THE DEVELOPMENT OF AN INSTRUMENT TO MEASURE NURSING INTERPERSONAL BEHAVIOR

by

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ABSTRACT

An instrument, Nursing Interaction Analysis, was developed to ascertain nursing interpersonal behavior. Variables were selected from interpersonal communication and nursing literature. The 60 item Nursing Interaction Analysis (NIA) was used to measure video-taped nurse-patient interaction in actual hospital settings. Inter-rater reliability was tested and was found to be highly reliable throughout the rating process. Results of all rated video-tapes were factor analyzed. Factor analysis produced 18 factors; 14 factors were identified as primary and significant in categorizing nursing interpersonal behavior. Furthermore, all NIA items, except four, loaded at or above .538 and appear valid for future use.

TABLE OF CONTENTS

LIST OF TABLES

Chapter I: Introduction

Ivan Illich begins his book, Medical Nemesis, "The medical establishment has become a major threat to health" (p. xi). Illich continues by comparing health care in America to a dying Greek hero, one whose nemesis is imminent. The problem seems to be that acting the hygenic hero has little to do with human healing; a new role must be found. The new role must demystify and demedicalize health care, giving a larger portion of the power to heal back to the patient. Dr. Jean Watson extends Illich's position by claiming a cost/benefit deficit in health care.

> Despite the great increase in health expenditures and in the number of health workers over the past ten years, the nation's health has not improved as much as expected. Thus the reports of the amounts of money said to be spent for health care (perhaps hundreds of billions of dollars) are misleading. Likewise, although there are more than 200 types of health workers, few are concerned with health in its broadest sense. (pp. 219-220)

The concern for "health in its broadest sense" is a nascent theme in medical literature today. Health Maintenance Organizations (HMO's) are one institutional attempt at providing Americans with

economical and comprehensive health care. HMO's are a step in the right direction, but Dr. Kenneth Pelletier believes more should be done: 'As long as doctors and patients labor under the misconception that health can be created by pharmaceuticals and surgery, then bitter resentments toward the medical profession will continue to increase" (p. 5). Dr. Pelletier stresses a holistic approach to health care. Holistic care deals with promoting wellness in addition to disease treatment. The psychosomatic dimension of health is taken seriously; the patient becomes an active agent in his/her wellness.

Holistic health care has at its base the physical, psychological, and social well-being of patients. Hospitals, heretofore, have dealt mainly with the physical dimensions. The rapid increase in stress-related disease, however, has made it more difficult to cure the patient without his/her involvement and cooperation. A classic illustration of physician/patient cooperation at all levels (physical, psychological, and social) is the case of Norman Cousins. Norman Cousins, a noted journalist for Saturday Review, was granted the freedom to design and control his own therapy program by his physician. Armed with the interpersonal support of a physician-friend and "Candid Camera" classics, Cousins beat the "one in 500" odds and recovered from a serious collagen illness. With all due respect to "Candid Camera," Cousins credits the unusual relationship he established with his doctor as essential to his recovery: "he encouraged me to believe I was a respected partner with him in the total undertakings. He fully engaged my subjective energies" (Garfield, 1979, p. 173).

It would appear that the interpersonal relationship between helper and helpee may be one of the most fertile areas of research in health care today. Indeed, further medical-technological sophistication may well be yielding a negative net return on our investment of time and money. Consequently, medical schools are pioneering research in holistic medicine, one important facet being interpersonal communication between helper and helpee. Although doctors maintain regular contact with patients, nurses bear the major responsibility for developing interpersonal support for the patient. Unfortunately interpersonal communication at the nurse-patient level has not yet reached its therapeutic potential. A study conducted by Truax, Altmann and Miller for the U.S. Department of Health, Education and Welfare in 1974 demonstrates the dire need for therapeutic interpersonal skills among nurses. A 141 - item true-false Relationship Questionnaire, derived from the Relationship Inventory of Barrett-Lennard, was administered to measure the client's perception of the psychological conditions offered by the helping agent. Helping agents included lawyers, clergymen, physicians, nurses, psychologists, psychiatrists, educational counselors and psychiatric social workers. Truax et al., conclude,

> The particularly low levels of interpersonal skills of the registered nurses in the present study perhaps raises serious questions about the current selection and training practices of schools of nursing. . . It is well known in medicine that 'bedside manner' is an important aspect of good medical practice. This latter point can be emphasized by noting that

> general practice physicians provide the very highest levels of interpersonal skills while registered nurses provide the very lowest levels among all professional groups. (Truax, Altmann and Miller, 1974, p. 31)

The Truax study is but one illustration of problems concerning nurses' bedside manner. Sidney Jourard devotes an entire chapter in his book, The Transparent Self, to nurse bedside manner. Jourard maintains that "rigid" interpersonal behavior tends to block self-disclosure by the patient. Without vital psychological and social information gained via disclosure, treatment is too often left to guesswork. "When the phenomenal field is not 'checked' routinely in nursing or medicine, a crime of omission is committed, the gravity of which is no less serious than failure to make routine physiological checks" (Jourard, 1971, p. 194). Smith (1974) summarizes the rationale for investigating interpersonal nursing bedside manner when he says that "the science of communication is more pertinent to nursing than the science of disease or pathology" (p. 70).

Interpersonal Nursing Theories

Recent nursing literature has not ignored the importance of therapeutic communication in the total health care picture. In fact, holistic nursing concepts are being taught in many schools of nursing. Ohio State University's Division of Nursing, for example, stresses that the nurse, patient, and physician be viewed as a system: problems

are difficulties within the system and not unique to the nurse or patient. Viewing nurse-patient interaction as a system is consistent with interpersonal communication theory. Birdwhistell (1952), in describing individual communication, states, "He does not originate communication, he participates in it. Communication as a system, then, is not to be understood on a simple model of action to reaction, however complexly stated. As a system it is to be comprehended on the transactional level" (p. 104). Smith and Williamson emphasize a systems or transactional model of communication by comparing communication to ecology. When one element in the delicate communication process is altered, the entire system is affected; communication continues ad infinitum. Other general system theorists include Jurgen, Ruesch, Gregory, Bateson, David Berlo, Paul Watzlawick, Don Jackson, and Virginia Satir (Smith and Williamson, 1977, pp. 22-23).

Another curiosity in nursing literature is the mention of such concepts as "caring" or "nurturing." What these concepts mean is not entirely clear, but their frequent use warrants our attention. Jean Watson (1979) devotes an entire book to "Caring." Caring, according to Watson, involves a helping-trust relationship as a basis for meaningful interaction. Three salient ingredients in such a relationship are congruence (genuineness), empathy, and nonpossessive warmth. Included in Watson's description of caring are external environmental factors such as comfort, privacy, safety, and cleanliness. The external environmental factors were operationalized rather well; but the helping-trust relationship lacked such clarity. Murray (1979) substantiates Watson's descriptive terminology by defining the nursing

process as one that fosters: "1. empathetic understanding, 2. positive regard, 3. genuineness, 4. explicitness of expressions, and 5. self-exploration"(pp. 132-133).

Riehl and Roy (1980) explicate a system of nursing, the Johnson System, as entailing certain sustenal imperatives: protection, nurturance, and stimulation. Nurturance is defined as, "1. The provision of necessary nourishment and training to help an individual incorporate and cope with new environmental stimuli; 2. The provision of conditions that support the progressive growth and development of behaviors; 3. The discouragement of ineffective behaviors" (p. 232).

Similar nursing concepts are mentioned by Sundeen (1976) with the addition of "mutuality." Mutuality is "the process through which the client assumes an appropriate level of autonomy without blocking the provision of necessary health care services. A helping relationship is most helpful when each participant is contributing positively to meeting the client's health needs" (p. 105). The concept of mutuality is reiterated by Orem (1980) when she emphasizes self-care or having the patient take responsibility for his/her health. Both patient and nurse actively participate to achieve healthy behaviors. Key methods include: acting for, guiding, supporting, providing, and teaching another (p. 61).

Nursing concepts such as caring and nurturing, along with their correlates of trust and genuineness, warmth and empathy, appear frequently in interpersonal communication literature. Indeed, "authentic" communication as defined by Matson and Montagu uses nearly identical phraseology with the above nursing concepts. Another comparison is

Richard Johennesen's notion of communication as "dialogue." Major components include: genuineness, empathetic understanding, unconditional positive regard, presentness, a spirit of mutual equality, and a supportive psychological climate (p. 2). Most interpersonal textbooks speak of communication climate when describing concepts such as warmth, empathy, etc. The communication literature, incidentally, does not operationalize these terms much better than the nursing literature does.

A third notable feature of interpersonal nursing theory is that nursing practice follows a functional process akin to relationship building in the communication field. The similarity is highlighted by Carl Rogers when he says, "I have long had the strong conviction - some might say it was an obsession - that the therapeutic relationship is only a special instance of interpersonal relationships in general, and that the same lawfulness governs all such relationships" (Avila, Combs, and Purkey, 1971, p. 2). It may well be true that a therapeutic relationship and an interpersonal one are similar, but Jasmin (1979) tempers Roger's position. "In a social relationship, the needs of both persons are met; in the professional relationship between patient and nurse, both persons focus on meeting the needs of the patient. . . . Professional relationships are also time limited and goal directed" (p. 33).

The first model or process that appears in both nursing and communication literature is the interview. Murray (1979) equates the nurse-patient transaction to a therapeutic interview. "The four steps of the nursing process are assessment (identifying needs), planning (setting priorities and developing the care plan), intervention (implementing the care plan), and evaluation (validating the effectiveness

of the care)" (p. 102). Murray differentiates between a social and a helpful relationship, a social relationship being inconsistent and conditional. An earlier work, Interpersonal Aspects of Nursing, by Travelbee (1971) follows Murray's format rather closely. Travelbee outlines the sequence of nursing as: 1. observation, 2. the development of interpretations (based on past knowledge), 3. the decision to act or not to act on the basis of one's interpretations and inferences (p. 101). A third model, the Orem Self-Care Nursing Model, is described by Riehl (1980). The nurse:

> 1. Determines why the patient needs nursing based on her therapeutic self-care demand, both universal and health deviation self-care status. . . . 2. Designs a system of assistance that is wholly compensatory, partly compensatory, or educative-developmental based on the patient's defined self-care deficity. 3. Initiates, conducts and controls assisting actions to achieve nursing results that are related to the identified therapeutic self-care demand and limitations of the patient's self-care agency. (p. 309)

Descriptions of relationship building that parallel the above nursing models are those commonly described in communication literature as helping relationships. Specific roles (helper/helpee) are assumed and interaction consummates in understanding and change. Carkhuff and Anthony (1979) do perhaps the most comprehensive job of clarifying the helper-helpee relationship. They maintain a positive helping relationship includes 4 steps:

involvement (prehelping), exploration, understanding and action. Concomitant skills are suggested for each step: attending skills, responding skills, personalizing skills, and initiating skills. Another solid communication and theoretical base for the nursing process is advanced by Dance and Larson (1976). In their book, The Functions of Human Communication, Dance and Larson maintain that we order within a personal construct (linking function), assign meaning (mentation function), and act upon that meaning (regulatory function). From this perspective three themes emerge: 1. a functional view of self -- self is actively being created in transaction with our environment and others; 2. the search for congruency -- as we attempt to define ourselves to the world around us we reduce chaos to order; and 3. achieving congruency -- we use decentering or perspective-taking to create shared meaning (pp. 161-170). The search for congruency in the medical sense would be a health-giving relationship actively nurtured by the nurse and the patient, indeed, the entire medical system.

It seems appropriate at this juncture in my discourse to proffer a definition of interpersonal communication suitable to the remainder of my study. Among the myriad of interpersonal communication definitions, I prefer Swanson and Delia's: "Communication is the process whereby shared meanings are created" (1972, p. 10). Meaning is best understood, according to Swanson and Delia, through interaction. Meaning, thus, is an active, not static, concept and implies reciprocity. C. David Mortenson further explicates the interaction process by coding two minimal requirements of communication. "First, it must be available for inspection. Second, the behavior must be interpreted as significant

by at least one of the parties" (1972, p. 19). Mortenson implies that the intention to communicate becomes a critical variable in the communication process. What we end up with, then, is a definition accenting the intention of shared meaning through an interactive process.

Purpose

The study of interpersonal behavior between nurse and patient has few reliable precedents. Most studies deal with concepts (caring, nurturing) of nursing "bedside manner" and skirt over related behavioral markers. The few rigorous studies that exist limit their scope to either verbal or nonverbal behaviors, seldom including the full gamut of interpersonal communication. A second shortfall in "bedside manner" research is the lack of an instrument to measure interpersonal communication between nurse and patient. Consequently, we can only hypothesize what is appropriate interpersonal nursing behavior, and as is often the case, prematurely label it "caring behavior." Finally, little research has been done to evaluate interpersonal interaction between patient and nurse: is there a therapeutic dimension or at least a predictable pattern to their relationship, or is it all just "common sense"?

These questions deserve attention, if not a few answers. I would like to address the principal problem: the development of an instrument to measure interpersonal communication between nurse and patient. Before nursing practices can be labeled positive or negative, we must know what interpersonal behaviors exist. We commit a non sequitur by not

first taxonomizing behavior. Once taxonomized, we can begin to assign meaning to those behaviors and can conclude with speculations as to what constitutes therapeutic communication.

The purpose of my research, then, will be to develop an instrument to measure interpersonal communication between nurses and patients. The instrument should measure both verbal and nonverbal behaviors; it should provide a base of data useful in discovering the nature of effective nursing "bedside manner."

I begin this project with some trepidation, realizing the vast scope of interpersonal behaviors that could comprise such an instrument. Fortunately a few hearty (or foolhardy) souls have attempted similar projects. It seems wise to review their research and, as any good "constructivist" would do, build upon it.

Review of Research

As one might expect, a major thrust to measure interpersonal communication has surfaced in the classroom. Whether or not interpersonal competence can be measured has plagued interpersonal communication teachers ever since the school board wanted grades. A fine article headlining the problem appeared in The Speech Teacher, 1974. The authors, Bochner and Kelly, make a strong case for "competency testing" in regard to interpersonal communication. Borrowing an R.W. White concept, "effective motivation," Bochner and Kelly argue that people naturally desire to be effective communicators. Unfortunately we are not born with social skills and must learn appropriate modes of

interaction (symbolic interaction theory -- Mead and Sullivan). Bochner and Kelly delineate basic skills that must be learned: empathetic communication, descriptiveness via the process of feedback, owning thoughts and feelings, self-disclosure, and behavioral flexibility. Furthermore, they suggest three measurement techniques to assess competencies in each skill area: self-ratings, peer-peer ratings, and observational ratings. A potpourri of tests are suggested for the respective rating systems. Although no one measurement is heralded as superior, Bochner and Kelly conclude, "Self-ratings are notoriously unreliable and should not be used as an independent assessment of skill development ... peer-peer and observational ratings are sufficiently reliable to be used in determining grades" (p. 297).

Tortoriello and Phelps underscore Bochner and Kelly's concern for a better method to measure interpersonal competency. However, Tortoriello and Phelps discredit observer ratings, student-peer evaluations, self-reported ratings, and indeed, all cognitive exams, as inadequate. Instead, they devise a "practical application instrument" consisting of "an interpersonal situation followed by a series of questions asking the student to determine the most appropriate course of action according to interpersonal theory" (p. 46). Curiously, they replace the negatively viewed cognitive exam with another "practically cognitive" exam.

Two additional educators (Marla Scafe and Ina Siler, 1979) tackled the problem of interpersonal competency testing. Scafe and Siler rest their case with the need for an indirect, cognitive test to assess and diagnose communication competencies in college students. Behavioral

and psychometric measures were discouraged because they were thought to be time consuming, costly, and insufficiently valid and/or reliable. Obviously the debate over measuring interpersonal competencies in education is far from resolved; nonetheless, the need for measurement is resolute.

Social psychology has contributed invaluable insights into measuring interpersonal behavior. A landmark work, Robert F. Bales' Interaction Process Analysis (IPA), has provided a reference point for most studies in interpersonal measurement. Created in 1950, the IPA included a set of 12 mutually exclusive categories which systematically classified verbal and nonverbal communication acts. All of Bales' 12 categories fall broadly into two areas: task functions (i.e., gives suggestion) and maintenance functions (i.e., socioemotional positive - shows tension release or socioemotional negative - shows tension). Observers score behaviors via frequency hash-marks for the duration of a group's interaction.

The IPA is not without criticism. Gouran (1970) cites two major weaknesses. First, because categories are mutually exclusive, what is recorded limits communication to a unidimensional process. A related difficulty according to McMurray (1972) "is that some types of acts may not occur frequently enough for analysis in a mutually exclusive coding system" (p. 2). A second problem according to Gouran is that frequency counts used by the IPA lack "power" or limit possible statistical treatments. Finally, Bales' IPA is a primarily quantitative measurement and offers little qualitative measurement. For example, Lashbrook (1970) noted that, "What has always appeared

to be lacking in the Bales' scheme is a consideration of the linkage between communication acts. . . . Nor is it possible. . . . to evaluate the impact of a particular comment on those communications that follow and represent stages of the group's own development or its task progress" (p. 2).

A study by Leathers' (1969) attempts to remedy Gouran's and McMurray's criticism of the IPA. Leathers prefaces his study by stating,

> A perusal of current research reports will indicate how the emphasis is on the antecedents to communication (various precommunication measures) and on consequences of communication (various measures of communication effects). It is relatively rare that the focus of a study bears upon the communication process itself. (p. 289)

Subsequently Leathers designed a Feedback Rating Instrument to "measure the impact of different contributions on one part of the small group process, feedback" (p. 299). Observers rated small group interaction on semantic differential scales, each scale measuring a unique characteristic of feedback (nine feedback characteristics were defined). Although Leathers tackled the process issue head-on by using qualitative measurement, his study was limited to only one aspect of interpersonal communication and his nine "dimensions" of feedback were not supported by factor analysis.

A direct outgrowth of Leathers study was the creation of the Interaction Behavior Measure (IBM) designed by McCrosky and Wright in 1971 -- in fact the IBM included Leathers' nine feedback characteristics.

Other communication traits, comprising a more comprehensive interaction framework, were added to form a reliable instrument to "discover the dimensions of interaction behavior in small group communication" (p. 339). The 30 item, seven-step semantic differential-type instrument yielded, via factor analysis, six factors: orientation, tension, flexibility, relevance, interest, and verbosity. These six observable dimensions of interaction behavior formulated a broad-based perspective of the interpersonal process. Although McCrosky and Wright were describing intragroup behavior, they asserted that their instrument "should be equally applicable to measurement of such behavior in any interpersonal setting" (p. 340). The IBM, then, is an excellent instrument to measure interaction behavior, yet not specifically designed to assess the interpersonal features of that interaction.

The nature of interpersonal behavior beyond the small group context was explored by Millard J. Bienvenu (1971). Bienvenu developed an Interpersonal Communication Inventory (ICI) based on prior research in a number of contexts: "marital communication, parent-child communication, group therapy and intragroup communication" (p. 380). The ICI was designed to "identify patterns, characteristics, and style of communication" (p. 383) in a variety of social situations. Although Bienvenu's intent is similar to my purpose, his method has serious limitations. First, the ICI is a self-inventory instrument; whether nonverbal communication can be self-evaluated is rather dubious. A second dilemma is the reliability of results. Is the ICI a measure of interpersonal behavior or merely a measure of the individual's

perception of that behavior? Finally, the comprehensiveness of the ICI must be questioned due to inherent limitations with self-inventory measurement.

Although the ICI was not significantly altered, its power was improved via factor analysis in 1976 (Bienvenu and Stewart). Eleven dimensions of communication were found: I. Self-disclosure; II. Awareness; III. Evaluation and Acceptance of Feedback; IV. Self-expression; V. Attention; VI. Coping with Feeling; VII. Clarity; VIII. Avoidance; IX. Dominance; X. Handling Differences; XI. Perceived Acceptance. Thus, in spite of methodological shortcomings, Bienvenu sets the stage for dealing with interpersonal behavior in a variety of contexts and begins to classify the full gamut of interpersonal behavior.

There are variations on the principal studies already described; but one of particular relevance to my project is a 1980 M.A. Thesis written by a colleague of mine, Mark Levitt. Levitt surveyed interpersonal communication literature, selected key interpersonal variables, and converted those variables into 87 observable items. Each item was qualitatively measurable on a 0 - 5 scale (0 -- "not possible to rate" to "extremely noticeable"). Twelve raters were trained to use the Interpersonal Observation Instrument (IOI) in a satisfactory manner; the IOI was used on 14 groups, consisting of 5 members each. These groups were gathered for Levitt's research purposes and given discussion topics to stimulate interaction. Test results yielded 21 factors via factor analysis; 12 factors sufficiently loaded to be considered primary. The primary factors were: I. Self-responsiveness; II. Negativeness; III. Physical Attraction; IV. Interest; V. Non-understanding;

VI. Body Placement; VII. Status Differences; VIII. Outer Appearance; IX. Age Differences; X. Trust; XI. Culture Differences; XII. Environment. Secondary factors included: XIII. Emotion; XIV. Reaching Out; XV. Clarification. Low-load or third level factors were: XVI. Appears Close-minded; XVII. Has Voice Variation; XVIII. Has Behavior Change; XIX. Avoids Conflict; XX. Ignores Speaker; XXI. Incompatible Behavior (p. 91).

Levitt concluded that the IOI could be used as "an experimental device to identify areas of interpersonal behavior change under controlled conditions; ... as a counseling device to identify areas of interpersonal communication which are an apparent problem or strength to an individual; ... [and to] point the way to important factors for further study" (p. 102). Levitt speculated that the IOI might also be used as an educational device for developing rater awareness of his/her own interpersonal behaviors. Not one to flaunt perfection, Levitt suggested: 1. further research in environments less controlled than his experimental design; 2. additional study on major factors delineated by his study; 3. validity and reliability tests; and 4. improvement on item content and clarity as well as a new factor analysis of the hybrid instrument.

Levitt's suggestions imply weaknesses in design that deserve mention. In the first place, raters qualitatively scored an entire group session without monitoring frequency of behavior occurrences. It appears dubious, as Lashbrook noted earlier, whether the communication process can be accurately assessed without including both qualitative and quantitative measurements. For example, a certain nonverbal behavior

may have occurred more frequently than a certain verbal behavior, yet the verbal behavior could be weighted as more important because each behavior is judged on the degree to which it is noticed or not noticed.

A related question unanswered by Levitt is whether causality exists between behaviors. Behavior sequencing does occur (Hawes, 1972; Birdwhistell, 1970); ignoring critical linch-pin behaviors and monitoring the obvious end-product behavior may produce a distorted picture of what is crucial interpersonal behavior.

Another difficulty with the IOI is that many behaviors are not clearly defined within the item or instructions to the IOI. For example, item # 68, "He/she gives fairly obvious nonverbal cues," and item # 71, "He/she nonverbally reflects trust of the speaker," use language rather high up the abstraction ladder. What these items mean in terms of interpersonal behaviors is left to our imagination. Nonetheless, Levitt does have a fair share of clearly defined items, but the percentage is surprisingly low.

The length of the IOI (87 items) also appears to be cumbersome without video-tape equipment available to stop the action for necessary scrutiny. Levitt's raters did not complain, but then they all lived in the same community!

Finally, I must agree with Levitt that validity and reliability checks must be conducted to secure the IOI in "measurement history." No reliability statistics were quoted, although results tended to agree among the raters. Regardless of the above criticism, I feel that Levitt has taken a bold step in the direction of measuring interpersonal communication; indeed, a step I shall follow and attempt to improve.

I have yet to mention context-appropriate studies. My silence is intentional -- few exist. A single study, published in 1977 by the Ohio State University Research Foundation (Daubenmire, Searles, and Ashton), deals with the task of creating a methodological framework to study nurse-patient communication. Daubenmire et al., premise their study on general systems theory. They begin their study:

> discrete pieces of information cannot be extrapolated from the stream of communication and independently studied. As a process communication implies simultaneity of action; the process involves interdependent behaviors which occur simultaneously in a mutual causal fashion.... A human relationship cannot be directly observed. One can only observe and measure the communicative behavior patterns of individuals as they respond to each other. These patterns maintain and signify the relationship. (p. 304)

Starting with such a realistic conception of communication automatically destined Daubenmire et al., to a quasi-descriptive study with a vast array of data.

Government funds helped furnish a hospital room with three remote controlled video-tape cameras, as well as stimulate research for a five year period (1971-1977) on the complex interactional processes that occur between nurses and patients (it should be noted that all health-care personnel that came in contact with the four elective surgery patients under observation were taped; nurse-patient interactions were of primary interest). A time-series, or second-by-second, record

of all verbal and nonverbal behavior from admission to discharge, was mnemonically coded for analysis. Utilizing a methodologic framework labeled synchronology and defined as "The study of presenting behaviors between two or more persons as they occur, change, and develop over time" (p. 304), Daubenmire et al., deciphered sequencing or patterned behavior over time and in context. Data consisted of detailed descriptions of all verbal and nonverbal behaviors according to a notation system called synchronics. Within such a framework, "synchrony was said to exist when the intensity, frequency, rate, or duration of one system's synchronisms rhythmically agreed with synchronisms of another system" (p. 308). A parallel notion mentioned earlier was that of congruence or convergence. Convergence becomes a communication goal, while divergence denotes potential difficulties in the communication process.

The ominous task of determining synchronomous behaviors between nurses and patients, therefore, was the goal of the Daubenmire study. Pages in their study read like a book of dance; indeed Rudolph Laban, a European choreographer, is often quoted. One might conclude that Daubenmire et al., have valiantly attempted to choreograph the "nurse-patient dance" in all its beautiful complexities.

Although I feel the Daubenmire study achieved a description of the interpersonal process, dimensions of communication were not categorized and key behaviors in nurse-patient interaction were not determined. The only spin-off research on the Daubenmire study was conducted by Bonnie Garvin (1980). Garvin's study, again, was descriptive in nature: "to examine the patterned regularities in the conversations

of dominant-recessive dyads to make explicit the rules used by interactants to maintain and perpetuate the relationship as dominant-recessive" (p. 1).

Chapter II: Methodology

My objective was to create an instrument capable of measuring nursing interpersonal behavior. The instrument was designed to yield reliable data that taxonomized the nursing process. Utilizing previous wisdom on interpersonal instrumentation, I developed an instrument similar in design to Levitt's IOI; tested it in hospital settings with practising nurses and analyzed its reliability and usefulness as a tool to ascertain nursing interpersonal behavior.

Instrument Development

Initially it was decided to use Levitt's primary factor items or items that loaded above .7 as my instrument base. In the interest of testing nearly all of Levitt's secondary factor items and a majority of his tertiary factor items, I amended my original design to include all of Levitt's items that loaded at or above .6. Any item below .6 that appeared interesting was re-written. For example, item 12, "He/she restates what the speaker said," loaded at .599 for Levitt and thus it was changed to "He/she gives verbal feedback on what the speaker has said," (item 26 - Stucky). Some item editing was necessary in that Levitt observed group interaction and I observed dyadic interaction.

New items were chosen on the basis of the importance relegated them by nursing and related therapeutic communication literature. Item 27, "He/she asks interactant how he/she feels," was based on

Sidney Jourard's concern for verbal self-disclosure between nurse and patient: "Just as thermometers and sphygmomanometers reveal something about the state of the patient's body - which nurses and physicians are concerned with - so does verbal self-disclosure reveal something about the state of the patient as a whole person" (Jourard, 1971, p. 182). Item 30, "He/she adjusts environment to make interactant physically more comfortable," was included due to Watson's suggestion that environment comfort measures can and should be taken by the nurse during the nurse-patient dyad (1979, p. 90). Item 31, "He/she uses humor while communicating," was added in light of its usefulness in any therapeutic situation. Carlson (1978) maintains that "humor serves a valuable purpose in promoting the continued harmony of a social relation at the same time that important messages are conveyed" (p. 195). She further maintains that humor functions not only in a communicative fashion, but also serves social, psychological, and physical purposes. Items 51 and 52, "He/she uses vocal variety in pitch, tempo, and volume," and "He/she has a pleasant vocal quality," were written in response to research done by Grinder and Bandler (1976). Grinder and Bandler maintain that auditory paramessages are critical in any therapeutic relationship; especially when they are congruent with visual paramessages. The importance of congruent messages versus incongruent messages led me to add two more items based on Grinder and Bandler: "He/she uses message - incongruent gestures while speaking," (item 58) and "He/she uses message - congruent gestures while speaking," (item 59). Item 55, "He/she positions his/her body at a similar level to that of the interactant," was taken from Carkhuff and Anthony (1979).

Body level, angle, distance, and inclination all facilitate the helping relationship and are labeled "attending skills" by Carkhuff and Anthony. The final addition, item 56, "He/she physically touches interactant during communication," was based on research regarding therapeutic touch. Garfield (1979) reported that therapeutic touch not only enhances the social atmosphere but is significantly correlated (at the .001 level of significance) to physical improvements: patient hemoglobin values increased with therapeutic touch and remained unchanged without it in an experimental design involving 32 nurses and 64 patients (p. 97).

Length of the instrument was a concern that was compromised to accommodate more items (variables). Nonetheless, instead of Levitt's 87 items, my Nursing Interaction Analysis (NIA) was honed down to 60 items. The sample which follows has been divided into 18 sections that logically group together. The divisions assisted the raters in using the instrument and my own purposes in attempting to look for potential relationships among variables.

Nursing Interaction Analysis

1. He/she makes positive statements about himself/herself.
2. He/she gives information about himself/herself.
3. He/she talks readily.
4. He/she asserts himself/herself freely.
5. He/she uses "I" during statements.

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6. He/she reacts nonverbally to the speaker in a defensive manner (i.e., closed body posture, etc.).
7. He/she reacts verbally to the speaker in a defensive manner (i.e., superiority, control, certainty, etc.).

8. He/she starts conflict.
9. He/she makes negative verbal responses to others' statements.
10. He/she causes antagonism towards himself/herself.
11. He/she shows hostility towards interactant.
12. He/she expresses thoughts dissimilar from those of the interactant.
13. He/she responds to conflict by appearing to turn disagreement into dislike or losing control during conflicts.
14. He/she makes negative nonverbal responses to others' statements.
15. He/she avoids conflict.
16. He/she pays attention to the speaker.
17. He/she maintains eye contact with interactant.
18. He/she shows interest in what is being said.
19. He/she nonverbally acknowledges the speaker.
20. He/she makes positive nonverbal responses to others' statements.
21. He/she shows noticeable facial feedback during the communication.
22. He/she makes unclear, hard-to-understand statements.
23. He/she appears to be having trouble understanding what has been said.
24. He/she speaks with abstract medical words.
25. He/she asks for clarification.
26. He/she gives verbal feedback on what the speaker has said.
27. He/she asks interactant how he/she feels.
28. He/she attempts to help others to become involved in communication.
29. He/she is uncomfortable with silence -- tends to break silence.
30. He/she adjusts environment to make interactant physically more comfortable.
31. He/she uses humor while communicating.

32. He/she shows emotion -- i.e., love, hate, joy, anger, etc. -- in a verbal manner.
33. He/she shows emotion -- i.e., love, hate, joy, anger, etc. -- in a nonverbal manner.
34. He/she nonverbally reflects trust of the speaker.
35. He/she verbally reflects trust of the speaker.
36. He/she seems attracted to the interactant.
37. He/she reacts verbally to some obvious physical characteristic of the interactant.
38. He/she reacts nonverbally to some obvious physical characteristic of the interactant.
39. He/she reacts verbally to the sex difference between interactants.
40. He/she is groomed in a manner unsuitable to his/her role or dissimilar from the others.
41. He/she wears clothing inconsistent with his/her role or dissimilar from the others.
42. He/she reacts nonverbally to the status differences between interactants.
43. He/she reacts verbally to the status differences between interactants.
44. He/she reacts nonverbally to the age differences between interactants.
45. He/she reacts verbally to the age differences between interactants.
46. He/she reacts verbally to the cultural differences between interactants.
47. He/she reacts nonverbally to the cultural differences between interactants.
48. He/she makes negative comments about the environment -- i.e., "This room is hot."
49. He/she makes positive comments about the environment -- i.e., "I like these chairs."
50. He/she has noticeable vocal variation -- i.e., accent, lisp, etc.

51. He/she uses vocal variety in pitch, tempo, and volume.
52. He/she has a pleasant vocal quality.
53. He/she moves physically closer to the interactant during the communication.
54. He/she angles his/her body towards the interactant during communication.
55. He/she positions his/her body at a similar level to that of the interactant.
56. He/she physically touches interactant during communication.
57. His/her communication behavior seems incompatible with his/her role -- i.e., an English teacher speaks incorrect English.
58. He/she uses message-incongruent gestures while speaking.
59. He/she uses message-congruent gestures while speaking.
60. He/she manifests some behavior change during the rating period which can be observed by the end of the period.

The next step was to code each item to make the instrument less cumbersome to the raters. An unforeseen advantage of the coding surfaced as raters were introduced to the instrument: they were forced to better understand what each item meant. This additional investment on the raters' part helped produce more reliable results. A final rationale for coding the items was the ease of dealing with a phrase rather than a sentence in analysis. Thus, the coded list of items appearing in Table 1 will be used throughout the remainder of this paper.

Completion of instrument design consisted of developing a rating system that would achieve two objectives: 1. determine whether or not a variable can be recognized, and 2. determine the degree to which a variable is recognized. Borrowing from a basic Likert format, the following rating system was established:

0 -- not noticeable
1 -- barely noticeable
2 -- somewhat noticeable
3 -- noticeable
4 -- very noticeable
5 -- extremely noticeable

Appendix A provides the finished instrument used by raters during their observation.

Table 1

NIA Coded List

1. self positive statements	31. uses humor
2. gives self information	32. shows verbal emotion
3. talks readily	33. shows nonverbal emotion
4. asserts freely	34. nonverbally reflects trust
5. uses "I" statements	35. verbally reflects trust
6. nonverbally defensive	36. attracted to other
7. verbally defensive	37. verbally reacts to physical
8. starts conflict	38. nonverbally reacts to physical
9. negative verbal response	39. verbal sex reaction
10. causes antagonism	40. has different grooming
11. shows hostility	41. has inconsistent clothing
12. express dissimilar thoughts	42. nonverbal status reaction
13. disagreement seems dislike	43. verbal status reaction
14. negative nonverbal response	44. nonverbal age reaction
15. avoids conflict	45. verbal age reaction
16. pays attention	46. verbal culture reaction
17. maintains eye contact	47. nonverbal culture reaction
18. shows interest	48. negative on environment
19. nonverbal acknowledgment	49. positive on environment
20. positive nonverbal response	50. has voice difference
21. shows facial feedback	51. uses vocal variety
22. unclear statements	52. pleasant vocal quality
23. doesn't understand	53. moves towards other
24. uses abstract words	54. angles towards other
25. asks clarification	55. positions similar to other
26. restates speaker	56. touches other
27. asks about feelings	57. incompatible behavior
28. helps others	58. incongruent gestures
29. uncomfortable with silence	59. congruent gestures
30. comfort	60. has behavior change

Instrument Application

The exploratory nature of my study allowed some flexibility in both observational setting and sample description. Since I live and work in Newton, KS, my observational setting focused on the only two hospitals in town, Axtell Christian Hospital and Bethel Deaconess Hospital. Axtell was founded in 1887 by Dr. John T. Axtell. Simultaneously, Dr. Axtell began an informal nurse training program. In 1895, a two-year program was organized as one of the first formal schools of nursing in Kansas. The hospital was accepted by the Kansas Christian Churches (Disciples of Christ) in 1925. The Axtell School of Nursing was terminated in 1949. Currently, Axtell maintains its relationship with the Kansas Christian Churches and has 98 acute care beds, 8 bassinets, and various outpatient services. The hospital provides a full range of community services in medicine, surgery, obstetrics, and pediatrics.

The Bethel Deaconess Hospital is also religiously affiliated -- but with the Mennonite Church. Bethel Deaconess was founded in 1908 and a nurse training program was begun with the opening of the hospital. The School of Nursing was terminated in the mid-70's. Presently, Bethel Deaconess Hospital has 84 general care beds, six intensive care beds, and 12 bassinets. The hospital maintains facilities for the treatment, diagnosis, and prevention of disease in a context of Christian service.

My objective was to video-tape three hours of nurse-patient interaction with a hand-held Sony Betamax unit. The advantages of

video-taping proved invaluable for second viewings and should prove useful as a data base for further research. Only nurses and patients who had consented to being taped were used as subjects; patients signed release forms to protect their health and mine. My patient sample was limited to non-chronic types; one individual was diagnosed as a terminal cancer patient during the taping process.

All totaled, I taped 24 nursing encounters, which contained ten patients, nine nurses, and 13 unique nurse-patient dyad combinations. An average nursing encounter lasted 8.25 minutes; each encounter was separated by at least two hours -- most by a day. The rationale for using an encounter as a unit of study comes from the notion that personality and concomitant behavior is not static through time. Symbolic interaction theorists, such as George Herbert Mead, Charles Cooley, etc., focus upon the social dimensions of our communication behavior; we act differently (assume multiple roles) depending on the situation. It stands to reason, then, that the same nurse-patient dyad taped at different times yields different behaviors. In fact, Daubenmire, Searles, and Ashton (1978) recorded nursing behaviors on a second-by-second time frame, or unit of study, and discovered a multitude of different behaviors. Daubenmire et al., argued that a study of these small units of behavior provided insight into the nurse-patient encounter. An encounter, according to their definition, "takes place whenever two or more persons move together in a bound segment of space and time" (p. 307). My focus was on the encounter or that segment of data from the time an individual entered a patient's room until exit.

Since my primary interest was nursing interpersonal behavior, a table of the nursing population follows. The large range of age and experience in both nursing pools gave me confidence that my results would be representative of a majority of practising nurses.

Table 2

Nursing Population

	Age				
	20-29	30-39	40-55	Range	Mean
Axtell	1	2	2	29	36.4
Bethel	1	2	1	22	36

	Personal Information			
	Female	Male	Married	Unmarried
Axtell	5	0	4	1
Bethel	4	0	3	1

	Level of Training		
	LPN	RN	RN+BS
Axtell	1	4	0
Bethel	1	2	1

	Years of Nursing Experience	
	Range	Mean
Axtell	19	8
Bethel	15	9.25

Upon completion of video-taping, I contracted the time of three Bethel College students in return for popcorn and a free steak dinner.

All students were female and had taken the course Interpersonal Communication 302 at Bethel College. Two were seniors -- one was a speech communication and English major; the other was a nursing major. The third student was a junior history major. All three were highly motivated students and expressed interest in my project prior to the rating sessions.

Our first session was designed to train the raters and test inter-rater reliability. The NIA instrument was discussed and raters became familiar with the coding system. A brief nurse-patient tape was observed, rated, and comparisons were made. After a few trial runs, comparisons yielded similar results and the raters felt confident in their rating ability.

At that point the raters viewed without consultation 10 two-minute segments of 10 different nurse-patient dyads. We ended with popcorn and I was prepared to test inter-rater reliability. To my dismay, I discovered little consensus regarding methods to test inter-rater reliability. The most common estimate of reliability is a percentage agreement. Yet Hartmann (1972) finds at least five weaknesses: First, percentage agreement is dependent upon marginal probabilities and these probabilities cannot be assessed without knowing chance agreement levels based upon marginal distributions. Second, percentage agreement does not provide any index of chance levels of agreement. Third, percentage agreement computed upon total trial scores reveals little about agreement on component parts. Fourth, percentage agreement varies as a function of the time interval used to define time blocks. Fifth, because percentage agreement has no

metric properties, it is not amenable to further mathematical analysis (Sackett, 1978, p. 87).

The only other ordinal scale tests of reliability that seemed remotely apropos were rank-order tests (Kendall's W and Spearman's rank correlation coefficient). These were abandoned because the NIA makes no attempt to rank order and ties become unmanageable. It was finally decided that a mean of the standard deviations of the three raters on ten events would provide the best description of inter-rater reliability. Although a mean of the standard deviation does not eliminate all of the criticisms raised against percentage agreement, it comes closer to describing the agreement or lack of agreement in metric properties and can be broken down into smaller component parts if necessary. Further, it is based on distributions that do account for chance levels of agreement.

The mean of the standard deviations or the mean of 600 separate standard deviation scores was 0.34277. A standard deviation score of zero is the best possible inter-rater reliability score and a standard deviation score of 2.8 is the worst possible inter-rater reliability score. Albeit a descriptive statistic, I was pleased to find relatively little deviation in raters' scores.

Sackett (1978) suggests "that observers who know they are being assessed maintain high levels of agreement during assessment but not during covertly monitored sessions" (p. 84). My curiosity got the best of me and I calculated the mean of the standard deviations on my legitimate study (24 encounters or 1440 separate standard deviation scores) and got 0.39400. Needless to say, I was pleased to observe

such minute "observer drift." The observers (raters) had no idea I would check inter-rater reliability during the legitimate study and no re-training or refresher discussions were used. I can only conclude that my instrument was effective in ensuring a high level of inter-rater reliability with minimal training.

All 24 encounters were observed and rated in two evening sessions. It was decided that the first two minutes of each encounter would not be rated because of camera bias. After two minutes, nurse-patient interactants seemed to ignore the presence of a camera. Results admittedly contain some camera bias but are far superior than a simulated study could claim to be.

Analysis

Mean scores on all 24 encounters were calculated (1,440 separate mean scores) and served as the data base for factor analysis. The Statistical Package for the Social Sciences (SPSS) factor analysis program was used to detect patterning of variables with the goal of discovering new concepts in nursing behavior. It was decided to use a Varimax or orthogonal rotation for several reasons. In the first place, Levitt attempted both orthogonal and oblique rotations and discovered orthogonal to be best suited for his study, which has obvious parallels to mine. Second, orthogonal factors are uncorrelated, while oblique factors may be correlated. Cattell (1978) indicates that this dependent nature of oblique factors, in certain cases, "may overshoot the true hyperplane maximum and gather in other vectors

that do not rightly belong" (p. 519). I was interested in discovering independent factors or independent nursing typologies and thus had little use for an oblique rotation. A third problem with an oblique rotation is that because of its factoral dependence, variance or instability of angular separations can be expected; a clean delineation of unique factors becomes difficult (Fruchter, 1954, p. 195). Finally, after running a preliminary factor analysis with both orthogonal and oblique rotations, I discovered similar results: the main difference being that orthogonal factor loadings were higher and cleaner (variables did not load high on more than one factor).

Due to a variable limit (36) on the SPSS program I used, I was forced to do a preliminary factor analysis on the variables 1 - 30, variables 31 - 60, and variables 16 - 45. Twenty-five variables that loaded .6 or higher on a common factor in preliminary factoring were lifted and run as a separate factor analysis. The remaining 35 were run as a second factor analysis. Variables that did not load high on either the 24 variable or 35 variable factor analyses were run on a third and final factor analysis.

These 3 final factor analyses will serve as the basis of my extrapolations and conclusions throughout the remainder of this paper.

Chapter III: Results and Interpretation

Truman Kelley (1940) once stated,

> There is no search for timeless, spaceless, populationless truth in factor analysis; rather, it represents a simple, straight forward problem of description in several dimensions of a definite group functioning in definite manners, and he who assumes to read more remote verities into the factorial outcome is certainly doomed to disappointment. (Harmon, 1967, pp. 5-6)

Although factor analysis has become more complex since 1940, Kelly's admonition seems appropriate when one is left with the task of making order out of factorial chaos. The temptation to claim absolute truth when reporting a factorial study is a claim I will not make; yet, I believe the following results illuminate a few dark corners in nursing interpersonal communication.

My purpose in this chapter will be two-fold: first, I will list the factor loadings on all items tested; second, I will group items according to the important factors that emerge and label those factors.

Factor loadings on the items tested via orthogonal rotation are as follows:

Table 3

Factor Loadings with Orthogonal Rotation

Code	Primary	Second	Third	Fourth	Fifth
maintains eye contact	.911 I	.294 II			
attracted to other	.712 I	.297 V	.274 II		
asks about feelings	.660 I	.351 V	.264 II		
pays attention	.650 I	.416 II	.293 V		
verbally reflects trust	.639 I	.360 II			
touches other	.636 I	.453 II	.255 XV	.231 V	
shows verbal emotion	.605 I	.498 V	.398 XV		
nonverbal reflects trust	.567 I	.414 II	.421 V	.306 XV	
nonverbal acknowledgment	.764 II	.393 I			
shows facial feedback	.751 II	.452 XV	.262 I	.233 V	
positive nonverbal response	.685 II	.296 V			
uses humor	.671 II	.446 V	.244 XV		
shows nonverbal emotion	.635 II	.470 I	.381 XV	.324 V	
congruent gestures	.613 II	.375 I			
nonverbally defensive	.856 III				
negative nonverbal response	.848 III	.293 X	.223 XII		
starts conflict	.696 III	.402 XII	-.341 XVIII		
causes antagonism	.655 III	.409 VI	.265 XII	.239 VIII	.221 IX
verbally defensive	.626 III	.244 IX	.202 XI		
shows hostility	.538 III	.482 X	.336 VI	.287 XII	
uncomfortable with silence	-.750 IV	-.409 XIII			
angles toward other	.688 IV	.235 XVI	.223 XIII	.201 XIV	
nonverbal age reaction	.660 IV				
helps others	.658 IV	.544 XIV	.281 XIII		
uses "I' statements	.650 IV	.570 XIV			
shows interest	.646 IV	.515 XIV	.221 XIII		

nonverbal status reaction	-.841 V	-.215 II		
verbal status reaction	-.816 V	-.302 I		
pleasant vocal quality	.661 V	.474 II	.328 XV	.233 I
uses vocal variety	.623 V	.586 II	.293 XV	.223 I
uses abstract words	.882 VI			
unclear statements	.773 VI	.481 XI	.236 X	
negative verbal response	.678 VI	.420 X	.328 III	
gives self information	.922 VII			
self positive statements	.918 VII			
avoids conflict	.653 VII	-.446 XVIII	.244 XII	.241 III
positive on environment	.784 VIII	-.246 XII	.208 VII	
verbal sex reaction	.738 VIII	.334 XVIII		
has different grooming	.714 VIII	.415 VI	-.301 XVIII	.217 XI
asserts freely	.804 IX			
talks readily	.769 IX	.387 X	.345 VI	
positions similar to other	.557 IX	-.255 X	.237 XII	.222 XI
doesn't understand	.923 X	.205 III		
has voice difference	.831 X			
incompatible behavior	.874 XI			
incongruent gestures	.863 XI	.225 XVIII		
nonverbally reacts to physical	.853 XII			
verbally reacts to physical	.717 XII	.263 X		
comfort	.761 XIII			
moves towards other	.745 XIII	.449 IV	-.269 XVII	
asks clarification	.943 XIV	.284 XIII		
restates speaker	.744 XIV	-.293 XVII	-.225 XVI	
verbal age reaction	.835 XV	.310 I	.247 II	

express dissimilar thoughts	.982 XVI	
has behavior change	.810 XVII	-.222 XIV
negative on environment	.663 XVIII	

Table 3 does not include four items: 13 - disagreement seems dislike; 41 - has inconsistent clothing; 46 - verbal culture reaction; 47 - nonverbal culture reaction. None of these items were observed by the raters, and consequently, could not be factored. I believe item 13, re-written, could be observable. However, nurse uniform variety and cultural reactions would seldom be noticeable in a hospital setting and could justifiably be left off any future instrument.

All remaining items (56) loaded at or above .5. At this preliminary stage a loading of .5 or above was necessary for a major loading; to be reported, a loading had to be at least .2. Eighteen major factors surfaced and are ready to be named and ordered according to their usefulness.

To determine which of the 18 factors are the most important, or primary factors, I will use criteria set forth by Cattell (1978).

> Actually, three or even two markers per factor will suffice, if need be, provided (a) the loadings are above .7, so that no other single factor elsewhere is likely to load them that highly, (b) the markers primarily chosen for one factor characteristically have some small but significant loading on another that will help in its recognition. (p. 497)

All primary factors, then, will have at least two marker variables, contain loadings of at least .7, and have a small loading (below .5 and above .2) on another factor. Table 4 tests all 18 factors according to Cattell's criteria.

Table 4

Cattell's Criteria Applied to 18 Factors Indentified after Orthogonal Rotation

Factor	No. of Items	Items above .7	Has Small Significant Loading on other Factors
I	8	2	yes
II	6	2	yes
III	6	2	yes
IV	6	1	yes
V	4	2	yes
VI	3	2	yes
VII	3	2	yes
VIII	3	3	yes
IX	3	2	yes
X	2	2	yes
XI	2	2	yes
XII	2	2	yes
XIII	2	2	yes
XIV	2	2	yes
XV	1	1	yes
XVI	1	1	no
XVII	1	1	yes
XVIII	1	0	no

The application of Cattell's criteria yields fourteen primary factors (I through XIV); three factors (XV through XVII) that I will consider secondary due to their potential for becoming primary, and one factor (XVIII) that I will label tertiary because of its marginal power (.663 loading).

Factor labeling, as well as graphical comparisons with the 14 primary factors, is the next interpretive step. Additionally, each factor will be described in more detail, pointing out unique features appropriate to this study.

Factor I (Table 5) contains two separate items on trust: "verbally reflects trust" and "nonverbally reflects trust." The

Table 5

Factor Loadings for the First of the 14 Major Factors

TRUSTING

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
maintains eye contact	.91	.29												
attracted to other	.71	.27			.30									
asks about feelings	.66	.26			.35									
pays attention	.65	.42			.29									
verbally reflects trust	.64	.36												
touches other	.64	.45			.23									
shows verbal emotion	.61				.50									
nonverbal reflects trust	.57	.41			.42									

remaining items do a rather good job of quantifying what trust could entail. Apparently eye contact, touching, attraction, attention, and emotional display all are behaviors that comprise a trusting type of nurse. The most common factor that items have a second loading on are factors II (Responsive) and V (Vocally Pleasant).

Factor II (Table 6) is labeled Responsive in that items imply value of the other interactant in dialogue. "Nonverbal acknowledgment," "shows facial feedback," "positive nonverbal response," and "shows nonverbal emotion" are responding behaviors and clearly fit the factor label. "Uses humor" and "congruent gestures" are pleasant surprises to be added to the responsive list; the importance of humor (.671) being particularly important. Two common factors surface on second loadings: factors I (Trusting) and V (Vocally Pleasant).

Factor III (Table 7) is labeled Negative and all items fit that category. The key marker variable, "nonverbally defensive" and its counterpart, "verbally defensive" present the most concrete behaviors in the factor. "Shows hostility" (.538) is the lowest load item and could possibly be improved with a re-write. The secondary factor most frequently loaded by factor III items is factor XII (Physically Reactive).

Factor IV (Table 8) best fits the label of Helping. Although only one item, "helps others," uses the word help, others indicate more precise behavioral markers for helping behavior. Silence is apparently appropriate; otherwise, "I" statements appear most useful. "Angles toward other" is the highest loading positive behavior (.688). "Nonverbal age reaction" was the confusing item in this factor.

Table 6

Factor Loadings for the Second of the 14 Major Factors

RESPONSIVE

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
nonverbal acknowledgment	.39	.76												
shows facial feedback	.26	.75			.23									
positive nonverbal response		.69			.30									
uses humor		.67			.45									
shows nonverbal emotion	.47	.64			.32									
congruent gestures	.38	.61												

Table 7

Factor Loadings for the Third of the 14 Major Factors

NEGATIVE

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
nonverbally defensive			.86											
negative nonverbal response			.85							.29		.22		
starts conflict			.70									.40		
causes antagonism			.66			.40		.24	.22			.27		
verbally defensive			.63						.24		.20			
shows hostility			.54			.34				.49		.29		

Table 8

Factor Loadings for the Fourth of the 14 Major Factors

HELPING

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
uncomfortable with silence				-.75									-.41	
angles toward other				.69									.22	.20
nonverbal age reaction				.66										
helps others				.66									.28	.54
uses "I" statements				.65										.57
shows interest				.65									.22	.52

Helping behavior obviously would acknowledge age differences, but exactly why "nonverbal age reaction' is important in a helping situation needs further research. It did not load on any other factor and thus becomes difficult to interpret. Thus, I would be suspicious of placing undue weight on "nonverbal age reaction" with factor IV. The two most common secondary loadings occurred on factors XIII (Comforting) and XIV (Clarifying).

Factor V (Table 9) deals with vocal characteristics and their importance in the nursing situation. "Pleasant vocal quality" and "uses vocal variety" both have high secondary loadings on factor II (Responsive) and have smaller loadings on two additional factors -- their importance seems crucial. The two high negative load items, 'nonverbal status reaction" and "verbal status reaction" indicate that status reactions by a nurse would not enhance his/her vocal pleasantness or his/her capacity for being trusting or responsive: "nonverbal status reaction" and "verbal status reaction" load negatively on factors I (Trusting) and II (Responsive), whereas "pleasant vocal quality" and "uses vocal variety" load positively on those factors.

Factor VI (Table 10) holds together well and its label seems a good fit. "Negative verbal response" has the lowest load at .678, yet is in the bailiwick of non-clarifying behavior. As might be predicted, the most frequent secondary loadings are on factor X (Non-understanding).

Factor VII (Table 11) is labeled Self-responsive based on two very high load and pure marker variables: "gives self information" and "self positive statements." The third item, "avoids conflict,"

Table 9

Factor Loadings for the Fifth of the 14 Major Factors

VOCALLY PLEASANT

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
nonverbal status reaction		-.22			-.84									
verbal status reaction	-.30				-.82									
pleasant vocal quality	.23	.47			.66									
uses vocal variety	.22	.59			.62									

Table 10

Factor Loadings for the Sixth of the 14 Major Factors

NON-CLARIFYING

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
uses abstract words						.88								
unclear statements						.77				.24	.48			
negative verbal response			.33			.68				.42				

Table 11

Factor Loadings for the Seventh of the 14 Major Factors

SELF-RESPONSIVE

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
gives self information							.92							
self positive statements							.92							
avoids conflict			.24				.65					.24		

appears to be misplaced. It loads considerably lower than the two marker variables on factor VII and loads moderately high (-.446) on factor XVIII (Negative on Environment). Two other factors, XII (Physically Reactive) and III (Negative), share small loadings with the item "avoids conflict." It would seem that its true home is not with factor VII.

Factor VIII (Table 12) seems to be a tossed-salad factor; all three items have high loadings but appear different. Both "verbal sex reaction" and "has different grooming" load on factors that seem to have more in common than factor VIII. "Verbal sex reaction" loads .334 on factor XVIII (Environmentally Negative) and "has different grooming" loads .415 on factor VI (Non-clarifying). This factor needs development before it can be used with confidence; until that time, the .784 item, "positive on environment," deserves the factor label.

Factor IX (Table 13) is a clean factor; all items carry traces of assertiveness. Although a talkative person can be labeled assertive, "talks readily" also loads at .387 on factor X (Non-understanding) and the item might be re-worded to clarify its meaning. "Positions similar to other" provides a fine indication of how assertiveness might be fostered at the nonverbal level.

Factor X (Table 14) is also a high loading and a very clean factor. 'Doesn't understand" loads .205 on factor III (Negative) to no one's surprise. Another item could be added to increase the representation of the factor.

Factor XI (Table 15) is a clean and distinct factor. Levitt's one high load item, "incompatible behavior," has been developed

Table 12

Factor Loadings for the Eighth of the 14 Major Factors

ENVIRONMENTALLY POSITIVE

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
positive on environment							.21	.78				-.25		
verbal sex reaction								.74						
has different grooming						.42		.71			.22			

Table 13

Factor Loadings for the Ninth of the 14 Major Factors

ASSERTIVE

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
asserts freely									.80					
talks readily						.35			.77	.39				
positions similar to other									.56	-.26	.22	.24		

Table 14

Factor Loadings for the Tenth of the 14 Major Factors

NON-UNDERSTANDING

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
doesn't understand			.21							.92				
has voice difference										.83				

Table 15

Factor Loadings for the Eleventh of the 14 Major Factors

BEHAVIORALLY INCONGRUENT

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
incompatible behavior											.87			
incongruent gestures											.86			

into a full-fledged primary factor item with the addition of "incongruent gestures." A third item could be added to distinguish further this important factor.

Factor XII (Table 16) is clearly defined by its two items, "nonverbally reacts to physical" and "verbally reacts to physical." A third item could be added for better factor representation.

Factor XIII (Table 17) contains two solid items, "comfort" and "moves towards other." Although comfort can be further defined with additional items, "moves towards other" provides a specific behavioral clue as to how a nurse might convey comfort to his/her patient. "Moves toward other" also loads on factor IV (Helping) at a rather high level (.449).

Factor XIV (Table 18) consists of two high load and clean items, "asks clarification" and "restates speaker." The factor label is obvious; the factor, however, could be improved with an additional item. "Asks clarification" also loads on factor XIII (Comforting) at the .284 level.

The remaining factors XV through XVIII (Table 19) contain only one item and cannot be discussed without further development. As it pertains to nursing, I believe factor XVII (Behaviorally Flexible) holds the most promise and should be expanded with additional items.

Table 20 summarizes the factors that have just been discussed. Note that primary factors meet Cattell's criteria, secondary factors have strong potential for becoming primary with some development, and tertiary factors need additional research.

Table 16

Factor Loadings for the Twelfth of the 14 Major Factors

PHYSICALLY REACTIVE

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
nonverbally reacts to physical												.85		
verbally reacts to physical										.26		.72		

Table 17

Factor Loadings for the Thirteenth of the 14 Major Factors

COMFORTING

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
comfort													.76	
moves towards other				.45									.75	

Table 18

Factor Loadings for the Fourteenth of the 14 Major Factors

CLARIFYING

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
asks clarification													.28	.85
restates speaker														.74

Table 19

Factor Loadings for the Remaining Factors

FACTOR NAME Items	I	II	XIV	XV	XVI	XVII	XVIII
AGE CONSCIOUS verbal age reaction	.31	.25		.84			
EXPRESSIVELY DISSIMILAR express dissimilar thoughts					.98		
BEHAVIORALLY FLEXIBLE has behavior change			-.22			.81	
ENVIRONMENTALLY NEGATIVE negative on environment							.66

Table 20

Summary of Factors Identified

Factor	Factor Name	Items	Level
I	Trusting	8	Primary
II	Responsive	6	Primary
III	Negative	6	Primary
IV	Helping	6	Primary
V	Vocally Pleasant	4	Primary
VI	Non-clarifying	3	Primary
VII	Self-responsive	3	Primary
VIII	Environmentally Positive	3	Primary
IX	Assertive	3	Primary
X	Non-understanding	2	Primary
XI	Behaviorally Incongruent	2	Primary
XII	Physically Reactive	2	Primary
XIII	Comforting	2	Primary
XIV	Clarifying	2	Primary
XV	Age Conscious	1	Secondary
XVI	Expressively Dissimilar	1	Secondary
XVII	Behaviorally Flexible	1	Secondary
XVIII	Environmentally Negative	1	Tertiary

It proved interesting how items loaded on seemingly related factors, and thus a final examination of how the above 14 primary factors correlate to each other as a whole is irresistable. Table 21 provides the highest positive coefficient score between two factors.

Factor correlations are, as a whole, in agreement with prior findings. It would appear, however, that more research is needed on assertive behavior and nursing. Assertiveness can be considered a positive trait for a nurse, yet there tends to be some relationship between assertiveness and non-understanding in this study. The distinction between assertive and aggressive behavior should be more

clearly made via item revisions and additions. Such distinctions may well eliminate the confusion regarding what assertiveness implies in the present study.

Table 21

Coefficient Scores between Primary Factors

Factors	Score	Factors
I Trusting	.564	II Responsive
II Responsive	.559	I Trusting
III Negative	.545	VI Non-clarifying
IV Helping	.581	XIV Clarifying
V Vocally Pleasant	.753	II Responsive
VI Non-clarifying	.652	VII Self-responsive
VII Self-responsive	.379	XI Behaviorally Incongruent
VIII Environmentally Positive	.561	XII Physically Reactive
IX Assertive	.532	XII Physically Reactive
X Non-understanding	.648	IX Assertive
XI Behaviorally Incongruent	.283	X Non-understanding
XII Physically Reactive	.555	VI Non-clarifying
XIII Comforting	.068	IV Helping
XIV Clarifying	.614	I Trusting

Chapter IV: Conclusions

The culmination of this project would not be complete without a retrospective look at the original purpose and the progress made towards that goal. My primary purpose was to develop an instrument to measure nursing interpersonal communication. A secondary purpose was to test that instrument's inter-rater reliability and to factor analyze for important nursing concepts.

A 60 item instrument has been created (the NIA) and has demonstrated remarkable inter-rater reliability. Using a data base of nurse-patient interaction in two Newton, KS hospitals, the NIA was factor analyzed. Factor analysis produced 18 factors that categorize nursing behavior. Fourteen factors were labeled primary and appear crucial in nursing "bedside manner." Adjectives were used to describe all factors because each factor represents a type of nurse or cluster of nursing behaviors. Rather than maintaining that a nurse should be a trusting nurse without marker variables to indicate how a trusting nurse might act, each NIA factor label has key marker variables that suggest behaviors appropriate for a trusting nurse, a responsive nurse, a negative nurse, etc. Thus, categories, or factor labels, have been operationally defined and eliminate confusion present with many nursing concepts.

Furthermore, the NIA is capable of measuring a number of interpersonal concepts relatively new to nursing literature. Two such concepts are factor V (Vocally Pleasant) and factor XI (Behaviorally

Incongruent). Both factors are based on research done by Grinder and Bandler; it behooves nursing students to study these two concepts in greater detail.

A covert purpose of this study was to determine the validity of Levitt's IOI. All of Levitt's items that were used in the NIA appear valid with the exception of "disagreement seems dislike," has inconsistent clothing," "verbal culture reaction," and "nonverbal culture reaction." In sum, 49 IOI items were used and have withstood the rigors of a second test (loading at or above .5) making at least 56% of Levitt's IOI items valid. Applying the same logic to the 60 item NIA, it can claim 81% of its items to be valid. Validity obviously deserves more sophisticated testing, but the fact remains that the NIA is a viable instrument in measuring interpersonal nursing behavior.

A comparison of the IOI and the NIA is represented in Table 22.

Table 22

Primary Factors Identified by the IOI and the NIA

Factor	IOI	NIA
I	Self-responsiveness	Trusting
II	Negativeness	Responsive
III	Physical Attraction	Negative
IV	Interest	Helping
V	Non-understanding	Vocally Pleasant
VI	Body Placement	Non-clarifying
VII	Status Difference	Self-responsive
VIII	Outer Appearance	Environmentally Positive
IX	Age Differences	Assertive
X	Trust	Non-understanding

XI	Cultural Differences	Behaviorally Incongruent
XII	Environment	Physically Reactive
XIII		Comforting
XIV		Clarifying

Six of Levitt's 12 factors have clear referents to NIA factors. The remaining: interest, body placement, status differences, outer appearance, age differences, and cultural differences , either are imbedded in a new NIA factor or are insignificant in nursing situations.

Usefulness of the NIA

The identification of nursing types is the most salient use of the NIA. For example, a nurse could rate high on all variables that group under Trusting. Since Trusting is highly correlated to Responsive (see Table 21), it would follow that this particular nurse exhibits two very positive nursing characteristics. By the same token, negative characterisitics could also be examined. Nursing students could be evaluated with the NIA and training be arranged with the goal of changing these negative characteristics. Since NIA items are rated on a qualitative scale, nurses could be further tested on the degree to which they possess certain nursing typologies.

The above scenario could be applied to practically any helping situation that entails interpersonal interaction: counseling, teaching, etc. I do believe, however, that dyadic settings offer the most appropriate climate for using the NIA.

A final use comes from the raters who worked with the NIA during this study. All three raters voiced their interest in using the NIA

as a learning tool. Each rater was forced to grapple with key interpersonal concepts in order to rate interactions; the actual rating process reinforced their grasp of those interpersonal concepts better than most final examinations could ever hope to.

Suggestions for Further Research

As is the case with most research projects, there are improvements that can be made on the NIA study. Sample size could be increased to include an even broader cross-section of hospitals and subjects. A second factor analysis could be performed on the new data and results compared with this study.

NIA factors need to be individually examined, developed, and tested for their impact on patients. Substantive questions need to be asked regarding the importance of a certain type of nurse (helping, negative, etc.) on a patient's recovery (physical and psychological).

Finally, since my project was exploratory in nature, additional data needs to be collected on the reliability and validity of the NIA; I would especially encourage intra-rater reliability studies.

Conclusion

The NIA is an instrument that can be useful in examining nursing interpersonal behavior. Creative application of the NIA can lead to nursing "bedside manner" that exudes positive therapeutic interpersonal skills so desperately necessary to the healing process.

BIBLIOGRAPHY

Bales, Robert F. Interaction Process Analysis: A Method for the Study of Small Groups. Cambridge, Mass.: Addison-Wesley, 1950.

Bienvenu, Millard J. "An Interpersonal Communication Inventory," The Journal of Communication, 21 (1971), 381-88.

_____, and David W. Stewart. "Dimensions of Interpersonal Communication." Journal of Psychology, 93 (1976), 105-11.

Birdwhistell, Ray L. Kinesics and Context: Essays on Body Motion Communication. Philadelphia: University of Pennsylvania Press, 1970.

Bochner, Arthur P., and Clifford W. Kelly. "Interpersonal Competence: Rationale, Philosophy, and Implementation of a Conceptual Framework." The Speech Teacher, 23 (Nov., 1974), 279-301.

Carkhuff, Robert R., and William A. Anthony. The Skills of Helping. Amhurst, Mass.: Human Resource Development Press, Inc., 1979.

Carlson, Carolyn E. and Betty Blackwell, eds., Behavioral Concepts and Nursing Intervention, 2nd ed. New York: J.B. Lippincott Company, 1978.

Cattell, Raymond R. The Scientific Use of Factor Analysis in Behavioral and Life Sciences. New York: Plenum Press, 1978.

Dance, F.E.X., and C. Larson. The Functions of Human Communication. New York: Holt, Rinehart, and Winston, 1976.

Daubenmire, M. Jean et al., "Synchronics: A Notation System for the Quantitative and Qualitative Description of Presenting Behavior." Report prepared for the Division of Nursing, Bureau of Health Resources Development, Public Health Service, August, 1977.

_____, Sharon Searles, and Carol Ashton. "Communicative Interaction: Methodology and Analysis." Report prepared for the Division of Nursing, Bureau of Health Resources Development, Public Health Services, October, 1977.

_____. "A Methodological Framework to Study Nurse-Patient Communication." Nursing Research, 27 (Sept. - Oct., 1978), 303-10.

Ekman, Paul and Wallace V. Friesen. Unmasking the Face: A Guide to Recognizing Emotions from Facial Clues. Englewood Cliffs, N.J.: Prentice-Hall, 1975.

Fruchter, Benjamin. Introduction to Factor Analysis. Princeton, N.J.: D. Van Nostrand Company, Inc., 1954.

Garvin, Bonnie. "A Rules-Based Study of Communication in Dominant-Recessive Relationships." Paper presented to the Third Annual Conference on Communication, Language and Gender, University of Kansas, n.p., May 30-31, June 1, 1980.

Garfield, Charles A., ed. Stress and Survival: The Emotional Realities of Life-Threatening Illness. St. Louis: The C.V. Mosby Company, 1979.

Giffin, Kim, and Bobby Patton. Fundamentals of Interpersonal Communication. New York: Harper and Row, 1971.

Gouran, D.S. "Conceptual and Methodological Approaches to the Study of Leadership." Central States Speech Journal, 21 (1970), 217-23.

Grinder, John, and Richard Bandler. The Structure of Magic. Palo Alto, CA: Science and Behavior Books, Inc., 1976.

Harman, Harry H. Modern Factor Analysis. Chicago: The University of Chicago Press, 1967.

Illich, Ivan. Medical Nemesis. New York: Bantam Books, 1977.

Jasmin, Sylvia, and Louise N. Trygstad. Behavioral Concepts and the Nursing Process. St. Louis: The C.V. Mosby Company, 1979.

Jourard, Sidney M. The Transparent Self. New York: D. Van Nostrand Company, 1971.

Lashbrook, W.B. "Cybernetic Groups: The Future of Interaction Process Analysis." Paper presented at the Annual Convention of the Speech Communication Association, New Orleans, Dec., 1970.

Leathers, D.B. "Process Disruption and Measurement in Small Group Communication." Quarterly Journal of Speech, 55 (1969), 287-300.

Levitt, Mark A. "The Development of a Rating Scale for Interpersonal Communication Behaviors." Diss., University of Kansas, 1980.

McCroskey, James C. and David W. Wright. "The Development of an Instrument for Measuring Interaction Behavior in Small Groups." Speech Monographs. 38 (1971), 335-40.

McMurray, Robert Irvin. "A Comparison of Interaction Process Analysis and the Interaction Behavior Measure." Paper presented to the International Communication Association Annual Convention, n.p., April, 1972.

Mortensen, C. David. Communication: The Study of Human Interaction. New York: McGraw-Hill, 1972.

Murray, Ruth B., and Judith P. Zentner. Nursing Concepts for Health Promotion. Englewood Cliffs, N.J.: Prentice-Hall, 1979.

Orem, Dorothea E. Nursing: Concepts of Practice, 2nd ed. New York: McGraw-Hill, 1980.

Patton, Bobby R and Kim Giffin. Decision-Making Group Interaction. 2nd ed. New York: Harper and Row, 1978.

Pelletier, Kenneth R. Holistic Medicine. New York: Delacorte Press/ Seymour Lawrence, 1979.

Riehl, Joan P., and Sister Callista Roy, eds. Conceptual Models for Nursing Practice. New York: Appleton-Century-Crofts, 1980.

Sackett, Gene P. Observing Behavior, Vol. II: Data Collection and Analysis Methods. Baltimore: University Park Press, 1978.

Scafe, Marla, and Ina C. Siler. "The Development of Communication Competency Test at the University of Oklahoma." Paper presented at the Annual Convention of the Central States Speech Association, St. Louis, n.p., April 7, 1979.

Smith, D.M. "Myth and Method in Nursing Practice." American Journal of Nursing, 64 (1964), 68-72.

Sundeen, Sandra J., Gail W. Stuart, Elizabeth D. Rankin, and Sylvia P. Cohen. Nurse-client Interaction - Implementing the Nursing Process. St. Louis: The C.V. Mosby Company, 1976.

Swanson, David D., and Jesse G. Delia. The Nature of Human Communication. Chicago: Science Research Associates, Inc., 1976.

Tortoriello, Thomas R. and Lynn A. Phelps. "Can Students Apply Interpersonal Theory?" Today's Speech, (Fall, 1975), 45-49.

Travelbee, Joyce. Interpersonal Aspects of Nursing, 2nd ed. Philadelphia: F.A. Davis Company, 1971.

Truax, Charles B., H. Altmann, and William A. Miller, Jr. "Therapeutic Relationships Provided by Various Professionals." Journal of Community Psychology, 2 (1974), 33-6.

Watson, Jean. Nursing: The Philosophy and Science of Caring. Boston: Little, Brown, and Company, 1979.

APPENDIX A

Nursing Interaction Analysis

Behavior

Rating:
0 - not noticeable
1 - barely noticeable
2 - somewhat noticeable
3 - noticeable
4 - very noticeable
5 - extremely noticeable

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
1. self positive statements										
2. gives self information										
3. talks readily										
4. asserts freely										
5. uses "I" statements										
6. nonverbally defensive										
7. verbally defensive										
8. starts conflict										
9. negative verbal response										
10. causes antagonism										
11. shows hostility										
12. express dissimilar thoughts										
13. disagreement seems dislike										
14. negative nonverbal response										
15. avoids conflict										
16. pays attention										
17. maintains eye contact										
18. shows interest										
19. nonverbal acknowledgment										
20. positive nonverbal response										
21. shows facial feedback										
22. unclear statements										
23. doesn't understand										
24. uses abstract words										

Behavior	Rating									
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
25. asks clarification										
26. restates speaker										
27. asks about feelings										
28. helps others										
29. uncomfortable with silence										
30. comfort										
31. uses humor										
32. shows verbal emotion										
33. shows nonverbal emotion										
34. nonverbally reflects trust										
35. verbally reflects trust										
36. attracted to other										
37. verbally reacts to physical										
38. nonverbally reacts to physical										
39. verbal sex reaction										
40. has different grooming										
41. has inconsistent clothing										
42. nonverbal status reaction										
43. verbal status reaction										
44. nonverbal age reaction										
45. verbal age reaction										
46. verbal culture reaction										
47. nonverbal culture reaction										
48. negative on environment										
49. positive on environment										
50. has voice difference										
51. uses vocal variety										
52. pleasant vocal quality										
53. moves towards other										
54. angles towards other										
55. positions similar to other										
56. touches other										

Behavior	Rating									
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
57. incompatible behavior										
58. incongruent gestures										
59. congruent gestures										
60. has behavior change										