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</table>

* NO DATA WERE COLLECTED FOR 2W IN WEEK 5

J. A. Davis (1971) has outlined an arbitrary set of conventions for describing the strength of the association between two nominal variables as measured by the statistic "Yule's Q." According to his criteria, Q values between ± .01 to .09 should be interpreted as a "negligible positive or negative association", and those in the range .10 to .29 as a "low association". Since Phi is similar to Q, it is reasonable to use these criteria when interpreting the above findings. There was therefore only a negligible or low association between overall category use by the two observers on either ward.
B. RELIABILITY:

Many of the communication studies reviewed have used Pearson $R$ to assess inter- and intra-rater reliability. As discussed by W. A. Scott (1955, p. 323), this statistic is only appropriate when dealing with interval or ratio data. Since IPA is a nominal categorization, use of $R$ was considered inappropriate. Consequently, it was not possible to use standard reliability measures such as Kuder Richardson 20. The taped reliability data were therefore tested by two alternate statistics—Cohen's Kappa (percentage *act-by-act* agreement with chance removed) (1960), and Scott's Pi (*marginal* agreement with chance removed) (1955).

Two approaches were used because a single statistic is not available for handling act-by-act agreement for in-process scoring, where errors of unitizing are found in addition to those of categorizing. Cohen's Kappa, used extensively by Waxler and Mishler (1966), handles categorizing errors, but when adapted to account for unitizing errors it underestimates the reliability. In both instances, one of Cohen's assumptions—i.e. that there is no criterion for correctness which can be used for comparison—was violated by the reliability data. Nevertheless, the importance of obtaining a measure of act-by-act reliability during the training stages of the research necessitated the use of Kappa at that time. During
the final data analysis, an assessment of marginal category totals was desirable, since the data were to be used in that form. Pi was therefore used, even though it did not account for consistent differences between observers.

Scott's Pi, an index of inter-coder agreement, was designed for use in survey research "to measure the reliability of classifying a large number of responses into nominal scale categories (W. A. Scott, 1955, p. 321)." It ranges from 0.00 to 1.00, and assumes that the distribution of proportions over categories for the population is known and is equal for both raters. This assumption was not met by the reliability data. Pi is calculated by the formula:

\[ \pi = \frac{P_o - P_e}{1 - P_e} \]

where \( P_o \) = observed percent agreement

\( P_e \) = percent agreement expected on the basis of chance

Cohen's Kappa was also designed for statistical testing of nominal data, but on an act-by-act basis. It makes the following assumptions:

(a) units are independent

(b) judges operate independently

(c) categories are independent, mutually exclusive, and exhaustive

According to Bales' theory of communication, these three assumptions were met by the data, with the possible contaminating influence of sequential interdependence.
This statistic is used in situations where there is no criterion for correctness. The formula is:

\[ \kappa = \frac{P_0 - P_c}{1 - P_c} \]

where \( P_0 \) = proportion of units in which the judges agreed

\( P_c \) = proportion of units for which agreement is expected by chance

It is calculated from the actual distribution of assignment of acts to \( N \) categories by two observers, resulting in an \( N \) by \( N \) matrix.

Although the formulae for the two statistics appear very similar, "Pe" and "Pc" are defined differently. For Pi, "Pe" is the squared mean difference between the total acts assigned to each category by the two raters:

\[ P_e = \frac{P_{1A} + P_{1B}}{P_A + P_B} \times \frac{1}{100} \]

where \( P_A = \sum_{i=1}^{n} P_{iA} \) and \( P_B = \sum_{i=1}^{n} P_{iB} \)

In contrast, the "Pc" for Kappa is defined as the proportion of acts expected to be assigned to a particular cell by both observers on the basis of chance, given differing marginal totals, i.e. the joint probability of the marginal proportions:

\[ P_{ci} = \frac{(P_{iA})(P_{iB})}{P} \]

where \( P = P_A = P_B \)
Pi statistics for the three weeks of August 3 to 22, inclusive, were:

<table>
<thead>
<tr>
<th>August</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - 7</td>
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</tr>
<tr>
<td>10 - 15</td>
<td>.73</td>
</tr>
<tr>
<td>17 - 22</td>
<td>.71</td>
</tr>
</tbody>
</table>

overall reliability for three weeks was .86

Reliability using Kappa was calculated in two ways:

1. **categorizing errors only** -

<table>
<thead>
<tr>
<th>August</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - 7</td>
<td>.66</td>
</tr>
<tr>
<td>10 - 15</td>
<td>.71</td>
</tr>
<tr>
<td>17 - 22</td>
<td>.61</td>
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</tbody>
</table>

overall reliability .67

2. **categorizing plus unitizing errors** -

<table>
<thead>
<tr>
<th>August</th>
<th>Reliability</th>
</tr>
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<td>3 - 7</td>
<td>.58</td>
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<td>10 - 15</td>
<td>.57</td>
</tr>
<tr>
<td>17 - 22</td>
<td>.48</td>
</tr>
</tbody>
</table>

overall reliability .56

Given the variation in the above figures, it is difficult to draw conclusions about the reliability data. Since the study data were analyzed as percentaged profiles of category totals, the figures for Pi are the most appropriate to consider at the present stage of analysis. These are within acceptable range, although the deterioration across the three weeks should be noted (and will be discussed in Chapter IV).

The original objective of using Kappa during the developmental stages of the research to monitor the progress of achieving act-by-act reliability could not be met because of the lack of suitability of the statistic. This was an
unanticipated problem. The study has therefore uncovered the need for future dialogue with statisticians to develop a suitable measure of act-by-act reliability for in-process scoring of interaction data.

Intra-rater reliability was determined by Pi to be .80 for the researcher, and .86 for the research assistant. An explanation for this difference will be presented below.

C. **TESTS OF THE HYPOTHESES:**

It will be recalled that the first part of Hypothesis 1 was:

H1-a The paired Categories (i.e. 1-12, 2-11, etc.) are sequentially interdependent.

After the data were collated, the researcher realized that H1-a could only be assessed by sequential analysis of the data. As previously discussed, this is an extremely time-consuming and arduous task which could not be done in the present study. This hypothesis was therefore not tested.

The next two hypotheses were examined together:

H1-b The relative frequencies of the twelve categories are independent.

H2 Three of the Categories (2, 6, and 11) are more strongly correlated with the others than are the remaining nine.
These hypotheses were tested by a series of R-type factor analyses on three subsets of the final data—each ward aggregated by day, observer and dyad, plus a combined analysis of ward, observer, dyad. In each case, principal components analysis was used, with iterations to establish communalities. By performing both orthogonal (varimax) and oblique (direct oblimin) rotations, orthogonality of the variables could be verified. The number of factors was set at twelve, with no minimum Eigenvalue, to determine whether each category would load on a separate factor.

Tables IV, V, and VI give the varimax rotated factor matrices, which assume orthogonality as conceptualized by Bales. All three analyses provided strong support for the orthogonality of Bales' new IPA categories. Excluding Category 6 (which will be discussed below), there was no indication that Bales' new categories tended to load together on the factors. H1-b was thus confirmed in this analysis.

Removing the assumption of orthogonality, the three oblique rotations summarized in Tables VII, VIII, and IX showed a weak interdependence of some categories, but this was minimal. In general, varimax loadings of .10 to .19 tended to increase on the oblique structure to between .20 and .29 when the orthogonality restriction was lifted. These values were still low, relative to the high loading of the single dominant variable. This analysis further supported Hypothesis 1-b.
**TABLE IV**

**VARIMAX ROTATED FACTOR MATRIX—BOTH WARDS**

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>FACTOR 1</th>
<th>FACTOR 2</th>
<th>FACTOR 3</th>
<th>FACTOR 4</th>
<th>FACTOR 5</th>
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*(N = 44)*

**ONLY FACTOR LOADINGS ≥ 0.20 ARE REPORTED**

**TABLE V**

**VARIMAX ROTATED FACTOR MATRIX—SECOND WEST**

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*(N = 118)*

**ONLY FACTOR LOADINGS ≥ 0.20 ARE REPORTED**
### TABLE VI

**VARIMAX ROTATED FACTOR MATRIX—STATION FIVE**

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(*n = 160*)

**ONLY FACTOR LOADINGS ≥ .20 AND REPORTED**

### TABLE VII

**OBLIQUE FACTOR STRUCTURE—BOTH WARDS**

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<thead>
<tr>
<th>VARIABLE</th>
<th>FACTOR 1</th>
<th>FACTOR 2</th>
<th>FACTOR 3</th>
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(*n = 44*)

**ONLY FACTOR LOADINGS ≥ .20 ARE REPORTED**
**TABLE VIII**

**OBLIQUE FACTOR STRUCTURE—SECOND WEST**

<table>
<thead>
<tr>
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(N = 118)

ONLY FACTOR LOADINGS ≥ .20 ARE REPORTED

**TABLE IX**

**OBLIQUE FACTOR STRUCTURE—STATION FIVE**

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<th>VARIABLE</th>
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</table>

(N = 160)

ONLY FACTOR LOADINGS ≥ .20 ARE REPORTED
The clarity of these findings raised the question of whether the factor structure was actually as simple as it appeared, or could this be a statistical artifact? A particular concern was the lack of an obvious order for variable loadings on the factors.

Table X gives the major variable loadings, Eigenvalues, and proportions of the variance explained, for each of the three data sets.

**TABLE X**

**EIGENVALUE, MAJOR VARIABLE, & PERCENT OF VARIANCE EXPLAINED FOR EACH FACTOR—WARDS SEPARATE AND COMBINED**

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>BOTH WARDS</th>
<th>SECOND WEST</th>
<th>STATION FIVE</th>
</tr>
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<td>EIGENVALUE</td>
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</table>

When the variable/factor relationship was examined more closely, some consistency emerged. Categories 2, 3, 7, 1, 8, and 12 loaded in this order on the factors of the combined wards. This relationship was also evident on the Second West factors, except that P7 and P1 were reversed.
The Station Five factors had P3 and P1 reversed, but otherwise the order confirmed the other two analyses. Therefore, only Categories 4, 5, 9, 10, and 11 loaded randomly.

The lack of total consistency is believed to have occurred because there was no single dominant factor which would account for most of the data variance. In Table X, all Eigenvalues are relatively close in magnitude. No single factor makes a major contribution to the explained variance.

Hypothesis H2, which evolved from the analysis of the pilot study data (see Appendix A), was partially supported by two out of the three varimax factor analyses. Category 6 (gives information) loaded moderately (.30 to .50) on four of the factors, and weakly (.20 to .29) on three others in the Second West data. Using the combined Ward data, Category 6 loaded moderately with Categories 2 and 4, and weakly or moderately with 11 and 12. On the Second West data, Categories 3 and 5 also had a moderate-to-weak contribution to their factors by Category 6. No such pattern was found in the varimax analysis for Station Five.

When the direction of the varimax loadings was examined, all factors but one (Table IV, Factor 10) were in the reverse direction to the other variable. That is, Category 6 was negatively associated with Categories 1, 2, 3, 4, 11 and 12 (those at the extremes of the categorization hierarchy). Examination of the oblique factor structure
revealed a similar but accentuated pattern because of the general increase in the factor loadings.

Table XI summarizes the number and direction of Category 6's co-loadings without regard for their magnitude.

<table>
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<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>C7</th>
<th>C8</th>
<th>C9</th>
<th>C10</th>
<th>C11</th>
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<tr>
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<td>4</td>
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</table>

In general, Category 6 had a strong negative association with Categories 1, 2, 4, 8, and 11, and a weak negative association with 9, 10, and 12. It had a strong positive association with Category 5 (the central, task dimension of giving opinions). Findings for Categories 3 and 7 were ambiguous.

It therefore appears that, using Bales' new categorization, Category 6 remains an adjunct to most other communication behaviors, rather than a unique dimension in and of itself. However, Categories 2 and 11, which under the old system also appeared to be adjunctive, have in the new one been refined to the point where they emerge as unique types of interaction behavior.
The oblique rotations were further examined to determine whether any trends were evident towards factors loading along the directional dimensions hypothesized by Bales to correlate with each of the new categories. No such pattern emerged.

Hypothesis 3 was stated as follows:

H3 Bales' twelve interaction Categories are inclusive of all types of verbal communication behavior.

This hypothesis was tested informally by the number of acts coded into a thirteenth category ("0"=not codable). Table XII gives the total number of acts in this residual category by week, plus their contributions to the percentage profiles.

**TABLE XII**

**ABSOLUTE & RELATIVE FREQUENCY OF CATEGORY 0—BY-WEEK**

<table>
<thead>
<tr>
<th>CATEGORY 0 - ABSOLUTE FREQUENCY</th>
<th>WEEK 1</th>
<th>WEEK 2</th>
<th>WEEK 3</th>
<th>WEEK 5</th>
<th>WEEK 6</th>
<th>WEEK 7</th>
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</thead>
<tbody>
<tr>
<td>24</td>
<td>170</td>
<td>40</td>
<td>220</td>
<td>406</td>
<td>470</td>
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<tr>
<td>CATEGORY 0 - PERCENT OF TOTAL</td>
<td>.40 %</td>
<td>1.68 %</td>
<td>1.80 %</td>
<td>2.16 %</td>
<td>2.62 %</td>
<td>2.85 %</td>
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<tr>
<td>TOTAL ACTS</td>
<td>5,901</td>
<td>10,094</td>
<td>2,223</td>
<td>10,178</td>
<td>15,504</td>
<td>16,511</td>
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</table>

This hypothesis was not submitted to a formal test of significance using Chi-square for the same reasons given above (page 80), but the data appear to support H3. The maximum value for Category 0 is 2.8% of the total acts by all staff and patients. The slight but steady increase in
percentages between weeks 1 and 7 likely reflects an observer fatigue factor.

Hypotheses 4, 6, 7, and 8 were tested by a series of Multivariate Analyses of Variance (MANOVA). The data-handling program used was the University of California, Los Angeles' BMD:X63, a MANOVA program which allows for unbalanced design and unequal cell frequencies. Because of program limitations, only the main effects could be obtained—interaction effects were grouped with the error term.

A series of partially complete MANOVA's was executed to examine combinations of the following independent and intervening variables: position dyad, week, day, time period, ward, locus, and observer.

1. Week:

Although this variable could not be rigorously tested from the final data, some indication of its impact could be gained by comparing three days' data from Station Five in the initial "shakedown" week with the same three days from the final data set. A subset of twenty-one dyads common to both weeks was selected, each with a minimum of five time periods and one hundred acts. Data were then aggregated in two ways:

WEEK by DAY by OBSERVER by LOCUS ("WDOL")
WEEK by OBSERVER by DyAD ("WODy")
After aggregation, category totals and percentage profiles were calculated for each combination. All levels of independent and intervening variables were then dummy coded, and their effect on the dependent variable profile assessed. The significance level of the F-Statistics for the main effects is given in Table XIII.

**TABLE XIII**

**MANOVA--SIGNIFICANCE OF F-STATISTICS FOR WEEK**

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N=70    N=83

2. **Ward**

Again, a subset of 11 dyads common to both wards during the final data collection was used, with the same minimum frequency criteria. Findings are summarized in Table XIV.

**TABLE XIV**

**MANOVA--SIGNIFICANCE OF F-STATISTICS FOR WARD**

<table>
<thead>
<tr>
<th></th>
<th>WdDOL</th>
<th>WdDDy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward</td>
<td>ns</td>
<td>.05</td>
</tr>
<tr>
<td>Day</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td>Observer</td>
<td>.001</td>
<td>.01</td>
</tr>
<tr>
<td>Locus</td>
<td>.025</td>
<td></td>
</tr>
<tr>
<td>Dyad</td>
<td></td>
<td>.001</td>
</tr>
</tbody>
</table>

N=113    N=44
3. **Day, Observer, Time Period, Locus:**

Two analyses were completed for these intervening variables—one for each ward—using the minimum criteria outlined above. In order to reduce the number of cells in the analysis, the time of day was reduced to three major "time periods"—0800 to 0930, 1030 to 1200, and 1300 to 1430 hours for findings on these four variables, see Table XV.

**TABLE XV**

**MANOVA—SIGNIFICANCE OF F-STATISTICS FOR DAY, OBSERVER, TIME PERIOD, LOCUS**

<table>
<thead>
<tr>
<th></th>
<th>DOTL(2)</th>
<th>DOTL(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>.05</td>
<td>.005</td>
</tr>
<tr>
<td>Observer</td>
<td>.001</td>
<td>.001</td>
</tr>
<tr>
<td>Time Period</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Locus</td>
<td>.05</td>
<td>.05</td>
</tr>
</tbody>
</table>

N=165     N=133

Very similar patterns were obtained on the two wards, but "day" was less significant on Second West. Implications of this will be discussed below.

4. **Day, Observer, Dyad:**

The two most significant variables from the preceding analysis—i.e. day and observer—were then combined with dyad. Here an identical pattern emerged for the two wards (see Table XVI).
One question raised by the above analyses was whether different patterns of significance might emerge for grouped roles versus singular ones. Two separate MANOVA's were performed for each ward—one on all frequent profiles where both members of the dyad were grouped positions, and one where either or both members were singular. Results were complicated by differing distributions of positions on the two wards. On Station Five, a majority of the positions were singular; on Second West, most were grouped. Allowing for the different N's involved, patterns of significance did not appear to differ markedly in the two types of analysis, with one exception. On both wards, locus reached the \( p \leq .001 \) level for singular roles, and was only significant between \( p \leq .10 \) and \( p \leq .05 \) for grouped roles.

Summarizing the findings relevant to Hypotheses 4 through 8, the following assessments can be made:

\textbf{H4} The major independent variable which influences the communication profile in a hospital ward is the position dyad.

This was strongly supported \((p \leq .001)\) in all analyses.
**H5** Task factors have a weaker, but still significant, effect on the interaction profiles.

This could not be tested, for reasons stated above.

**H6** The contextual factors of day, week and time do not have a significant effect, when controlled for other intervening variables.

Results varied according to the particular variable.

Day was not significant in the WDOM analysis, when only three days' data were used. Apart from that, it was generally significant between $p \leq .05$ and $p \leq .01$. This effect was accentuated on Station Five, where events consistently varied from day to day because of weekly clinics and team conferences, preparation for weekend leaves, admissions, discharges, etc.

Week was highly significant. This unanticipated effect is discussed below under "observer."

Time period was consistently not significant.

**H7** The location of interactive behavior (i.e., ward, locus) has a strongly significant mediating effect on the profiles of all dyads.

This prediction was partially upheld.

Ward was inconclusive—it was significant beyond the $p \leq .05$ level when the data were analyzed one way; the other way, it was not significant.

Locus, with the exception of the "week" analysis (using fewer dyads and days), was significant at between $p \leq .05$ and $p \leq .025$, supporting this part of the hypothesis. The observed difference between singular and grouped positions
is understandable, since several of the single incumbents worked mainly at the nursing station (e.g. senior nurse, ward clerk).

H8 The effect of a specific observer does not produce variation in communication profiles.

This hypothesis was definitely refuted. Possible explanations for this finding are discussed in Chapter IV.

D. HOSPITAL FEEDBACK:

As part of the researcher's commitment to the hospital, it was agreed that objective information on communication patterns could be provided to staff, department heads, and administrators. The hospital was aware from the outset that the method was not sufficiently refined to separate "good" from "bad" communication, except as related to general communication principles. What could be provided was a mirror which would reflect to the participants their communication patterns.

The process of initial feedback which the subjects and researcher agreed upon was as follows: basic level staff would receive results before their department heads, and the latter, in turn, before the administration. Persons in singular positions would meet individually with the researcher, and would be given the master copy of their profiles.
A series of one-half hour meetings was held for small groups of staff during the first week of the December feedback. Each staff participant received copies of the information and patient coding sheets, plus all graphs for her/his position. In some cases, this was only one or two dyads; in others, it ranged up to twenty-nine pairs of profiles. The information sheet was thoroughly discussed, focusing on understanding the layout of the profiles and how to interpret them. It was emphasized that the researcher's role was not to assess whether discrepancies in the paired profiles were "good" or "bad". The onus was placed on incumbents of the two positions to examine this dimension. Staff kept their copies of the material. They were encouraged to go over the profiles on their own, or preferably with a group of their co-workers, and to examine discrepancies and discuss possible causes and solutions. They were told that the researcher would return in four to six weeks to assist the hospital to formulate a plan of action using the communication data.

In the second week of the December feedback, the researcher met individually with each department head. They first received the same basic presentation as their staff. In most instances, this was followed by a more detailed discussion of questions raised by the profiles.

At the end of the first feedback period, the researcher held a two-hour meeting with three members of the management committee of the South Saskatchewan Hospital Centre, plus
the administrative coordinator of Wascana Hospital. After reviewing the method of data collection, a selected set of profiles was presented which, from the researcher's point of view, might have future administrative implications (see Appendix F). Since the original mandate was only to collect the data and present it to the staff and administration, guidance was sought from the committee on the desirability and format of future input. They requested that the researcher elicit as many suggestions as possible from the staff during the next feedback visit (keeping in mind budget stringencies), and involve the soon-to-be-established Staff Development Department (formerly Nursing Inservice Education) as heavily as possible. Staff Development could then take over responsibility for implementing any action arising out of the study.

The second two-week feedback session was postponed until February at the request of the hospital administrator. It began slowly, as department heads had just learned of a change in administrator (the third in three months) and impending cuts in staff positions. Because of the general unrest throughout the hospital, emphasis was shifted to maximizing the effectiveness and efficiency of existing staff and programs rather than developing new areas.
The researcher and the director of staff development met with the heads and/or supervisors of the following departments: Dietary, Housekeeping, Medical Staff (General Practitioners and Consultants), Nursing (both wards), Occupational Therapy, Physiotherapy, Pharmacy, Psychology, Social Work, and Speech and Hearing. At each meeting, the department members present were asked:

(a) What additional work had they or their staff done with the communication feedback since mid-December?

(b) Did they see any need for action? If so, what had they already done? What should be suggested for the future?

(c) What type of help would they like, either from the researcher or from Staff Development, for:
   - general staff members?
   - supervisors and/or department heads?

Four major inter-departmental problems were discussed:

(a) low communication by all staff with Station Five patients with moderate to severe communication impairment (i.e. "aphasia")

(b) functioning of team conferences on Station Five

(c) desire of department heads and/or supervisors for some training in how to help staff communicate more effectively

(d) general staff's wish for information on effective communication.

With the exception of number one, these issues were not related to the specific interaction profiles, but were raised by the department heads as relevant concerns.
In addition, a number of intra-departmental problems were discussed. These generally focused on the specific communication profiles for that department. Examples of the concerns which were raised are:

(a) low communication of dietary aides with patients with communication impairment (aphasics)

(b) strong communication role of dietician with Station Five patients on an experimental program of therapeutic diets

(c) nurse-physician imbalance of Category 1 (seems friendly)

(d) low communication of clinical pharmacists with all patients, especially aphasics

(e) frequency of negative emotional reactions (tension, unfriendliness) from patient to physiotherapy attendant on Second West

Action was taken on most of these concerns. In some cases, the researcher acted as a direct resource, conducting classes for department heads and staff. In others, only a neutral catalyst was needed to enable the department members to solve their own problems. Issues which required administrative support and/or decision-making were given additional emphasis in the final report to the management committee (see Appendix H for details of concerns raised, conclusions reached, and action taken during the two weeks).
A. **DISCUSSION:**

The findings of the study can be divided into four areas of concern—theory, method, the research model, and the utility of the method.

1. **Theory:**

   The construct validity of any empirical measure must first be established before consideration is given to such factors as reliability or utility.

   Bales' original premise that the categories are orthogonal was strongly supported by the factor analyses performed on the present and pilot study data. Sequential interdependence of the category pairs could not be assessed.

   Findings concerning Category 6 (gives information) merit further interpretation. It appears that Categories 6 and 5 (gives opinion) are frequently intermingled in a conversational sequence. However, Category 6 is negatively associated with the expression of positive and negative affect (Categories 1 and 12), giving suggestions or leadership (Category 4), and seeking opinions (Category 8). Thus information-giving tends to be done in isolation from these other five dimensions. Likewise, when the five other communication behaviors are exhibited, the amount of
information provided is reduced.

While the directional indicators of the new categories were helpful to the observers in deciding where a particular act should be placed in the interactional space, evidence of directional loadings was not found in the factor analyses. Since the new categorization is still in the embryonic stage of development, considerable construct validation is necessary to determine if these dimensions influence actual behavior, or whether they are more relevant to perceptual data. The present research questions the validity of the directional hypotheses for interpreting interaction behavior at the level of the organizational position. Other comparative and contrasting studies are necessary to further examine this issue.

The study data also showed strong indications of face validity. Empirical variations in interaction profiles reflected "real" events occurring during the study which were described by the ethnographic data. When the weather was hot, and the ward atmosphere was described as "tense", the profiles had a higher proportion of negative socio-emotional acts. The statistical significance of "day" on Station Five is associated with the observation that different events happened on that ward on specific days. On Second West, where there was little observable difference between one day and the next (including weekends), the variable "day" had only a minimal impact on the profiles.

No strong patterns of variation were noted
ethnographically within days across the time periods spanned by the study, and time was not a significant factor in the analysis of variance. The duties of three of the main singular communicators (ward clerk, senior nurse, and assistant director of nursing) restricted many of their communications to the nursing station. Comparisons of singular versus grouped profiles found that "locus" was highly significant for the singular cases.

The above findings, if substantiated by future research, could make a significant contribution to the development of a "theory of organizational communication."

2. Method:

Turning from issues of theoretical relevance, attention should be focused on the methodological concerns examined during the study.

The most important finding concerning the research method was that the position dyad plays a dominant role in determining patterns of communication. The basic premise that "each social position within the organization has a consistent set of interaction patterns" was upheld. There are several implications arising from this finding.

The first is that the functional position, as defined above, is an important focus for the study of organizational behavior. This area of concern has been neglected by researchers in the field, who have tended to focus on the individual, the group or the organization.
An extensive review of the use of "role" and "position" in the organizational literature over the past five years (McGill, 1975) has shown that these concepts have considerable potential for bridging the gap between "macro" and "micro" approaches to the study of organizations. D. J. Levinson (1959), in a seminal article on "Role, personality, and social structure in the organizational setting", suggests that one of the "most alluring qualities (of the concept 'role') is its double reference to the individual and to the collective matrix.... The organization provides a singularly useful arena for the development and application of role theory (p. 170)." He has thereby issued a dual challenge to Organizational Behaviorists—to develop an integrative theory of organizational roles, and to apply this framework to empirical analyses of behavior.

Three other works reiterated Levinson's challenge. Hickson (1966) recognized the potential utility of role theory for organizational analyses, but focused only on role specificity. Katz and Kahn (1966) suggested that role was, "...the major means for linking the individual and organizational levels of research and theory; it is at once the building block of social systems and the summation of the requirements with which such systems confront their members as individuals (p. 197)."

However, they only explored the role-taking episode. The integrative theme then lay dormant until Lichtman and Hunt (1971) suggested that, "roles do more than link the individual and the social structure—they unite them (p. 252)."
Levinson's dual challenge has not been met. Few systematic attempts have been made to develop role theory as a conceptual link between the individual and the organization. Applications of role theory are disjointed, and empirical analyses of these concepts vary greatly in rigor. Future work in this area holds considerable promise, and should be given priority by organizational researchers.

The second implication is that the understanding of organizational behavior is enriched by the examination of interactive behavior of dyads as well as that of individuals. It was the who-to-whom combination which influenced the interactions, not the position incumbent in isolation.

A third implication is linked to the finding that stable behavior patterns can be identified for the incumbents of particular organizational positions. Whereas Bales found little stability for individuals across groups, the present study demonstrated stability for position dyads across a time span of eight weeks and a variety of situations.

Given the above, one of the study's significant contributions to the field of organizational behavior should be to emphasize the wealth of understanding which can be gained by studying organizations at the level of the functional position.
The other major methodological finding of the study was that, while acceptable levels of intra- and inter-rater reliability could be achieved on data unrelated to the type of organization being studied, the particular observer had a strongly significant effect on the ward interaction profiles. This was not anticipated, and is a major concern for future use of the method. There are at least three possible explanations for the consistent significance of the variable "observer".

The first is the divergent backgrounds of the two observers. The study design purposely employed persons with differing exposures to this type of organization in order to minimize any observer "expectancy effect." The researcher is still of the opinion that the choice of an assistant with no exposure to the health care system was justified at the time from the point of view of study design and richness of ethnographic data. However, the crucial question now arises whether an observational team can function effectively with such divergent backgrounds. This factor is particularly suspect as a contributor to the "observer effect" because of the reasonably high reliability attained on the "neutral" taped material. One would suspect that the interpretive element during "in process" coding is stronger than anticipated.

Current studies of organizational climate suggest that a particular type of organization develops a unique climate. It would therefore seem reasonable to postulate that some
aspects of that climate are only accessible to "insiders" who have experienced its impact and have become sensitized to its subtleties. An "outsider" who has not been socialized into a particular organizational climate may view ongoing behavior from a different perspective than an "insider." It is important to recognize that neither view of the organization is correct a priori.

While the above approach to study design has not yet been explored by organizational researchers, it has been a significant concern in the field of organizational consultation for many years. In 1959, an entire issue of the "Journal of Social Issues" was devoted to the topic of group and organizational consultation. Several of the authors referred to the multiple roles of the consultant (Gibb, 1959; R. Lippitt, 1959; Seashore & Van Egmond, 1959).

G. L. Lippitt (1959) emphasized that,

"A consultant relates to a client group in terms of its previous background and history, and must work within the dimensions of that situation (p. 50)."

According to H. Levinson (1972), "Pure objectivity or detachment is impossible in the behavioral sciences (p. 17)." He maintains that procedures for data collection are similar, regardless of who initiates the request for assistance—the organizational leader or the consultant/researcher. In either case the researcher becomes "embedded in the organizational process (p. 24)."

The 1975 Academy of Management meetings included a Managerial Consultation Division at which several speakers
considered the relative merits of in-house versus external consultants. Fitzgerald (1975) emphasized that each approach had its advantages. One of the main points in favor of the in-house approach was that familiarity with organizational intricacies could lead to a more realistic evaluation of the feasibility of proposed actions. Conversely, the outside consultant was seen to have a more impartial viewpoint, a definite asset in some situations.

The organizational change literature has also devoted considerable attention to achieving an optimum balance between involvement and detachment in the consultant-client relationship (Bennis, Benne, & Chin, 1969; Dalton, Lawrence, & Greiner, 1970). Argyris' (1969) discussion of the marginal role of the consultant is particularly germane. He emphasized the behavioral inefficiencies created for both parties by a discrepancy between the values of the consultant and client. Huse (1975) also explored the impact of trust versus that of impersonality (p. 312-313) and suggested that these should be balanced to meet the particular needs of the organizational system.

Whereas most of the methodological literature focuses on the need to control "expectancy bias", perhaps it is time for organizational researchers to begin to manage this phenomenon. In other words, in observational studies the degree of researcher socialization should be matched to the objectives of the research. If the main focus is on findings unaffected by organizational climate or milieu, the
research team should consist of novices to that particular context. If, on the other hand, the objective is to study the interactive effects of a set of variables within organizations, then researchers should be exposed to some of the same socialization as participants. Thus, the composition of the study team should reflect the study design, rather than impinge upon it.

This approach has been alluded to by Suchman (1967) in his comparison of evaluative versus nonevaluative or "scientific" research. However, he has only considered alterations in research design which are required for evaluation studies. Desirable criteria for the researcher have not been mentioned. There is a strong implicit assumption in this and other discussions of "applied" versus "basic" research that one or the other approach is somehow "better" in an absolute sense. This evaluative bias may be hindering the balanced development of organizational studies. It should be eliminated, and replaced by an integrative approach to research methodology in which all studies, whether theoretical, empirical, applied, or evaluative, would be assessed on the basis of their contributions to an overall understanding of how people behave in organizations.

Recent discussions of "action research" have made a definite contribution to this concern. Huse (1975) has summarized this synthesis of research and consultation as follows:
"...action research is a cyclical process which focuses on several main issues: joint collaboration between client and change agent, heavy emphasis on data gathering and preliminary diagnosis prior to action planning and implementation, careful evaluation of results before action is taken, and the development of new behavioral science knowledge which can be applied in other organizational settings, as opposed to the application of existing behavioral science knowledge (p. 103)."

A second rival hypothesis for the observer effect is that each observer may have differentially selected conversations to code. It became apparent during discussions towards the end of the study that the researcher's hospital background facilitated coding of conversations in patient rooms and cubicles during such treatment procedures as bathing and dressing, whereas the research assistant did not feel comfortable entering such situations. However, since patient data were excluded from the above analysis, the importance of this observer selectivity cannot be assessed at present.

The third explanation for the impact of the observer is an interaction between "week" and "observer." It will be noted from the reliability data that the researcher's own reliability declined over the final three-week period more rapidly than did the research assistant's. This was likely the effect of fatigue on judgment and speed. Because of limited funding, the researcher was required to do the work of a clerical assistant in evenings and on weekends throughout the study. In addition, during the final two weeks of data collection staff called upon the researcher to
settle issues not directly connected with the observational study. This meant that "rest" breaks between coding periods were virtually nonexistent.

One very important caveat for future research which the fatigue explanation underscores is the importance of adequate clerical assistance for observational studies. Because of the degree of mental acuity demanded, it is particularly important that observers not be overtaxed.

At the outset of the present study, it was recognized that observational studies "often take the researcher into methodologically muddy water (page 6)." The observer effect discussed above exemplifies the type of problem encountered by this type of research. However, it is important that such findings should not prevent future undertaking of similar studies. Rather, they should be considered as new types of obstacles to be overcome by careful and systematic investigations.

The reliability findings indicate that Pi values of .85 can be achieved within a two-month training period. Since the training program was being refined at the same time, it is believed that a four- to six-week period would now be sufficient to achieve this level. However, this estimate of training time has yet to be verified.

Act-by-act assessment of in-process scoring was not possible because of statistical limitations. Its importance during the training process should not be underestimated. Confidence cannot be achieved in marginal scores during the
final data analysis unless the preceding process has been monitored on an act-by-act basis. Until such a statistic is available, the researcher's method of monitoring the percentage of unitizing and categorizing errors, without considering chance, is the best available alternative. It is imperative that it be superseded by a suitable statistic as soon as possible.

Documentation of the training procedure for IPA in-process scoring was one objective of the study. This material has been collected, but additional time is required to produce a succinct training manual. The need for such a document was re-emphasized by the study, and this work will receive high priority in the near future.

3. The Research Model:

The two most significant effects in the research model (position dyad and observer) have already been discussed.

The contextual factor "day" had a greater impact than was anticipated. It is encouraging to find a relationship between variation in interaction patterns and regular weekly events. On Station Five, different weekly conferences on particular days brought different communicators to the ward. Behavior in these meetings, and on the ward before and after, varied with the persons present and the topics being discussed. This was reflected in the observed patterns of communication, a further indication of the appropriateness of the instrument for this type of analysis. It seems
sufficiently sensitive to identify consistent daily shifts in the patterns of interaction, and therefore may have considerable potential for monitoring staff and patient behavior changes over time.

The type of ward was a doubtful determinant of communication behavior in this study. Further comparisons are necessary to ascertain if consistent patterns emerge across health care organizations.

The effect of locus on the communication matrix is moderated by the positions of the communicators. When singular communicators, whose positions restrict sites of interaction, are excluded, location within the ward plays only a minor role in influencing behavior patterns.

The non-significance of time period is encouraging methodologically, as it indicates that the tool is not hypersensitive. The ability to distinguish minor from major moderators is important in any instrument for measuring organizational behavior.

4. **Utility Of The Method:**

The study of interpersonal and group phenomena using IPA, while in vogue in the 1950's and early '60's, has fallen somewhat into disfavor because of researchers' disappointment with the findings. Many criticisms focus on its lack of conceptual richness. This was one of the reasons for Bales' addition of directional dimensions to the instrument. However it can be argued that the lack of
interpretive power lies in the uses made of the tool, rather than the categorization itself. Perhaps at the individual level of analysis it is lacking in usefulness. However, at the positional level it appears to have considerable interpretive power, while retaining sufficient generality to be used across a wide spectrum.

If the above findings are verified in future studies, the method could play a vital role in monitoring changes in patterns of health care delivery. An example of its use would be monitoring alterations in the focus of care from chronic to rehabilitation, a difficult transition facing many institutions today. An objective measure for organizational feedback on active versus custodial patterns of care would be of significant assistance to health care administrators and practitioners. Similar use could also be made with organizational development programs. A team of internal and/or external observers could be trained to assess the unit's interaction patterns, to diagnose areas of breakdown, and to monitor efforts to improve coordination of patient care.

One of the major methodological drawbacks, however, is the cost of such research. The method used in the present study is both time-consuming and expensive in terms of the cost of the research team. However, little time was demanded of hospital staff and patients, an important consideration for research in health care organizations where the price of staff time is high because of the degree
of professionalization. Further refinements of training procedures, the development of a suitable statistic for assessing in-process act-by-act reliability, and streamlining of methods for collating and analyzing the data should contribute to a reduction in the expense of such studies. Future research in the use of the technique should carefully assess the cost factor and attempt to determine the cost/benefit ratio (a controversial topic in the economics of health care).

Considerable time was spent during the study developing and implementing the method for feedback to the participating hospital. As can be seen from the final report to the administrator (Appendix H), some of the issues considered in the two feedback sessions were only peripherally related to the study data. Others, such as the low communication with aphasic patients on Station Five, were a direct result of this input.

Most staff reacted positively to the initial feedback. When the findings differed from their own perceptions, they had sufficient confidence in the validity of the data to question and reassess their own perceptions, and to critically examine discrepancies between the two sources of information. Only one group of five stated to the researcher that the findings were not valid because they had not communicated freely when the observers were present. All others said that they had communicated normally, and therefore the data deserved careful consideration.
Several staff groups took action as a result of the initial feedback (e.g. Physiotherapy, Speech Therapy). Others required more time with the researcher to clarify their interpretations. They decided on a course of action during the second phase. Only one department made no attempt to use the feedback data.

While the patient data have not yet been subjected to extensive multivariate analysis, visual examination of the patient-to-staff profiles shows considerable variation across one or more of the three patient dimensions. For example, the nurse's interaction with patients tended to vary most with their communication impairment, whereas the occupational therapist's differed mainly by length of stay.

From the foregoing, it can be seen that the study did have value for hospital staff at several levels. The next question to be asked is the resultant impact on patient care. This effectiveness dimension can only be assessed by longitudinal studies, which are strongly recommended for future phases of the research.

B. FUTURE RESEARCH DIRECTIONS:

During the initial examination of the literature, a number of articles were reviewed which had implications for future research.
In relation to the development of a theory of organizational communication, many of the findings of Georgopoulos and Mann (1962) could be tested in future convergent and discriminant validation of IPA. In addition, the relationship between Bales' concepts and those of Transactional Analysis (Berne, 1964; James & Jongeward, 1971) should be explored.

Methodologically, future studies should explore the use of longitudinal research designs such as that employed by Talland (1955), who applied IPA to the problem of analyzing therapeutic discussion groups. The simulation approach of Hess (1969) also holds considerable promise, particularly if used in combination with one or more of Campbell and Stanley's (1963) quasi-experimental designs to test for causal relationships.

In future research models, interaction as a horizontal coordinator in organizations should be studied in concert with other phenomena such as leadership. Because of the type of categorization, IPA has a significant contribution to make to such investigations. The new Category 4, for example, is hypothesized to be almost purely a "leadership" dimension. Therefore studies of convergent and discriminant validity, using this and other measures of organizational leadership, could play an important role in the understanding of organizational integration. Manheim's (1960) findings on the effects of status and leadership should also be helpful in future investigations.
The effectiveness of organizational communication should be a major concern in future examinations of the utility of the method. Here the work of N. C. Scott (1973) and other nursing researchers should be particularly helpful. For example, comparisons could be made of the relative validity and utility of IPA and NOSY in several different settings and across a variety of positions. This would assist researchers to determine the appropriate degree of category specificity for interaction research in various health care contexts.

The foregoing discussion in no way exhausts the possibilities for future research in the field of observation of organizational communication. Rather, it is intended to suggest a number of ways in which the present research may stimulate others to explore the concerns raised in the rationale of this study.

C. CONCLUSIONS:

The methodological objectives of the present study, as outlined above (page 8), have been met. The study has demonstrated that communication behavior can be consistently measured in the organizational context. The perceptual set of the observer, as determined by exposure to organizational socialization, is believed to function as a major intervening variable.
Bales' Interaction Process Analysis can be refined for use in the organizational environment. As long as subjects are fully aware of the nature and objectives of the research, and have achieved some degree of commitment, the presence of a recording observer does not overly disrupt the organizational milieu. The method used in the study for data collection might be improved by the use of electronic tabulation devices. One such instrument is now available, with a calculator keyboard connected to a cassette tape recorder. However, it has several drawbacks—size, weight, battery life, cost, and difficulty of servicing. If such devices are used in future research, their potential impact on subject apprehension should be carefully assessed.

The construct validity of IPA is partially upheld. Eleven of the twelve categories are clearly demonstrated to be independent dimensions of communication behavior. The hypothesis that Category 6 is an adjunctive communication behavior is strongly supported. Frequency of uncodable acts is low, giving some support to Bales' contention that the categorization is exhaustive. Sequential interdependence of the category pairs could not be assessed. Further validation of these findings is recommended if empirical research using the instrument is to make a contribution to the development of a theory of organizational communication.
Implications for the field of Organizational Behavior are exciting. As a result of the present study, the researcher is significantly closer to realizing the long-term goal expressed on page 2 of this Dissertation. There is promise that methods can be developed for training organizational researchers and/or members to observe and analyze communication behavior. Such awareness should result in more efficient use of our health manpower resources, and eventually lead to more effective integration of patient care.
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APPENDIX A

RESULTS OF PILOT STUDY

The following is a summary of relevant findings from the 1967-69 pilot study conducted by the researcher at Wascana Hospital in Regina, Saskatchewan.

The reliability of the IPA instrument was not adequately documented. This constituted a major flaw in the study.

When examining the data for construct validity, the multiple correlations were all found to be below .20, with the exception of Category 6 for sender, and 2, 6 and 11 for receiver. In a series of R-type factor analyses, all Categories except 2, 6 and 11 were relatively orthogonal, indicating that they represented independent types of interaction. All factors loading on the other nine categories had low Eigenvalues--i.e. none were predominant. The specific order of the factors varied with the data set (sender versus receiver) and the type of rotation.

Categories 2 and 11 loaded moderately (.20 to .39) on five of the factors for the receiver, and 6 loaded moderately on seven of the sender's factors. In both sets of data, the main loadings for these three variables were on the first three factors.
Categories 2, 6 and 11 were felt to be on a different conceptual level from the other nine. They were postulated to be *adjunctive communicative behaviors* working in concert with the others to clarify (Cat. 6) and modify (Cats. 2 and 11) the total interaction sequence.

Because of the data arrangement, the interdependence of Bales' category pairs could not be thoroughly examined.

With respect to methodological artifact, the effect of the observer was definitely higher on the first day, but this was not tested for level of significance. In the pilot project observer communications were coded in order to evaluate the maximum impact of the method. These values were inflated since *all* observer interactions were recorded, whereas only a *time sampling* was taken for other communicators. After the first day, the observer had only a minimal effect on the ward profile in Categories 3 to 10. However, Categories 1 and 2 showed a definite observer effect as sender, and 1, 2 and 11 as receiver. The observer therefore increased the socio-emotional aspects of the ward profiles.

When the results were tested for concurrent validity using a univariate ANOVA, one of the major findings was that the who-to-whom first order interaction effect was highly significant. This led to the suggestion that future studies use the role dyad, rather than an isolated sender or receiver, as the independent variable.
Significant effects were found for "ward" and minimal effects for "day". It was postulated that the weak "day" effects were mainly attributable to five atypical days out of sixteen, but this could not be verified because of inadequate ethnographic material. For some categories, "locus" was a key variable, but this was considered to be the result of interaction of a strong "who-to-whom" effect, a moderate "task design" effect, and a weaker "pure locus" one.
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<td>V.O.N.</td>
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PATIENT POSITION CODES

LENGTH OF STAY:
3 = 2 to 7 days
4 = 8 to 30 days
5 = 31 to 90 days
6 = 91+ days

MOBILITY:
0 = stays in own room all the time, except for special appointments (e.g. X-Ray)
1 = up in wheelchair out of room; cannot propel self
2 = propels chair short distances; transfers not independent
3 = propels chair short distances; transfers independent
4 = moves freely (chair or walking); transfers not independent
5 = moves freely; transfers independent

COMMUNICATION IMPAIRMENT:
0 = severe receptive impairment; severe expressive impairment
1 = moderate receptive impairment; severe expressive (or vice versa)
2 = moderate receptive impairment; moderate expressive
3 = slight receptive impairment; severe expressive (or vice versa)
4 = slight receptive impairment; moderate expressive (or vice versa)
5 = slight receptive impairment; slight expressive
6 = no receptive impairment; severe expressive
7 = no receptive impairment; moderate expressive
8 = no receptive impairment; slight expressive (or vice versa)
9 = no receptive impairment; no expressive

Communication impairment is defined as follows:

**RECEPTIVE:**

severe = understands less than 10% of what is said to her/him

moderate = understands 10% to 50% of what is said

slight = understands 51% to 90% of what is said (or gets confused)

none = understands more than 90% of what is said

**EXPRESSIVE:**

severe = unable to express desires in any manner

moderate = able to express some desires, but with difficulty

slight = able to express most desires easily to all staff

none = normal expressive ability

Note: Communication code is based on patient's skill in English.
APPENDIX C
SUBMISSION TO SSHC MANAGEMENT COMMITTEE

October 2, 1974

SUMMARY AND IMPLICATIONS
of a

PROPOSED DOCTOR OF PHILOSOPHY FIELD STUDY
in
ORGANIZATIONAL BEHAVIOR AND HEALTH CARE

INTRODUCTION

The following presentation outlines a study in health team communication to be conducted jointly by a Canadian rehabilitation hospital and Miss Betty McGill, B.S.R. The brief is prepared to elicit interest in and support for the project by hospital Boards and Administrators. The basic study has been designed by Miss McGill as a part of a Ph.D. dissertation in Organizational Behavior and Health Care at the University of British Columbia. The final design of the project will be worked out in close consultation with the participating unit. The hospital will be asked to provide the site for the field study and participation of its staff, plus a small office for the use of the research team. The researcher will assume responsibility for obtaining funding, carrying out the actual study, and interpreting the results to the hospital.

The intent of the research is to develop a method for observing and analyzing how hospital staff from various departments communicate with each other and with patients.
This will be achieved by a four-month field study during the Summer of 1975. A team of two observers will record communication patterns within and between disciplines on two wards of the participating hospital. Findings will be given to the hospital Administration as soon as the data are analyzed (approximately four months after the end of the field study). The thesis of the researcher will focus on the actual method for observing communication patterns, and its relevance for future studies in health care and other organizations.

The present outline focuses on the rationale for the research, the study design, and implications for the participating hospital. Relevant literature is currently being reviewed, and technical details of research method and analysis of results have met with the approval of the researcher's Thesis Committee. This information is available in the second draft of the research proposal. The Canada Council has expressed support for the project through granting the researcher a Doctoral Fellowship.

**RATIONALE**

Health organizations of the 1970's are increasingly confronted by a dilemma in the provision of high quality patient care. In order to cope with the explosion of knowledge, the health disciplines have had to become highly specialized. Keeping pace with developments in his own field requires that the medical/paramedical specialist spend
less time learning about findings in other areas. This has resulted in high calibre care for specific problems, but at the expense of integration of the needs of the total patient.

Within the past ten years, the problem of how to coordinate the team of health specialists has been discussed with increasing frequency by health planners and administrators. Hospitals which have attempted to implement a "team approach to patient care" have met with varying degrees of success, but the findings from one unit have not generally been transferable to others. Most research in the field has focused on the results of ineffective teamwork. The reasons why it is difficult to coordinate a team of health specialists have been given little attention, and ways have not been developed for objectively measuring how well a particular team is functioning.

Recognizing that communication of information re. Patient care provides a vital link for coordination of the various disciplines, the proposed study focuses on this aspect of teamwork. It begins from the basic premise that how people communicate in a hospital setting is of greater concern for the development of an effective team than what they say. It then develops a method for objectively assessing how persons from various disciplines communicate with other staff and with patients. Robert Bales' Interaction Process Analysis (I.P.A.), an observation scheme which has been widely used in small group studies, will be
modified for use on hospital wards, at the nursing station, in team meetings, and at other locations. The intention is to develop a simple method, so that hospital staff could be trained in its use for ongoing diagnosis of communication problems. While data-gathering will be restricted to two wards of a single hospital, the method is expected to be sufficiently flexible to allow transfer to other organizations within and outside the health field.

The study should therefore give the field of health care administration a diagnostic tool which can be used not only by the participating hospital and researchers, but also by other administrators and researchers seeking to identify communication breakdowns in their organizations. This, in turn, could be the first step towards changes in patterns of providing care, to the eventual benefit of both the individual patient and the general society.

STUDY DESIGN

The projected study will span a period of two years (see Figure 7).

In Phase A, the emphasis will be on finalization of the research proposal and selection of the site for the field study. Phase B involves the actual gathering of data, while Phase C will analyze the results, provide feedback to the hospital, and prepare the final thesis.
**FIGURE 7**

**PHASES OF RESEARCH AND TARGET DATES FOR COMPLETION**

**PHASE A**
1. explore alternatives for field site
   
   October 31, 1974

2. approach sources of funding
   
   November 30

3. confer with Administration of hospital to finalize field study
   
   January 30, 1975

4. meet with hospital Administrators and Department heads to schedule study
   
   March 21

**PHASE B**
1. begin field study
   
   May 1

2. orient hospital staff and patients to study; familiarize researchers with wards; researcher training
   
   June 30

3. gather trial data; test computer programs
   
   July 31

4. gather final data
   
   August 31

**PHASE C**
1. analyze results
   
   December 15

2. communicate findings to hospital
   
   February 15, 1976

3. prepare initial article for publication
   
   August 31

*Phase A* focuses on the selection of a hospital for the field study. This is the most critical aspect of the entire project. Minimal criteria for consideration are:

1. hospital Board of Directors' consent to the project

2. top level Administrators' and Medical Directors' willingness to be committed to the study

3. support and interest of a majority of Department Heads, Nursing being a focal concern
4. an inpatient unit, physical rehabilitation or extended care

5. adult patient population

6. minimum of two wards; more would be desirable, to allow choice

7. relatively stable staffing patterns (i.e. few part-time or temporary)

8. reasonable length of patient stay

In order to achieve maximum potential of the study, organizational support and willingness to participate in the study are essential. Based on a 1969 pilot study using the proposed method in a southern Saskatchewan hospital, it is believed that the members of the participating hospital will develop considerable interest in the project. The hospital Administration will receive extensive data on communication patterns on the two wards, for use in diagnosis of present problems and for future planning. If the findings are sufficiently helpful to the unit, one or more staff members could be trained in the use of the method for ongoing diagnosis of communication problems. In addition, the hospital can gain recognition in the field of health care research through an acknowledgement of its participation in all publication of results, should this be desired by the Board.

Phase B, the actual field study, will span a period of four months. It will involve a team of two full-time researchers (Miss McGill and another graduate student) observing communication behavior on the selected wards.
Choice of the latter will be done jointly by the researchers and the hospital Administrator. The two observers will record how staff and patients communicate at different sites on the wards. Generally they will work separately, but during reliability checks they will observe jointly. Since the observer will minimize his interactions with staff and patients during the data-gathering, interference with ongoing ward routines is expected to be minimal.

A major key to the success of the method will be staff and patient openness and willingness to communicate in their accustomed manner in the presence of an observer. A relationship of trust must be established between the research team and persons on the wards. Considerable time will therefore be spent during the first two months explaining the study to staff and patients. In a small hospital, this will involve meetings with all staff and patient groups (approximately one hour of each staff member's time will be required for formal orientation). In a larger unit, it may be possible to do a general orientation for all staff (15-30 minutes at a regular staff meeting), plus detailed explanations for persons on the two study wards. Patients will be oriented either individually or in groups. The observation scheme and the type of data gathered will be thoroughly explained, plus means for ensuring anonymity of all participants. No attempt will be made at any time in the study to identify an individual communicator. Staff classifications with only one member
will be grouped to ensure confidentiality. Other communicators will be identified by their occupational role (e.g. nurse, housekeeper, patient).

Because considerable time will be spent on practise observations and training of the second observer, the research team will require some space (however small) which could allow freedom of discussion during the field study.

In Phase C, the data will be analyzed. Before any further work is done on the thesis, the results will be fed back to the participating hospital. They will therefore be fully informed of the research findings before any presentation or publication of the results. The extent to which the hospital will be identified in the researcher's thesis will be determined by the hospital Board or Administration.

Time has also been allowed for preparation of some of the results for publication. If the study can develop a stable method for measuring communication behavior within a hospital setting, then the researcher will have a definite obligation to share the results with others in the field of Hospital Administration and Health Care Research. At a later date, results will be communicated to administrative researchers, for possible implementation in other organizational contexts.

SUMMARY

Implications of the proposed study are exciting. If a
method can be developed whereby an untrained observer can be taught to objectively measure and analyze communication behavior, the tool can be used in investigations of other factors influencing patient care. It might also be adapted for Organizational Development and Inservice Education programs, enabling a hospital to monitor its own communication patterns, and to adjust accordingly when those found to be detrimental to effective and/or efficient patient care are uncovered. While these are mere speculations at the present time, if the proposed study is implemented, and its findings are significant, then such "speculations" can be transferred to the realm of "possibilities".

The potential uses of the proposed method are considerable. The risks inherent in its development have been considered by the researcher's Thesis Committee. It is their opinion, as well as that of the researcher, that the scales of judgment are heavily weighted in favor of attempting the project. This decision is supported by evidence from the above mentioned pilot study which indicates that communication patterns of specific disciplines can be identified using a modified form of I.P.A. The ensuing two years should therefore be an exciting and challenging period, not only for the researcher, but also for Administrators and staff of the hospital involved in this preliminary attempt to diagnose the "communication disorder" of a complex organization.
APPENDIX D

PRESENTATION TO DEPARTMENT HEADS

January 21, 1975

WASCANA HOSPITAL

RESEARCH STUDY

in

HEALTH TEAM COMMUNICATION

PURPOSE:

The purpose of the study is to develop and test a method for observing and analyzing how hospital staff communicate orally with each other and with patients and their families.

The high degree of specialization of today's hospital departments has led to increased problems in coordinating patient care, accompanied by greater difficulty in communication. We are often not aware of where and why these communication breakdowns are occurring. Therefore, it is important to observe actual communication behavior on the hospital ward. Our ultimate aim is to achieve more effective and efficient use of hospital personnel, resulting in a higher standard of patient care.

STUDY DESIGN:

1. When:

- May to August, 1975 (inclusive)

- The first two months will be spent training the two observers, familiarizing ward staff and patients with the study, and noting communication in specific areas.
The second two will involve gathering information re. how specific groups communicate on the wards.

- Most observations will be done between 0800 and 1700 hrs., but some time will also be spent on the wards in the early morning and evening.

2. What:
- We will focus on how people communicate orally, rather than on what they are saying.

- The recording scheme consists of twelve categories (see attached list). Each time someone communicates with someone else, the process will be coded into one or more of the categories. Only the coded information will be recorded.

- Telephone conversations will be included from the ward end only (plus noting which department sent or received the call).

- No written communication will be examined.

3. Where:
- Two wards of Wascana Hospital will be studied—Station Five (rehabilitation) and Second West (extended care).

4. Who:
- To the greatest extent possible, the study will be anonymous, in that persons participating will be identified by the department (e.g. Purchasing) or position (e.g. Nurse Attendant) to which they belong.

- Persons who are the sole occupant of a position (e.g. Ward Clerk) or the sole representative of a department (e.g. Social Service) on a ward will have the option of being identified or being grouped with others. They are strongly encouraged to allow their position to be identifiable in the data-gathering stage, with the option of deciding later the extent of distribution of information re. their communication patterns.

- All ward communications of the following groups will be recorded:

- patients - all persons resident on the wards being studied

- physicians - those treating patients on the study wards
- staff - all employees of Wascana Hospital who provide direct or indirect care to patients on the two wards

- persons employed by other organizations who participate in direct patient care on the wards (e.g. barber, hairdresser, clergy)

- family - communication with staff only

- volunteers - questionable

- visitors will be excluded

5. How:

- There will be a team of two full-time observers. Generally one will work on each ward, but they will occasionally work together during training periods.

- Each observer will use a stenographer's notebook and pencil, or a mechanical punch which records the information in a form which can be directly fed into the computer without re-coding.

- NOTE: at no time will a tape-recording device be used.

- We will record in the notebook who speaks to whom and how, phrase by phrase.

- e.g., the sequence:

  DOCTOR TO NURSE : Good morning. How is Mrs. Smith? Do you think we can discontinue the IV?

  NURSE TO DOCTOR : She had a good night, but she's restless today.

would be recorded as follows:

  040 : 189-
  000 :  56-

- Some general categories for the type of content will be developed and will also be noted (e.g. patient care, staff concern, administration).

- It can be seen from the above example that no individual staff member (except as noted above) can be identified from the records of the observers, nor can what they have said be traced.
RESULTS:

After the data have been gathered, they will be analyzed at the University of British Columbia, where computer programs are being prepared. The results will be fed back to the hospital approximately four months after the conclusion of the study. The exact feedback process will be determined by the hospital Administration and Department Heads.

Two types of information will be provided:

1. **Comparative:**

   a) by department - comparison of the absolute volume of ward communication for each department in each category, and of the profiles giving the percentage of communications in each category.

   b) by ward - comparison of absolute and percentage communications, broken down by day and time

2. **Pairs** of communicators:

   a) absolute and percentage profiles for within-department communication (e.g. nurse to nurse, nurse attendant to ward clerk)

   b) absolute and percentage profiles for between-department communication (e.g. housekeeping to maintenance)

   c) absolute and percentage profiles for communication between staff of each department and patients and their families.

The comparative statistics (#1, above) should help the department heads to identify times and locations of heavy versus light volume, and to pick up general communication patterns. The profiles of specific pairs of communicators should help the members of the two groups to identify areas of potentially more or less effective communication. They
should then be better able to determine possible steps toward improvement of their methods of communicating.

If the information provided is found to be helpful to the various groups within the hospital—staff, department heads, and administrators—it would then be possible to train several staff members to use the method. Wascana might then be able to examine additional areas where staff or patients feel there may be a breakdown in communication. In this way the hospital could begin to more effectively diagnose its problems, attempt to solve them, and measure the results of that effort.

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The foregoing is a summary of presentations made by Betty McGill, senior researcher, to five groups of Administrators and Department Heads of Wascana Hospital on January 20 and 21, 1975. These will be followed up by meetings with all staff directly involved in the study during April, 1975.
The purpose of the study is to develop a way of helping hospital staff understand how they communicate with other staff and patients.

WHERE: Station Five and Second West

WHEN: May 5 to August 31, 1975

WHO: Betty McGill and Peter Bowman will be the researchers.

HOW: We will be observing how staff and patients communicate at different locations on the two wards—e.g. at Nursing desk, in patient rooms. Generally one researcher will work on each ward, but sometimes we will observe together to check our reliability. Most of the study will be done between 0800 and 1700 hours, but some time will also be spent in the early morning and evening.

WHAT: Staff will be identified by their job title only. No names will be used. Patients will be grouped according to the communication demands which they place on the staff. A conversation will be coded, phrase by phrase, using twelve categories of how people communicate—for example, give or ask for information, agree or disagree. We will not note what is being said. Only the coded information of who speaks to whom and how will be recorded.
For example, the conversation:

DOCTOR TO NURSE: Good morning. How is Mrs. Smith? Do you think we can stop the IV?

NURSE TO DOCTOR: She had a good night, but she's restless today.

would be recorded as follows:

040: 189-
000:  56-

RESULTS: After being analyzed, the results will be discussed with all persons who have participated. They will be able to see "profiles" of how the nurse and doctor, or nurse attendant and patient, communicate, and to learn where their strengths and weaknesses in communication may lie. For example, the Communication Profile of Housekeeping Aide to Patient might look like this:

```
   1  
   2  
   3  
   4  
   5  
   6  
   7  
   8  
   9  
  10  
  11  
  12  
```
VASCUNA HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR

STATION FIVE
REGISTERED NURSE TO OCCUPATIONAL THERAPY

PERIODS = 25
ACTS = 150

VASCUNA HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR

STATION FIVE
OCCUPATIONAL THERAPY TO REGISTERED NURSE

PERIODS = 25
ACTS = 109
VASCiNA HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR
STATION FIVE
REGISTERED NURSE
TO PHYSIOTHERAPIST

PERIODS: 26
ACTS: 203

VASCiNA HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR
STATION FIVE
PHYSIOTHERAPIST
TO REGISTERED NURSE

PERIODS: 26
ACTS: 219
VASCARA HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR

STATION FIVE
REGISTERED NURSE TO SOCIAL WORKER PERIODS= 10.
ACTS= 124.

STATION FIVE
SOCIAL WORKER TO REGISTERED NURSE PERIODS= 10.
ACTS= 92.
WASCANA HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR
SECOND WEST REGISTERED NURSE
TO PT COMMUNICATION=2

WASCANA HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR
SECOND WEST PT COMMUNICATION=2
TO REGISTERED NURSE

% OF ACTS
24.00-
20.00-
16.00-
12.00-
8.00-
4.00-
0.00-
0 1 2 M 3 4 5 6 7 8 9 J K L
CATEGORY

% OF ACTS
35.00-
30.00-
25.00-
20.00-
15.00-
10.00-
5.00-
0.00-
0 1 2 M 3 4 5 6 7 8 9 J K L
CATEGORY
WASCAH HOSPITAL COMMUNICATION PROFILE
PERCENTAGE OF ACTS IN EACH CATEGORY FOR
SECOND WEST
REGISTERED NURSE
TO
PT COMMUNICATION=Z

PERIODS= 8x
ACTS= 58x

% OF ACTS

0 1 2 3 4 5 6 7 8 9 J X L

CATEGORY
APPENDIX G

FEEDBACK INFORMATION SHEET

WASCUA HOSPITAL COMMUNICATION STUDY

EXPLANATION OF COMMUNICATION PROFILES

1. At the top left-hand corner of each graph, the ward and two communicators are given. The first person is the speaker, the second is the listener.

2. At the top right-hand corner, two numbers are given. "Periods" is the number of different 5-minute time periods when these two persons were talking. "Acts" is the total number of communications. Generally, one act is equal to a simple sentence.

3. Across the bottom of the graph, the numbers and letters stand for the 14 different types of categories into which all communications were coded:

Cat 0 - not codable
1 - seems friendly
2 - dramatizes re. work
M - dramatizes re. non-work
3 - agrees, listens
4 - gives suggestions, leads
5 - gives opinions
6 - gives information
7 - seeks information
8 - seeks opinions
9 - seeks suggestions
K - shows tension
J - disagrees
L - seems unfriendly

4. The numbers down the left-hand side give the percentage of the speakers's acts which were in a particular category. Note that this scale may differ from one graph to another.

Suggestions for Interpreting a Pair Of Profiles

1. Compare the number of acts for each speaker. For example, if NURSE to PATIENT has 570 acts, and PATIENT to NURSE has 220, then the nurse communicated twice as much to the patient as he did to her.
2. Look at the overall shape of the two profiles. Where are they similar? Where do they differ?

3. Examine the frequency of specific categories. For example, are the percentages of Cat. 1's equal for DIETARY AIDE to PATIENT versus PATIENT to DIETARY AIDE?

4. Look for marked equalities or inequalities between pairs of categories on each profile. (i.e. 1-L; 2+M-K; 3-J; 4-9; 5-8; 6-7)

   e.g. DOCTOR to NURSE - high 5 (giving opinion)
       and NURSE to DOCTOR - low 8 (seeking opinion)

   versus

       DOCTOR to NURSE - high 5
       and NURSE to DOCTOR - high 8

5. Relate each pair of profiles to what you know about the work you do on the ward. Which findings are easy to explain? Which aren't?

6. Discuss what you've learned with other staff members. Compare your profiles with theirs.

7. Write down any questions which you have, or points which you'd like to discuss further.

(Note: This sheet was accompanied by a copy of the patient position code given in Appendix B.)
APPENDIX H

FINAL REPORT ON COMMUNICATIONS RESEARCH PROJECT

February 28, 1976

To: Mr. R. Osiowy,
Administrator,
Wascana Hospital,
Regina, Saskatchewan

Re: Departmental Follow-up, Communications Research Project

During my ten-day stay in Regina, meetings were held with the following Wascana Hospital Department Heads and Assistant Directors of Nursing:
- M. Lindberg, C. Spooner Staff Development
- R. Osiowy, A. Tatarinoff Administration
- G. Pernisie, P. Skaien Dietary
- H. Kaplunsky Housekeeping
- R. Beebe Maintenance
- C. Miller, M. Cook, G. Demay Nursing
- F. Richardson Occupational Therapy
- F. Ford Porters
- all staff Pharmacy
- L. Johnson Physiotherapy
- D. Leland Psychology
- A. Sloan Social Work
- D. Rackley Speech and Hearing

C. Spooner attended a majority of the above meetings. M. Lindberg and the Staff Development Instructors also attended sessions with the two A.D.N.'s.

At each meeting, persons present were asked:

1. What additional work they or their staff had done with the communication feedback since mid-December?

2. Did they see any need for action? If so, what had they already done? What should be suggested for the future?

3. What type of help would they like, either from myself during my stay, or from Staff Development in the future, for:
   - general staff members?
   - supervisors and/or department heads?
Interdepartmental problems were discussed as follows:

1. **Problem:** low communication by staff with aphasic patients on Station Five

   **Discussion:** Therapists felt that they do this when the patient is in the department for treatment. Nursing believed that more communication occurs in evenings when patients are on the ward. However, in spite of these factors, most staff recognized this as a problem.

   **Action taken:** Most staff believed that being aware of this deficit was helping them to overcome it through individual effort. D. Rackley (Speech Therapist) is now providing more support to the team by attending clinics and giving suggestions re. specific patients. This was appreciated by several departments.

   **Suggestions:** Several departments requested Staff Development classes on practical suggestions for communicating with the aphasic patient. This was discussed with Ms. Rackley and a first session for professional staff was scheduled for Thursday, February 26, at 15:30 hrs.

2. **Problem:** team conferences on Station Five were not felt by some participants to be functioning as effectively as they might

   **Discussion:** Informal discussions were held with senior nurses, occupational therapists, physiotherapists and social workers from both teams. It seemed that it was mainly the Senior Nurses who were dissatisfied with present functioning.

   **Action Taken:** A. Balon, Staff Development Instructor for that ward, and I sat in on one conference for each team. We then met with the four senior nurses and Mrs. Demay to discuss how they, in their present role as coordinator of the conferences, might improve their effectiveness and efficiency.

3. **Problem:** desire of Department Heads and/or Supervisors for some training in how to help staff communicate more effectively

   **Action Taken:** Four one-and-one-half-hour sessions on "Effective Communication" were conducted for Department Heads and Supervisors during my second week at Wascana. Topics covered were:
   - understanding the communication process
   - assessing communication effectiveness using the twelve Study categories
   - improving listening skills
Attendance at these classes was as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tues., Feb. 17</td>
<td>15:00 to 16:30 hrs.</td>
<td>A. Balon, Staff Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M. Cook, Second West</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L. Golby, Physiotherapy Clinical Supervisor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M. Kaplunsky, Housekeeping</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C. Liu, Dietary Interns</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P. Skaien, Dietician</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M. Lindberg, S.S.H.C. Staff Development</td>
</tr>
<tr>
<td>Thurs., Feb. 19</td>
<td>11:30 to 13:00 hrs.</td>
<td>E. Beitel, Personnel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>G. Demay, Station Five</td>
</tr>
<tr>
<td></td>
<td></td>
<td>J. Kletke, Staff Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B. McCudden, Health Nurse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C. Spooner, Staff Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A. Tatarinoff, Administration</td>
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<td></td>
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<td>15:00 to 16:30 hrs.</td>
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<tr>
<td></td>
<td></td>
<td>F. Ford, Outpatient Clinics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>G. Pernisie, Dietary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E. S. Small, Speech &amp; Hearing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M. Hunter, Speech &amp; Hearing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pharmacy</td>
</tr>
<tr>
<td>Fri., Feb. 20</td>
<td>15:00 to 16:30 hrs.</td>
<td>D. Jones, Medical Records</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P. Matwyi, Security</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F. Richardson, Occupational Therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A. Sloan, Social Work (substitute)</td>
</tr>
</tbody>
</table>

All persons present participated actively in discussions. In addition to the above, a separate one-hour class was held with all the Senior Physiotherapists and L. Johnson, focusing on their specific concerns.

4. Problem: general staff wanted to know more about effective communication

Action Taken: To assess interest in this topic, and provide a model for future Staff Development sessions, I conducted five half-hour classes. Participation was as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tues., Feb. 17</td>
<td>13:30 hrs.</td>
<td>(5)</td>
</tr>
<tr>
<td></td>
<td>22:00</td>
<td>(12)</td>
</tr>
<tr>
<td>Wed., Feb. 18</td>
<td>15:30</td>
<td>(5)</td>
</tr>
<tr>
<td>Thurs., Feb. 19</td>
<td>13:30</td>
<td>(4)</td>
</tr>
<tr>
<td></td>
<td>18:45</td>
<td>(16)</td>
</tr>
</tbody>
</table>
Suggestions: In addition to the above, opportunities for follow-up for general staff exist through:

a) individual or departmental education by Department Heads and A.D.N.'s

b) orientation of new staff by Staff Development

c) follow-up classes on "Effective Communications" by Staff Development

In addition to the above, the following Intra-departmental Problems were discussed during the meetings with individual Department Heads:

Dietary:

1. **Concern:** low communication of Dietary Aides with all patients

**Discussion:** Ideally, staff felt that if they had more Aides they could spend more time communicating with patients. However, given present limitations, this problem cannot be alleviated.

2. **Concern:** Aides showed low communication with confused or aphasic patients

**Discussion:** Dietary Aides suggested that a brief discussion with P. Skaien, either bi-weekly or monthly, giving them more information re. patients, would help them to make better use of the time they do have with these patients.

**Action Taken:**

a) P. Skaien will hold brief informal meetings with Aides from each ward to give them suggestions re. communication with certain patients and an explanation of why the patient is on a particular diet. Emphasis will be placed on the patient's present communication ability and diet rather than his/her disability or history. G. Pernisie will inform staff of this at their next meeting, and discuss their responsibilities re. confidentiality.

b) Staff Development will conduct a twenty-minute class for non-professional staff (Dietary, Housekeeping) on Reality Orientation and general approaches to communication with such patients.
3) **Concern**: strong communication role of Dietician with Station Five patients on therapeutic diets

**Discussion**: The communication profiles of the Dietician on Station Five during the pilot project on Therapeutic Diets showed that a constructive role was being filled in seeking patient input (opinions, suggestions) re. their diets. Recent elimination of this service cannot help but cause a deterioration in the quality of total care offered to the patients on that ward.

**Suggestion**: I would strongly recommend that this service be made available to patients on all wards as soon as possible. Profiles supporting this suggestion are available from P. Skaien.

**Housekeeping**:

1. ** Concern**: tension and unfriendliness between Housekeeping Aides and Housemen on Second West

**Discussion**: M. Kaplunski has held meetings with his staff and supervisors re. this issue. They felt part of this problem was a conflict over job duties, which has been somewhat alleviated by compiling the job evaluations.

**Suggestion**: I spent considerable time discussing this conflict with M. Kaplunski and his two Supervisors. They feel that the major cause of this conflict, which is present throughout the Department, is the large wage spread between the two classifications (H. Aide = $3.22/hr.; Houseman = $4.04), and that if this spread were reduced it would be possible to get increased productivity from the female staff.

2. **Concern**: low motivation of Housekeeping employees; lack of pride in work

**Discussion**: In addition to the low wages of H. Aides, there are only two steps to the salary scale. Therefore, there is no incentive to long-term employees to maintain a high level of productivity. Compounding this problem is the fact that on most wards, Housekeeping staff receive little or no recognition from other departments for a job well done.

**Suggestion**:

a) The Supervisors recommended more steps on the salary scale to allow recognition for long-service employees.
b) Staff Development will encourage ward staff to thank and praise Housekeeping staff for jobs well done. This is already being done by the Stations 5-6 Nursing staff, and was felt to contribute to their being considered the most popular sites for staff to work.

c) Staff Development will also emphasize this communication role to new employees during orientation, and by example on the wards.

d) Staff Development will conduct bi-weekly sessions with supervisors to improve their effectiveness.

Nursing_-_Second_West:

1. Concern: between R.N. and G.P. on Category 1, Seems Friendly (R.N. = 3%; G.P. = 20%) there is an imbalance

Suggestion: Balanced communication should be stressed during Orientation. This could also be pointed out to present staff as part of a general session on effective communication. However, it was not felt that staff would be willing to attend such a class at present.

2. Concern: low participation by 2W and 2E Nursing staff in Inservice classes

Discussion: This concern arose from the discussion of #1, above, rather than from the study feedback. It is considered a major problem.

Suggestion:

a) Involvement of M. Cook as a resource person for classes (staff are presently not making maximum use of her knowledge and experience).

b) Institute a requirement that all hospital staff participate in a certain number of staff development classes per year (e.g. 6). A previous Wascana system of each staff member having his or her own educational card, on which such participation was checked off, is recommended. Staff would thus assume responsibility for deciding which classes were of most relevance to them, and of attending the yearly requirement. This recommendation is now being considered by Staff Development.
Nursing - Station Five:

1. **Concern**: Senior Nurse over-dramatizes

   **Action**: Awareness of this tendency provided through the December feedback seems to have alleviated the problem. Her communication is now perceived to be more functional.

2. **Concern**: all health team members are low on seeking the professional opinion of their own and other disciplines

   **Action**: Nurses have discussed this as a group with G. Demay, and have agreed to make an effort to correct this problem.

3. **Concern**: low communication with aphasics

   **Suggestion**: In addition to the general points discussed on page 1, the nurses requested that the classes by D. Rackley be conducted at 15:30 hrs. if possible, as evening staff have the greatest communication with patients.

   **Action**: The class has been scheduled accordingly.

**Occupational Therapy**: no intra-departmental issues were discussed; low communication with dysphasics is aggravated by lack of staff and lack of Senior Occupational Therapist on Station Five.

**Pharmacy**:

1. **Concern**: low communication with all patients

   **Discussion**: Pharmacists feel that their education does not prepare them sufficiently for communication with patients, whether with or without the additional problem of aphasia.

   **Action**: They requested that all five members of the department participate in the longer sessions on "Effective Communications" for Department Heads.

2. **Concern**: low communication with aphasics

   **Suggestion**: Classes by D. Rackley be held at the end of the morning or afternoon so that staff can participate.
Physiotherapy:

1. **Concern:** frequency of negative emotional reactions (tension, unfriendliness) from patient to Rehab. Attendant on 2W

**Discussion:** The Senior Therapists, when discussing this, felt that at least part of the cause of this might be that attendants were working too fast.

**Action:** The department has already implemented a series of weekly classes for Rehab. Attendants to review basic techniques and discuss the use of Reality Orientation.

2. **Concern:** lack of communication between Physiotherapist and Registered Nurse on Second West (no significant profile)

**Action:** L. Johnson will work with the Senior Physio. in that area to try to increase this communication. Staff Development will reinforce the need for communication with other departments during Orientation and through follow-up on the wards.

3. **Concern:** lack of communication between Physiotherapist and patient on 2W

**Action:** L. Johnson will make staff aware of this deficit.

4. **Concern:** Physiotherapists are somewhat lower on Category 1 (seems friendly) than are the other departments with whom they are communicating

**Discussion:** Because staff are working under very heavy pressures at the moment, it was not felt to be appropriate to discuss this issue directly with them.

**Action:** This was handled by discussing "Effective Communication" with the senior therapists.

Psychology: Although she received no direct feedback from the study, I have kept Ms. Leland informed on the feedback process for two reasons. The first is that she has a definite interest in this area, since her Master's thesis was on Teacher-Pupil Communication. The second is that she is a potential resource for all Hospital departments on this topic (including Staff Development for classes).
Social Work:

1. **Concern:** how to provide communication stimulation for patients on 2W

**Suggestion:** Increase the use of volunteers through:
   a) A. Sloan providing greater support to the Personal Services worker. (G. McClelland has been carrying an exceptionally heavy load for many years, and is needing increased professional support to maintain her effectiveness).

   b) More direct contact with volunteers by A. Sloan. Close liaison between A. Sloan and G. McClelland is necessary to the above two suggestions. It is therefore critical for the Personal Services Worker to remain within the Wascana Department of Social Work. Given this administrative arrangement, the above suggestions are feasible with present staffing.

2. **Concern:** low communication with new patients on S5

**Action:** Social Workers are now asking for notification from Admitting when a new patient arrives, and for notice from the Ward when there is a discharge. They will also be encouraged to see the patients more in their first week on the ward.

Speech and Hearing:

1. **Concern:** low communication with other departments on Station Five

**Action:** D. Rackley is attempting to participate in Station Five clinics on a bi-weekly basis. The team discuss her patients first, so that reduction in treatment time is minimized. She has also been phoning the ward with suggestions re. specific patients.

**Suggestion:** D. Rackley will attempt to attend ward planning conferences every two to three weeks, to provide all staff with suggestions on patient communication. While this will slightly decrease her direct treatment statistics, Ms. Rackley feels it will provide better over-all care for patients because staff will be able to coordinate their approaches to the patient's communication disability.

2. **Concern:** need to assist patients to improve their communication skills

**Suggestion:** Ms. Rackley will discuss with Ms. Demay the possibility of making language materials available on the ward for evenings and weekends.
Summary:

The above are the major areas of concern which were uncovered during my visit. Most Department Heads expressed a definite interest in following through on the initial feedback from the Communication Study. As you will note from the above, some action has been taken to resolve most of the problems and concerns identified by the Study.

While most of the problems can be resolved at the departmental level, I feel that several have emerged which require Administrative support and/or decision making. These are as follows: Dietary (#3); Housekeeping (all); Nursing - Second West (#2); Social Work (#1); Speech and Hearing (#1).

Throughout all of the discussions, it was evident that Wascana staff at all levels are aware of the importance of communication, and of maximizing its effectiveness in times of staffing pressures. I believe that the impetus of the study has helped to focus attention on this problem, and on constructive solutions, and hope that this concern will continue in the future.

Thank you for your interest in the study.

Respectfully Submitted,

B. Mcgill (Signed)

Betty McGill,
Research Project Director