Language as a Tool in Medicine: Methodology and Theoretical Framework

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Abstract—Since language is the predominant instrument by which information is transmitted between doctor and patient, an understanding of the uses and functions of language in medicine is crucial to effective medical care. This paper describes a framework for the study of language as a tool in medicine. The work is based on a large volume of doctor-patient conversations tape-recorded in natural settings. A method of cataloging recorded material has been developed which allows rapid access to segments of interest on the tape itself. The writers' framework of analysis suggests that, in addition to the knowledge of social speech conventions, seven levels of linguistic information are necessary for successful communication. Based on this research, a curriculum is being designed to teach medical students the use of language as a tool in medicine in order to refine their skills as effective listeners and speakers.

Physicians and social scientists have devoted numerous publications to the reasons underlying communication problems between doctors and their patients. Indeed, the most common complaint patients have about their doctors is that they do not listen. Clearly, anything that would increase the doctor's ability to listen and to communicate would increase his effectiveness as a physician. But much more is involved. The spoken language is the most important tool in medicine. Speech is the medium by which patients inform doctors of their symptoms and concerns and by which doctors elicit and respond to the patients' needs. At least in our sophisticated society, no operation, treatment, medication, or even diagnostic test is carried out without pertinent speech. Language is the predominant device by which information is transmitted. Successful patient compliance, initial interviewing, preoperative and postoperative explanations, doctor-family meetings, and doctor-to-doctor discussions, to say nothing of effective reassurance and comforting, are indicative of successful verbal interaction. Therefore, physicians should have an understanding of language as a tool of the trade—knowing how it functions, how it is used, and how it can be used.

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Current Approaches

Most articles which focus on the reasons underlying communication problems between patients and doctors come from the social disciplines. Zborowski (1), Zola (2), Mechanic (3), and Waitzkin and Stoeckle (4), among others, discuss aspects of linguistic and cultural differ-

ences which need to be considered to improve communication in the medical interview.* Korsch and her associates (5–7) have used audiotaped and videotaped interviews to study factors which influence patient compliance in a pediatric clinic. Only recently have linguists interested in the use of language in social settings begun to investigate empirically the verbal interaction between patients and doctors to discover their conversational patterns. Shuy (8) has emphasized the need for empirical data to analyze cross-cultural medical interviews. Coulthard and Ashby (9) have described specific patterns of language use between doctors and patients based on 24 tape-recorded interviews, and Skopek (10) has studied various aspects of patient-doctor verbal interaction by tape-recording 99 medical interviews in an urban clinic setting.

Although these attempts represent a positive step toward a better understanding of the content and form of patient-doctor verbal behavior, the sample populations are small and restricted to clinic outpatients, and the investigators have usually focused on interviews between patients and doctors from different social and cultural backgrounds. Furthermore, most studies are descriptive and offer no theoretical framework.

The present authors believe that limiting research to cross-cultural communication between patients and doctors narrows the scope of the problem, since cross-cultural misunderstandings merely represent one aspect of the wider and more pervasive problems which may arise when patient and doctor of any background interact.

In most medical schools instruction in language use is geared to teaching interviewing or skills in patient interaction (11–13). Some of these courses are extremely sophisticated. In the first year of medical school they may stress interpersonal dynamics, the interpretation of unconscious motivation and behavior, and a wider understanding of the patient as person. However, as interesting and sophisticated as such teachings may be, they stand a good chance of failing in their objectives for two basic reasons. The first relates to the assumption that because students can speak a language, they understand how language functions in the special setting of medicine. The second reason, similar to the first, is that most teaching efforts perpetuate a confusion of the observation—hearing what someone says—with the interpretation—knowing what someone means (on whatever level).

The first assumption—knowing a language is equivalent to understanding how it works—is based on the common argument that people already "know" language since they have been using it since childhood. By adulthood, the argument goes, the effective use of language is an intuitive part of a person's equipment that can be sharpened by demonstrations of its use (as in teaching interviewing) or by experience. Most people, however, have acquired language predominantly through use alone and do not have an understanding of its properties and functions. This is the difference between the use of a tool by instinct and its use by training. The trained person is in control of the phenomenon. Things do not just happen; they are caused to occur in the service of the conscious intellect. This is the case for things as diverse as cooking, running, and singing. But patient interaction and interviewing skills are overwhelmingly verbal, and native talent in their use is insufficient. Nowhere else in medicine do physicians, even the most experienced, depend on or wish to depend on intuition alone.

* There is a large body of literature on doctor-patient communication in the psychiatric setting which is not discussed here.

The second reason that even sophisticated courses on patient interaction may fail is the confusion between the observation and the interpretation. It may be said that listening to spoken language is all interpretation since even hearing words is subjective. However, there is a distinct difference between the data of language, for example, words, syntax, pauses, pitch, and modulation, and the interpretation of what meaning the speaker intends to convey or conveys without conscious intention. The trained listener should be aware of or be able to bring to his awareness the reason for his interpretation of the speaker's meaning. Likewise, the way in which symptoms are reported reflects not only the occurrence of the alien body sensations but also such factors as the manner in which patients assign cause to their illnesses, amplify or deny, and relate one body part to another. Separating out the symptom information may be vital to diagnostic inquiry. But equally important is the picture that the manner of speech gives of the kind of thinking and the nature of the person who has those symptoms.

In this paper the authors describe a method and analytic framework for the study and teaching of the uses and functions of language in medicine.

Method

The work is based on the use of conversation between patients and doctors in natural medical settings. To this end, tape-recorded material totaling over 900 hours and involving more than 2,000 patient interviews and 800 patients has been collected. The largest segment of recordings is of patients in a private office, while the remainder involves hospital inpatients. Since this is an ongoing study, other specialists and settings will also be recorded. All patients sign an informed consent form prior to recording, and no attempt is made to conceal the equipment. More than 90 percent of patients consent, and in most instances the fact of recording seems to impose little restraint on the patient after some initial self-consciousness. Physicians are more hesitant and more self-conscious.

The method commonly employed of transcribing and then coding the typescript is laborious; finding specific content in the transcript and locating the relevant tape is difficult and time consuming; and nuances of inflection, intonation, and timing are lost in the written record. Therefore, a method of cataloging recorded material has been developed which eliminates the need for transcription. This, coupled with new tape searching methods, allows rapid access to segments of interest on the original tape even when the total tape file is very large. After training, an individual can catalog an hour of tape in approximately two hours.

Briefly, the method is as follows (it is described in detail elsewhere [14]). The listener divides the content of the tape into eight more or less subjective categories and enters it into one of eight vertical columns in the catalog.

Column 1 (address) represents the elapsed time from the beginning of the tape reel in hours, minutes, and seconds at which an utterance takes place.

In column 2 the speaker is listed by code. The physician is "A," the patient is "B," and others, if present, are assigned other letters. Names are not entered.

Column 3 represents a main conversational division. Although each interview is composed of many utterances, these tend to group into recurring, recognizable units. Nine classifications have been sufficient to capture the conversations: opening-closing, narrative, explanation, interrogation, elicitation, bantering, idling, persuading, and discussing.

In column 4 speech acts are entered. Whereas main conversational divisions

are units composed of more than one utterance, a speech act should be viewed as what the speaker does in a single utterance, for example, informing, acknowledging, diagnosing, criticizing, apologizing, or requesting reassurance. Since most main conversational divisions are composed of a uniform type or few types of speech act, specific speech acts are entered only when they stand alone or are unusual, for example, as a question in the middle of a narrative.

Column 5 is the lexical content. This column represents the speaker's actual words as spoken, although drastically condensed. Yet the entered text allows one to know what was said in the conversation.

Column 6 contains miscellany, such as location (for example, examining room), physicial activities, procedures, telephone interruptions, and obvious miscommunication.

Column 7 is titled "Attitude/Affect," and entries, chosen from a standard list, are the subjective interpretation of the cataloger's perception. If no conspicuous attitude or affect is perceived by the cataloger, no entry is made. Where ambiguity or doubt exist, more than one entry can be made even if one conflicts with another.

Column 8, the conceptual category, is the most abstract since it requires interpretation by the cataloger of the real subject under discussion in a particular segment of tape, for example, pain, aging, disability, fear of death, or family problems. Diseases, symptoms, and body parts are always entered. Several entries can be made simultaneously.

At any point of the conversation, one, two, or even all eight categories may be relevant. However, several additional factors must be kept in mind. First, the catalog is merely a method of retrieving data from tape recordings; it is not a coding system. Second, both in its original and computerized forms any part of the catalog can be changed, deleted, or enlarged. Third, like all skills, cataloging improves in speed and accuracy with experience.

Cataloged information is stored in a computer in such a way that the file can be systematically searched, according to a set of criteria chosen from the cataloged categories, and matched with personal data. The cataloging system can be used independently of the computer. For example, the computer could compile a list of every tape number and tape location (in time) containing male patients over 50 years old describing pain associated with heart disease. The tape number and location then lead the investigator directly to the segment of tape to be researched, an operation that is not automatic but is very rapid when using the laboratory's tape technology, which employs an Ampex AG-440C tape recorder coupled with an edit time code generator (BE 520) and dual cue controller (BE 460). The same method can be employed using tape revolution counters which have been calibrated against time.

Framework of Analysis

The writers' framework of analysis is an expansion of the work of Miller (15), who suggested that the effective use of language requires knowledge on a number of linguistic levels. The levels suggested in this paper are the following: acoustics, phonology, syntax, lexicon, conception, intent, and credence.

The acoustic, phonological, and syntactic levels represent a person's ability to hear and then discriminate sounds into recognizable words and grammatically correct combinations of words. Problems of foreign language, dialect, and usage occur in these areas, but in medicine special problems arising from various neurological pathologies are also recognized by their effect on these levels.

The lexical level refers to the speaker/hearer recognition of meaning in words and work groups (sentences). Breakdowns of communication at this level occur when participants do not share the same vocabulary. Certain psychiatric manifestations, such as the neologisms of schizophrenics, are found at this level. While this level also includes situations in which either patient or doctor is a foreign language speaker, more commonly the problems arise from the use of jargon by physicians or dialects involving nonstandard English by patients. (Actually, problems here may also arise from complex sentence structures.) That more experienced physicians seem to use fewer technical terms when speaking with patients seems to indicate that medical jargon serves social functions beyond the obvious ones of labeling medical terms with accuracy.

Thus, explorations and teaching of language at this level involve an understanding of the social and personal meanings of words apart from their label functions.

The conceptual level, which represents a speaker/hearer's knowledge of the world around him, refers to the content (including ideas, beliefs, and feelings) a speaker has in his mind about a thing (16). Some conceptions are shared by many individuals while others may be unique to an individual. Conceptions are interrelated. They are built on one another and together form systems of beliefs. An understanding of how language functions at this level is of vital importance in doctor-patient communication. It may be said that one does not speak to a person but rather speaks to his conceptions. It is obvious that doctors and patients may have widely different conceptions of the same disease, for example, pneumonia. Awareness of these differences makes it possible for the physician to understand and be understood more effectively.

The intent level involves a broader knowledge than the preceding levels. To understand a speaker's intent when he makes an utterance, a knowledge of the context, of the social setting, of the relationship of the participants, of the person who speaks, and of his past behavior is required. For instance, both participants in a conversation must be able to recognize the utterance, "I won't come tomorrow," as a threat, a promise, a joke, or maybe just an information giving device (17–18). It is likewise important to know whether the speaker actually intends to carry out what he said. Thus, intent must be explained on several levels. In medicine, problems of compliance often play themselves out at this level. A young physician discovers that patients may misinterpret what he says and that he is required to be more responsible for conveying his intent than casual speakers.

The credence level is the reliability or truth value accorded the content of a speaker's message and is closely related to the listener's assessment of the speaker's intent. Does the speaker have the knowledge to make a particular statement? Is he to be believed? Proper assessment at the level of credence requires great skill in language usage. It also requires of the physician a basic belief that the words of patients have diagnostic value. It is common to hear students and house officers say that one cannot believe what patients say. It is obvious how patients feel about doctors who do not believe them.

A view of doctor-patient communication based solely on the levels proposed here would be inadequate. Communication is also a form of social behavior. Language could not work in communication if participants in a conversation did not, in general, cooperate with each other. Speakers have a social obligation to be informative, truthful, relevant, and clear (19). While these conventions are

frequently broken in an individual interchange, it is the fact of general knowledge of their presence that makes the breaking of them useful for special purposes of interaction. Although social rules such as politeness or rituals are followed quite naturally most of the time by most people (20–21) because they have been learned in the process of enculturation, they have theoretical relevance when assessing behavior in the medical setting and thus are proper subjects for the study and teaching of medical communication.

Curriculum

Based on the method and analytic framework described briefly here, a three-year curriculum for teaching the uses and functions of language to medical students is being developed at Cornell University Medical College.

The curriculum will include in the first year instruction on the anatomy of the spoken language. The intent is to build for the student whole new constructs about language in medicine totally apart from his intuitive grasp of language in much the same way that the student learns in anatomy about the body as something apart from his own body.

In the second year of the curriculum the student will learn how language is used in medicine, not merely in formal interviewing but also in such communication acts as explaining, reassuring, seeking compliance, or having telephone conversations with patients. Both first- and second-year courses will be heavily based on the use of recorded examples.

In the third year the student will tape segments of his patient interaction in the clinic or on the floors of the hospital and then will review the recordings with the staff.

Discussion

Various characteristics distinguish a trained listener from an untrained one. The trained listener is better able to recognize the factors which made him assign a specific meaning to the message he heard. He can distinguish his conceptions as a hearer from those of the speaker and can thus disentangle his patient's symptoms from the meaning they have for the patient himself. He can identify such responses as anxiety, fear, and disbelief and thus can address himself to those concerns. He knows and can recognize the cues of miscommunication. In addition, hopefully, the doctor not only will hear what someone says and interpret correctly what the speaker means but also will be able to assess the nature of the person who is speaking. As it is with hearing, so it is with speaking. The trained physician questions, explains, reassures, and, in general, uses the spoken language more adequately.

If language is to be used as an effective tool in the care of patients, the physician must understand its potency and limits as well as how it functions in relation to perception and thought; how societal, cultural, and personal values are encoded into the form and content of talk; and how speakers use language to both represent and misrepresent what they believe. A young physician trained in the uses and functions of language will approximate the skills that many older physicians will have acquired only through experience.

It is impossible to answer the vital question as to whether or not the medical student trained in the use of language is a more effective physician. But instruments are being constructed that will permit comparisons of students who have been taught those skills which specifically affect doctor-patient communication with students and physicians who have had no formal instruction in this area. It is hoped that such comparisons will add credence to the belief that the disciplined use of language is fundamental, not ancillary, to doctor-patient communication, to patient

interaction, and ultimately to the effective use of the physician himself as an instrument for the care of patients.

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