COMMUNICATION IN MODERN MEDICAL EDUCATION

by

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CHAPTER I

INTRODUCTION

> Social scientists have given very little time to the study of the professions They have studied the market and the state, the family and the labour union, the immigrant and the delinquent; but the professions, of which they are a part, they have in general avoided. The omission is not easy to explain. Undeniably professions play an extremely important part in our own type of society. As a matter of fact, professions should be interesting merely for the fact that in no other society have they developed in comparable fashion. In terms of the functions performed, the prestige accorded, the numbers involved, and the portion of the national income which they receive in our society, they are obviously important.[1]

More than two decades have passed since these observations were made as an introduction to and an apologia for another examination of some of the characteristics of the medical profession. The expanded range of interests and the broadened scope of the investigations of social scientists since that time seem to suggest the present need for temporizing any suggestion that the professions have been either avoided or neglected as areas of study. With reference to the medical profession, however, it seems both interesting and appropriate to observe that systematic examination of the profession itself has not kept pace with its growth, its changing characteristics, nor with the

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[1] Oswald Hall, "The Informal Organization of the Medical Profession." Read before the Round Table on Sociology at the Annual Meeting of the Canadian Political Science Association at Ottawa, Ontario, Canada, May, 1945 Canadian Journal of Economics and Political Science, XII (February, 1946). Reprinted, Bobbs-Merrill Reprint Series in the Social Sciences, Item 110.

vast amounts of internally oriented technical research and development generated within it.

Basic Premises

Two basic premises, each of which seems adequately self-evident to warrant a priori assumption, might be thought of as undergirding this study, videlicet:

1) A primary function of medical practice is the translation of medical knowledge and related technical expertise into effective health care.
2) The process of communication, broadly interpreted to include both its verbal and non-verbal components, is both central and essential to this primary function.

Statement of Purpose

A logical extension of these assumptions leads to the conclusion that a high level of communication ability is an essential complement to the professional knowledge, technical expertise, and personal dedication needed by the truly effective medical practitioner.

In a broadly general sense it is the purpose of this study to place the recent, present, and probable future importance of verbal aptitude and communication competence in medical training and in medical practice under close scrutiny and to examine the implications of any emerging discernible trends for modern medical education.

Stated more specifically, the objectives sought in the design and development of this study are three-fold in nature. The study seeks to accomplish:

1) The systematic solicitation and reception of information

from important and knowledgeable segments of the medical profession about:

a) The incidence, locus, and nature of formal instruction in communication skills received preceding, during, and following medical school.

b) Their attitudes toward the importance of verbal aptitude and communication competence in the practice of medicine.

c) Their opinions about the efficacy and efficiency of formal instruction they may have received in these skills.

d) Recommendations for deletions from, additions to, modifications of, or shifts of emphasis in, existing programs of communication training.

e) Suggested methodologies and guide lines for insuring the acquisition of an acceptable level of verbal aptitude and communication competence by future medical practitioners.

2) The tabulation, classification, presentation, and analysis of the data received.

3) A clearly delineated interpretation of these data directed toward the examination of their relevance and possible implications for modern medical education.

Rationale for the Study

There is, of course, nothing new about the importance of a high level of communication ability for the effective and efficient medical

practitioner. It has been a frequently recurring theme through the history of medicine and one given strong emphasis by both lay and physician authors contributing to the literature of the field.

"The First Aphorism" following "The Hippocratic Oath" has been translated to read:

> Life is short, the Art long, occasion sudden, experience fallible, and judgment difficult. Not only must the physician show himself prepared to do what is needed; he must make the patient, the attendants, and the surrounding circumstances co-operate with him.[2,3]

The philosopher Plato, a fellow countryman and almost a contemporary of the physician Hippocrates, wrote frequently and extensively about various aspects of medical practice. In one of his dialogues he identified the "better physician" as one who

> . attends to and reflects upon the diseases . . . and by exploring them from the beginning, and according to nature, and communing with both the patient himself and his friends, does, at the same time, learn something himself from the sick, and at the same time teach him, as far as he can, something, and does not order him any thing until he has persuaded him of its propriety; and then, after rendering the patient gentle by persuasion, endeavours to finish the business by bringing him (back) to health.[4]

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[2]Greek Medicine, Being Extracts Illustrative of Medical Writers from Hippocrates to Galen, trans, and annotated by Arthur J. Brock (London and Toronto: J M. Dent & Sons, Ltd., 1929), p. 36.

[3]The absence of any attribution of authorship or identification of original source in the above citation is based on the editorial footnote that "The oath has always been recognized as genuinely 'Hippocratic' both in form and substance, although we have no exact knowledge of its origin, nor of the scope of its application, there is no evidence that it was enforced by any of the medical guilds, such as that of the Asclepiads. It seems a private bond between teacher and taught " Ibid.

[4]Plato, "The Laws," in The Works of Plato, ed. by George Burges, Vol. IV (London: Henry G. Bohn, 1859), p. 147.

Rufus of Ephesus, a physician who is believed to have practiced in the early part of the second century, A.D., wrote an early treatise, "On the Interrogation of the Patient," that placed the importance of the process of communication in medical practice in sharp focus This article dealt with the potential values of patient interrogation in medical diagnosis in substantial detail. Its central theme was that the physician must ask questions, both of the patient and those around him, in order to arrive at the necessary knowledge of past factors. His closing lines have been translated to read ". . . I advise anyone wishing for exact knowledge in these various matters not to neglect the method of interrogation."[5]

The Swiss psychiatrist, Paul Dubois, once severely berated preceding generations of physicians for their neglect of some of the communicative aspects of medical practice by writing that

> . . the psychic side of the human being was neglected, and I might almost say that for a very long time the difference between the veterinarian's art and that of the physician was only one of clientele![6]

Sir William Osler, a noted medical educator and writer of a later era, once wrote that ". . . from the standpoint of medicine as an art for the prevention and cure of disease, the man who translates the hieroglyphics of science into the plain language of healing is certainly the most useful."[7]

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[5]Brock, Greek Medicine, pp. 112-124.

[6]Paul Dubois, The Psychic Treatment of Nervous Disorders, 4th ed.; (New York and London: Funk & Wagnalls Company, 1908), p. 14.

[7]Sir William Osler, Aequanimitas· With Other Addresses to medical Students, Nurses, and Practitioners of Medicine, 3rd ed.; (New York: Blakiston Co., 1932), p. 30.

J. Calvin Callaghan, a speech educator, once emphasized the importance of communication ability in medical practice by answering his own questions in this manner:

> . . . for does a physician really heal until his communication is understood by his listening patients, or a listening nurse? Does healing occur through knowledge solely or through knowledge plus communication? Knowledge is no power--until it is successfully communicated.[8]

More recently, in the preface to his own technical book, Ralph W. Stacy wrote that

> . . . . Medicine is a mixed entity--it combines highly logical science and the highly illogical 'Art of medical practice.' No physician can work without some of each in his personality profile.[9]

This series of references has been presented in chronological sequence to highlight the historical continuity of awareness and concern about the importance of the communicative aspects of medical practice. A brief comment once written by Dubois, that "The true physician does more good by his words than by his prescriptions"[10] provides a strong and appropriate summation of this position.

Discernible trends have been developing, in recent years, which seem to place even greater emphases on the importance of communication skill for physicians. Surface indications from sources both internal and external to the medical profession are that these trends, already of significant proportions, will tend to increase during the foreseeable future.

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[8]J. Calvin Callaghan, "Are We Really Teaching Them To Communicate?" Today's Speech, III (September, 1955), p. 33.

[9]Ralph W. Stacy, Biological and Medical Electronics (New York: McGraw-Hill Book Company, 1960), p. v.

[10]Dubois, The Psychic Treatment of Nervous Disorders, p. 225.

A lay assignment writer who specializes in medical subjects included these observations in an article which supports basic aspects of this theme and suggests some of its development:

> Our affluent age has its share of frustrations, but few are more ironic than our ability to live longer, amid greater comforts than our forebears dreamed possible, and yet be running short of the doctors and nurses and the hospitals and health services we need to insure our enjoyment of this new lease on life.
>
> Even with the average doctor working a man-killing schedule, the standards of U.S. health care are too often marginal at best . . . hospital planners say that in about three years we will need another million beds--or about 3,000 new hospitals.
>
> Hospital research teams anticipate that to man these facilities they will have to recruit . . doctors, some 300,000 of whom staff the nation's 'health industry' today. By 1975 some way of increasing their numbers five fold to an imperative 1.5 million will have to be found just to keep pace with present standards.
>
> Despite experimental accelerated programs leading to the M.D. degree, it still takes about 10 years to 'produce' a doctor qualified to practice modern medicine. The problem is compounded by the mounting trend toward specialization, the allure of basic research, and the prospect of exciting new careers in such fields as nuclear physics, aeronomy, molecular and marine biology, astronautics, and biophysics/bioelectronics for individuals with minds capable of enriching our store of medical knowledge.
>
> Medical schools are graduating approximately 7,500 new physicians a year, but our longer-living population, which is reproducing itself at only a slightly diminishing rate, needs at least 30 new medical schools--not to improve the quality of American medical care, but just to stay abreast of the standards now being maintained.[11]

A few months after this article was published the president of the American Medical Association, Dwight Locke Wilbur, granted a press interview during which he identified and described changes that he predicted would take place in medical practice during the succeeding 10 to 15 years. In the syndicated article titled "Medical Practice Due For Drastic Change," in which this interview was reported, Dr. Wilbur

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[11] James C. G. Conniff, "The Crisis in Modern Medicine: Doctor Nurse, Hospital, and Health Service Shortages Are Critical," Bell Telephone Magazine, May/June, 1968, pp. 26-32.

is quoted in a number of succinct comments that lend professional support to the concept of increasing rigor and complexity in modern medical practice. For example, he stated that

> In the future the family doctor will be almost as extinct as a dodo . . . .
>
> . . . . . .
>
> Group practice is the growing trend, it saves the doctor's time--there aren't nearly enough of them to go around--and it saves the patient's money.
>
> The kindly old gentleman with the bedside manner was wonderful in his day, but society can no longer afford him The modern doctor is more efficient, more scientific and less subject to error.
>
> Unfortunately, he is often more impersonal . . . .
>
> . . . . . .
>
> Far too many people are failing to receive the benefits of a physician. There are . . barriers which must be lowered.
>
> One is ignorance of the benefits which we find in many slums and rural areas. Some simply do not know what modern medicine can do for them and they turn to self-medication or to quacks.
>
> . . . . . .
>
> Then there's the status barrier. Minority groups are not comfortable in the presence of doctors. They find it difficult to communicate with educated personnel.[12]

During the mid 1950s a companion theme reflecting growing concern about the acquisition of needed communication skills by medical practitioners began to appear in articles emphasizing their importance. A nationally distributed medical journal included the observation that "It has been generally assumed that the art of listening to patients and the even more delicate art of talking to them can be learned after the young physician enters practice. It would seem preferable that such training be developed before that stage, during the training period."[13]

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[12] Lawrence (Kansas) Journal World, October 24, 1968, p. 16.

[13] William A. Murray, ed., "Iatrogenic Disease," Therapeutic Notes, LXIII, 11 (Detroit: Park-Davis & Co., 1956), pp. 31-35.

George L. Hinds addressed himself to these matters from a background of pioneering experience in the development of speech training programs for staff doctors at the request of administrative officers at Henry Ford Hospital in Detroit, Michigan. He wrote that

> There is a certain similarity to Janus in the role of the physician in our society, for he has become a blend of two disciplines. . . . He must look both to the science of medicine and to the study of social arts for his professional advancement. . . .
>
> The progress in scientific achievement in this century has been dramatic, and in order to keep abreast of new knowledge and techniques, the physician's education has become intensive, long, and continuous in nature. Indeed, physicians in America are noted for their advance skills in specialized fields of medical practice and for their expanding knowledge of current scientific developments relating to medical competence.
>
> But medicine is also a social field, and social skills are necessary for professional leadership. . .
>
> One of these social skills is the art of speaking, and with respect to this art, physicians lack adequate preparation.[14]

Another speech educator who wrote from a background of early experience in the development of postgraduate programs of communication training for medical practitioners is F. E. X. Dance. He stated that "There are in the United States, seventy-seven schools of medicine. . . of graduate caliber, and not one speech course among them."[15] He also wrote that

> The medical man faces all the communication problems basic to society. However, he also faces communication problems which are peculiar to his profession. Within the structure of his professional activities the medical man is confronted with some of these situations: (1) diagnosis of ailments; (2) prognosis of treatment, (3) the direction of operational staffs; (4) the oral presentation of research, and (5) participation in the activities of professional organizations.
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> . . . . . .

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[14]George L. Hinds, "Speech Training for Physicians," The Speech Teacher, V (September, 1956), pp. 198-201.

[15]Francis E. X. Dance, "Speech Education for Physicians and Dentists," Today's Speech, V (January, 1957), p. 23.

> It is obvious that doctors have special and pressing communication problems, problems which are within the domain of speech education.[16]

A review and analysis of the preceding references to the role of communication in medical practice suggests the following observations:

1) There is evidence of a continuing thread of concerned interest in the importance of communication competence for physicians throughout medical history.
2) There is evidence of deep concern, on the part of some knowledgeable individuals, about the portents and implications of the rapidly changing nature and increasing complexity of modern medical practice.
3) There is some support for the position that the increasing rigor and changing nature of modern medical practice enhance the importance of communication competence for physicians and increase their need for training in related skills prior to entering active practice.

It would be easy, and perhaps even superficially valid, to interpret from these observations that there is an urgent need to increase the communication training programs of medical students through course proliferation and curriculum expansion. It would be patently unrealistic to do so, however, on the bases of theoretical and philosophical expositions from a few interested writers in the field, no matter who or how well qualified they may be. It is more realistic and appropriate to view them as indicative of the possible

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[16] Ibid., p. 24.

need and potential benefits of exploring the communication skill requirements of modern medical practitioners and the present methods of their acquisition in substantial detail.

The rationale for this study thus resides in the related propositions that

1) In a time of "crisis" and "drastic change" a special need exists to resist temptations to alter existing medically oriented communication training programs on the bases of individual and subjective interpretations of the implications of such changes, and that
2) Such considerations should be contemplated only after the systematic solicitation, reception, and analysis of relevant information from a broad spectrum of those actively engaged in the processes of teaching, learning, and utilizing these skills.

Supplementary justification for conducting this study as a survey lies in the uniformly busy schedules of those individuals who make up these groups. Typically their broad range of interests and rigorous schedules of professional activities combine to prevent them from writing on this subject for publication. Systematic solicitation of this information, though complicated by some of these same factors, thus emerges as the most satisfactory method of securing it from these sources.

This development of a rationale for the study has been characterized by the diversity of its emphases and sources of support. Its central thrust has remained directed, however, toward the position that communication competence is an essential complement to medical

knowledge, technical expertise, and personal dedication for physicians in the effective performance of their professional roles.

Identification of the Problem

The problem to which this investigation addresses itself is imbedded in the apparent dilemma created by the unprecedented importance of communication skills for medical practitioners and the currently high cost of medical education in terms of time, effort, and money. It can be stated broadly and interrogatively as: What steps need to be taken to insure an adequate level of communication competence for physicians entering medical practice without proliferating the curricula or otherwise adding unnecessarily to the programs of our schools of medicine?

Contemplating the systematic investigation of such a broad and multifaceted problem imposed an immediate need for the separate consideration of a number of its subordinate aspects. The following questions were developed as indicative of particularly salient subareas of the over-all problem:

1) In what generalized communication areas is it important for practicing physicians to have a high level of competence?
2) In what more specific and medically oriented situational applications is communication competence of particular importance to physicians in the performance of their professional roles?
3) What communication skills training is now being received by physicians?
4) Where, when, and how is this training being provided?

5) How are past and current communication training programs evaluated in terms of effectiveness, efficiency, and adequacy in insuring the acquisition of communication competence needed in modern medical practice?

6) What recommendations can be made for the improvement of existing programs of communication training for physicians?

A logical sequel to this series of questions identifying the kinds of information to be sought in this investigation was the determination of qualified sources of knowledgeable responses to these questions. The obvious answer to this aspect of the problem was that the best sources of the information sought would be (1) those receiving and (2) those providing professional medical care. The recipients of health care services, however, constitute nearly a universal population characterized by an almost unlimited variety of degrees and frequency of relationships with medical practice. The selection of representative test samples of knowledgeable subjects from this group was abandoned as being beyond the practical limitations of this study.

Those actively interested professionally in the provision of health care services thus remained as potential sources of the information sought. Medical practitioners, educators, and students were selected from this broader classification of medically oriented professionals on the criteria of continuity of interest, knowledge of the problem area under investigation, and availability.

With this identification of the general nature of the information to be solicited, and the selection of the sources from which it was to be sought; the problems of where, when, and how to accomplish the systematic reception and analysis of the information needed became

procedural considerations. They will be developed and explained in a later chapter describing the design of the study.

Definition and Limitation of Terms

The word communication, as it is used in the title and in the development of this study, is intended for specific rather than generic definition and interpretation. It is intended to include only that cluster of phenomena involved in the selection, manipulation, and interpretation of symbols during social interaction by medical practitioners engaged in the performance of their professional activities.

Although this definition seems restrictive, it leaves a broad area for consideration. It includes all symbolic social intercourse within the medical profession and between it and the rest of society. Thus it includes all such interaction (1) among practicing physicians; (2) between practicing physicians and the recipients of their services; (3) between practicing physicians and members of ancillary, paramedical, and other related groups also involved in the provision of health care services, and (4) between the medical profession and the general public.

Within this framework communication is intended to include the emission and transmission of information, ideas, attitudes, emotions, impressions, and opinions by both verbal and nonverbal means and their reception by any or all combinations of the senses.

Communication, viewed from another frame of reference and stated at a different level of abstraction, is to be considered in this study as a tool of use to the medical practitioner. Although the examination of some of the characteristics of this tool called "communication" and the exploration of purposes and situational applications for which it is

used in medical practice constitute a part of the stated purpose of this study, some of them seem so self-evident as to permit prediction without adversely influencing their later development.

From this perspective the diagnostic, prognostic, instructional, therapeutic, and inspirational uses of communication in the dyadic patient-doctor relationship and the informational and persuasive uses of communication in contacts between the medical profession and the general public suggest themselves as poles on a "Medical Communication" continuum. The identification of some of the uses and skills that might be located on such a continuum may serve as a form of definition by example.

Included within the broad spectrum of such a structure are areas in which physicians share a need for communication competence with others outside of their profession. Some of these generalized applications are in the areas of:

1) Public Address.
2) Oral Reading of Manuscripts.
3) Radio and TV Performance.
4) Group Participation.
5) Group Leadership.
6) Face-to-Face Interpersonal Communication.
7) Indirect (Telephone, e.g.) Interpersonal Communication.
8) Nonverbal Communication.
9) Interviewing.
10) Listening.
11) Analysis of Language.

In addition to these more general and broadly shared communication needs, physicians find themselves confronted with more specific and medically oriented situational applications requiring communication competence in the performance of professional roles within the specialized framework of medical ethics. Some of these areas are:

1) Eliciting and receiving information from patients.
2) Giving instructions to patients.
3) Securing patients' confidence and rapport.
4) Therapeutic and inspirational communication with patients.
5) Receiving information from nurses.
6) Informing and instructing nurses.
7) Providing information to other doctors.
8) Securing information from other doctors.
9) Instructing paramedical and other personnel.
10) Receiving information from paramedical and other personnel.
11) Advising patients of terminal prognoses.
12) Medical team participation.
13) Medical team leadership and direction.
14) Organization, development, and training of medical teams.
15) Evaluating medical team performance.
16) Administering the affairs of a medical office.
17) Advising and consulting with families and friends of patients.
18) Providing expert testimony in court.
19) Presenting technical papers and reports to learned societies.

The nature of any additional definition that seems necessary involves the identification of limitations that have been imposed, quite arbitrarily and for purely pragmatic reasons, on some of the terms most frequently used in reporting this study. It should be emphasized that these restrictions have been made only for the purpose of imposing some practical limits on the scope of the investigation. They are not intended to infer any evaluative comparisons between those included and those excluded by this form of definition by limitation.

Thus references to medical practitioners, or to doctors, should be interpreted as including only the total body of licensed and practicing physicians who hold the degree of Doctor of Medicine and who are actively engaged in the provision of patient care.

Except where otherwise indicated, the term student is used to designate currently accepted and enrolled candidates for the degree of Doctor of Medicine.

The words medical educator are restricted in their use here to refer only to the full-time faculty and administrative personnel of approved schools currently authorized to issue the degree of Doctor of Medicine. Similarly, the terms education and medical education are used to refer only to those degree oriented formal programs of instruction designed to culminate with a doctorate in medicine except where education is preceded by such self-descriptive adjectives as undergraduate, secondary, or extracurricular.

Other words used in the report of this study are intended for interpretation in accordance with conventional usage and their standardized dictionary definitions.

Overview of Subsequent Organization

Chapter II reviews the investigation of previous literature in and related to the area of this study.

Chapter III describes the research design, the steps in its development, and the procedures prepared for its implementation.

Chapter IV describes the execution of the survey.

Chapter V presents the data derived from the survey.

Chapter VI describes the treatment of these data and presents objective analyses and interpretations based on them.

Chapter VII suggests possibilities for future research indicated by this study, summarizes the results of the survey, and sets forth observations and conclusions from the perspective of the principal researcher.

CHAPTER II

REVIEW OF RELATED LITERATURE

A careful and extensive review of lay and professional literature relating to the area of this study was initiated before any of the other activities of this investigation. It has remained a continuing and important part of the over-all project. Conducted concurrently with each of its other facets, this continuing search might be thought of as undergirding and supporting the total program. It has been made with the following objectives in mind:

1) To locate any duplicative or similar studies that might provide the information sought in this investigation, or otherwise minimize its potential value.
2) To ascertain the contemporary thinking of concerned and informed authors, both lay and professional, about the changing nature and importance of communication in medical training and practice.
3) To identify the incidence and locus of expressed interest in, and concern about, the communication needs and competence of future medical practitioners.
4) To become familiar with the nature and effect of existing instructional programs oriented toward improving the verbal aptitude and communication competence of future medical practitioners.

5) To develop a background of knowledge of the procedures employed in other examinations of the populations proposed for investigation in this study.

Search for Similar Studies

The number and variety of literary sources which include references to matters of interest to this investigation proved so large that the description "careful and extensive" used in the introductory sentence of this chapter represents a realistic compromise with completeness based on pragmatic considerations.

Two types of explorations were conducted seeking to discover either the existence of similar studies or to confirm the failure of this search to disclose studies of a similar or duplicative nature. They were:

1) Personal interviews with individuals known to have a broad knowledge of research in the behavioral aspects of medical practice, and
2) Written correspondence with responsible officials of professional organizations thought to have an interest in, and probable knowledge of, research of this nature in the field of medicine.

Personal Interviews

Personal interviews were conducted with Thomas W. Johnson, the Field Secretary and Director of Research of the American Academy of General Practice; and with Claudine Clinton, the Librarian and Statistical Analyst of the same organization. Both Dr Johnson and Mrs. Clinton reflected the interest of their academy in the behavioral

aspects of patient-doctor relationships and particularly in their communication implications. Neither of them, however, was privy to any similar or duplicative research or to existing sources of the information sought in this study.

George Wolf, M.D., and Robert T. Manning, M.D.; then Dean and Associate Dean respectively of the School of Medicine at The University of Kansas in Kansas City, Kansas, were interviewed in a similar manner. They both indicated their lack of knowledge of any studies of a similar or duplicative nature.

Each of these interviews provided a wealth of valuable advice about this study, about behavioral research in medicine, and about research in medical education. The net impact of these interviews that is particularly germane at this point, however, is that each of these knowledgeable but diversely oriented professionals corroborated the findings of the review of related literature conducted as a part of this study. No duplicative or similar studies were discovered or reported that might provide the information sought in this research.

Written Correspondence

In a further effort to identify the existence of any similar or essentially duplicative research, either in process or previously reported, letters were drafted and transmitted to the indicated officer of each of the following agencies that might be expected to have an interest in knowing about such matters:

1) Executive Secretary
Association of American Medical Colleges
Number One Du Pont Circle
Washington, D.C. 20036

2) Director, Institute for Advancement of
Medical Communication
950 Wisconsin Avenue
Bethesda, Maryland 20014

3) Secretary
Council on Medical Education and Hospitals
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

4) Information Officer
Division of General Medical Practice
National Institutes of Health
Bethesda, Maryland 20014

5) Public Information Officer
National Health Council
1790 Broadway
New York, New York 10019

6) American Medical Writers Association
P. O. Box # 1796
Indianapolis, Indiana 46200

7) Student American Medical Association
430 North Michigan Avenue
Chicago, Illinois 60610

8) National Fund for Medical Education
2 West 46th Street
New York, New York 10036

9) National Society for Medical Research
111 Fourth Street
Rochester, Minnesota 55901

10) National Medical Association
1219 Girard Street, NW
Washington, D.C.

The question, "Has any similar research come to your attention that might minimize the need or value of such a study?" was included in each of these letters of inquiry. In brief, the responses made several referrals to other researchers interested in the general area of the behavioral aspects of medical practice, but indicated no awareness of existing sources of the information sought in this study.

General Review of Related Literature

In sharp contrast with this failure to disclose reports of similar or duplicative research, the review of related literature produced an unexpected profusion and diversity of recent and current literary interest in what might be referred to as the communicative aspects of medical practice and medical education.

The range of sources of this material was from learned treatises in medical journals to the advertising copy on the back of small folders of safety matches. The total volume of articles, editorials, monographs, treatises, books, and other literary references to problems and changes in medical practice all but precludes their bibliographic cataloging. Even if such a listing could be justified as serving a useful purpose, it would be outdated before it could be completed because of the continuing emergence of vast amounts of written material bearing on this currently popular subject.

Several such items have been referred to and documented in the development of the preceding chapter of this paper. A cursory review of the contents of a few of these literary releases will give some indication of the pervasive nature of general interest in this subject.

For example, an article in a nationally distributed quarterly safety publication refers specifically to "effective communications" as one of the "Four Soft Spots" in the provision of adequate medical care for the victims of accidents and emergencies. In doing so this article develops a theme not previously mentioned in this review. It indicates our public failure to utilize available communication hardware in the provision of adequate emergency medical service for

accident victims by noting that "Although it is possible to converse with astronauts in outer space, communication is seldom possible between an ambulance and the emergency department it is approaching."[1]

A monthly publication, directed toward the expert but amateur home mechanic, recently included an article reflecting a depth of insight and a degree of sensitivity to some of the communication problems of medical practice that extended far beyond what might have been expected from its "cookbook" type of title and its inclusion in a self-styled "How-To-Do-Magazine." This article viewed the traditional doctor-patient relationship from a somewhat unusual perspective by indicating the reciprocal nature of the communicative interaction between patient and doctor and emphasizing the responsibilities of the patient in such dyadic events.

Some of the pertinent comments included in this article were:

> Lying to your doctor will get you nowhere. He needs the facts to help you get well. You may fool the doc, but you won't fool the disease.
>
> . . . . . .
>
> You must tell your doctor precisely what you want and then tell him everything he needs to know so he can help you. This is especially important considering that the doctor-patient relationship has changed drastically. It used to be that a family doctor knew as much about the patient and his home life as he did about illness. He used compassion and understanding almost as effectively as he used medicine. Such doctors are about as rare as whooping cranes.
>
> Not that the present-day medicos are any less dedicated. A doctor who sees 50 patients a day and tries to keep abreast of his profession scarcely has time to know his own family. But patients are turned off by the impersonal manner of an overloaded doctor and don't tell him as much as they should--or ask him the things <u>they</u> need to know. There has to be mutual understanding from the start.
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> . . . . . .

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[1]James R. Miller, "Needed: More Help for Accident Victims," <u>Family Safety</u>, Winter, 1970, p. 13.

> There just aren't enough doctors to go around. Only about one in three can be considered to be a family doctor. These are the general practitioners, internists and pediatricians who provide the bulk of what would be called primary care.
>
> On that basis there's one practicing physician to every 1,750 potential patients. . . .
>
> . . . prepare as complete a medical history as you can on yourself and other family members. . . .
>
> It may take many visits to a busy doctor for him to accumulate a useful case history. Unless you go prepared, there are many bits and pieces of information helpful in making a diagnosis that you may neglect to contribute--either through oversight when pressed for a quick answer, a reluctance to reveal intimate problems orally or because the doctor hasn't asked all the right questions.
>
> The medical history is the most important single element in making a diagnosis.[2]

Another popular periodical, this one oriented to the housewife and homemaker reader group, presented a self-styled ". . . special report none of us can afford to ignore."[3] In this report the authors addressed themselves to a broad spectrum of medically related considerations. Included among them is a probing analysis of the charging relationships between the medical profession and the total society within which it functions.

This article attributes an important share of the responsibility for a growing imbalance between the need for, and the availability of, professional medical services on the currently disproportionate emphasis and financial support being given to medical research. The authors conclude their development of the position that this has resulted in a dangerous and unwarranted drain of qualified medical educators and practicing physicians in this manner.

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[2]Frank Casey,"How to Treat Your Doctor," Mechanix Illustrated, November, 1970, pp. 57-59, 134.

[3]Charles and Bonnie Remsberg, "Why You Really Can't Get Good Medical Care," Good Housekeeping, February, 1970, pp. 68-71, 140-142.

> . . . the ready availability of research jobs has lured some of the finest doctors from the private practice of medicine. Only about 60 per cent of our licensed physicians are today in private practice, and the percentage continues to drop.[4]

A medical journal article titled "More . . . On Speaking to Patients"[5] by Robert H. Moser, M.D., includes a subtitle, "How does the PHYSICIAN human being fulfill the responsibilities of integrity, dignity, and wellbeing in interchange with the person who is the PATIENT?" This article emphasizes the therapeutic value of effective communication in doctor-patient relationships and suggests an additional factor as contributory to the changing nature of modern medical practice. It includes these observations:

> The traditional relationship between doctor and patient has come upon strange and stormy times. The climate of public reaction to the physician has turned somewhat chill. . . .
>
> However, we are not without sin.
>
> At times, it seems that the physician has lost mastery over his profession, has become overwhelmed by the expanding technology of medicine, and has sought escape by relinquishing some of his traditional stature. In the press of time, he is turning more to the laboratory to seek answers that should be obtained by those outmoded instruments, the history and the physical examination. With increasing frequency the practitioner finds himself in the untenable position of using fashionable new drugs of uncertain virtue in place of older, more familiar therapeutic 'friends' whose attributes and foibles he knows well. And finally, perhaps the most unfortunate by-product of current methods of medical education and practice--some of us have forgotten how to relate to the patient. The staggering curriculums imposed by our finest academic institutions tend to produce physicians who are so completely preoccupied with the complex liturgy of molecular biology, biochemistry, and pathophysiology that they tend to look upon the patient as a curious vessel for the containment of interesting pathology. In all echelons of medicine, there is less time, less inclination to reflect upon the patient as a person.
>
> All that I have said up to this point sets the background for the subject of this discussion--the production of iatrogenic

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[4] Ibid., p. 142.

[5] Robert H. Moser, "More . . On Speaking to Patients," Medical Arts and Sciences, II (1967), pp. 35-43.

> disease by the words and actions of the physician, or 'psychosemantic disease.'
>
> . . . . If the physician is aware that his very demeanor and mannerisms in patient confrontations are a critical therapeutic tool, he must realize that he cannot depend solely upon the abrasive action of years of practice to shape and polish the facets of his professional image. . . .
>
> . . . . . .
>
> The patient-doctor confrontation represents a tableau that has been reenacted through the ages of medical history. The years of training, the self-discipline, and the individual image of the physician suddenly converge to a focal point in that 'moment of truth' when the patient sits across the desk and awaits the fateful words of diagnosis and prognosis. The patient is acutely sensitive to all things relating to the physician. Every word, expression, bodily movement, vocal tone, inflection, and even the order of presentation of material is charged with portent.
>
> The physician who fails to sense the drama of this situation falters at a crucial point in his relationship with the patient. . . .[6]

This brief sampling of some of the references to communicative aspects of modern medical practice in recent literature serves to highlight the ubiquitous interest in these matters and to illustrate the diverse and manifold biases from which they are viewed. They seem, also, to suggest the following classificatory scheme for use in discussing types of communication problems in medical practice:

1) Physician-patient relationships
2) Interaction among and between physicians
3) Physician-nurse relationships
4) Communication between physicians and ancillary and paraprofessional health service personnel
5) Relationships between the medical profession and the total society of which it is a part

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[6] Ibid., pp. 35-36.

It is interesting to note, from these reviews, some indications of both a conceptual parallelism and a temporal sequence existing between the professional and lay oriented articles that have been cited. The earlier professional and scholarly concern about the problems and implications of drastic changes in medical practice seem to be echoed in the more recent releases in the popular press. The drastic nature of recent changes in medical practice, the growing imbalance between the availability and the need for medical services, and the depersonalization of doctor-patient relationships seem to be emphasized repeatedly in the literature prepared for both general and professional medical audiences.

Reviews of Medically Oriented Programs In Communication Skills Training

Another of the objectives sought in the review of related literature was the discovery of evidences of efforts to design, develop, and conduct programs of instruction aimed specifically toward the improvement of the communication skills of medical practitioners.

The article in which George L. Hinds was identified earlier as the developer and director of a program of speech training for staff physicians at Henry Ford Hospital in Detroit, conducted by Wayne State University personnel, merits reexamination in this connection. Some of his reflections on the development and execution of this program provide insight and a basic orientation for those interested in specialized training of this type.

These are some of his comments in describing facets of this program:

> . . . . Staff people who participated in the program included leaders in hematology, gastroenterology, surgery, general medicine, gynecology, obstetrics, medical clinics, laboratories, and other fields of specialization. The program was voluntary, and experienced staff members attended it. A second program was available the next year for staff members and for younger residents. . . .
>
> As a result of these experiences in the teaching and learning of speech problems relating to medicine, I submit that members of the medical profession perceive a need for the improvement of social skills, in speaking, and that they welcome professional help from teachers of speech.
>
> But physicians are not the only ones who profit from an interdisciplinary experience. Speech teachers also acquire new understandings and insights into specialized speaking practices and problems in our society.
>
> When we began our educational efforts with physicians at Henry Ford Hospital, we knew that medical people have problems in adapting technical language to communication with laymen, but I suspect that we did not know the framework of medical ethics within which physicians attempt this task . . . that we would be handicapped by our own lack of medical knowledge. . . .
>
> Physicians appeared to be very adept at scientific demonstrations involving the presentation of logical relationships and fact with respect to medical matters. But the carry-over to presentation of social problems was not evident. The problem of preparing proofs for those unaccustomed to following lengthy scientific demonstrations was made more difficult because of the professional orientation away from emotional arguments and explicit ethical persuasions. Considerable persuasion was necessary to humanize medical presentations even for patients and lay audiences.[7]

After extending this development to include other fundamental considerations involved in developing a course for specific presentation to a specialized medical group, he presented the following brief course description:

> . . . began the instruction with a consideration of audible and visible skills used in presentations, proceeded to the use of audio-visual aids, from there to reading techniques, and then to invention, language, and finally, group processes basic to conference operation. Laboratory assignments were part of each stage of this sequence, and two speech instructors worked with a class to maximize practice and criticism. Instructors presented speech theory and method. In the role of co-ordinator I kept content related to practice.[8]

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[7] Hinds, pp. 199-200. [8] Ibid., p. 201.

Three graduate level courses titled "Improving Professional Speaking I," "Improving Professional Speaking II," and "Forms of Medical Address" were noted in an article by F E. X. Dance cited earlier in this paper.[9] These courses were not described in this article, but they were identified as offered under the auspices of the National Institutes of Health in cooperation with the Graduate School of the United States Department of Agriculture.

There is more recent evidence that a concern about the communication competence of future medical practitioners is now being translated into educational programs for medical students in the report of the proceedings of a conference sponsored by the Association of American Medical Colleges in Cincinnati, Ohio, on November 1-2, 1969.[10]

In a paper presented to this conference, Ray E. Helfer, M.D., described the use of video-tape facilities to compare and contrast randomly selected Freshman and Senior medical students at The University of Colorado Medical School engaged in interviews with trained actresses who were simulating the role of "mother" of a small child stricken with some illness. This research was designed to test the hypothesis that: "Freshmen medical students would be able to collect more interpersonal factual data and less organic data from parents of ill children than would Senior medical students.[11]

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[9]Dance, pp. 23-24.

[10]See the Program for the Eighth Annual Conference on Research in Medical Education conducted under the auspices of the Association of American Medical Colleges in Cincinnati, Ohio on November 1-2, 1969.

[11]Ray E. Helfer, M.D., "Objective Measurements of Pediatric Interviewing Skills. II," Complete Papers for the Eighth Annual Conference on Research in Medical Education (Washington, D.C. Association of American Medical Colleges, 1969), p 135. (Mimeographed.)

The results of the experiment permitted the acceptance of the hypothesis as stated.

Interaction analysis and objective checklist instruments were used by trained observers to evaluate these interviews. The following comments were included in the discussion of the results of these evaluations:

> This study raises more questions than it answers. It certainly would appear that as they enter their medical training Freshmen have a certain innate ability to gather data from mothers of ill children. The unanswered question which is most significant is 'What happens to this skill as students move through medical school?' Is it lost or suppressed? If so, when did this occur? Will it return as these students enter post graduate training or practice? Do we consider this a significant enough problem to investigate various educational methods to prevent this loss from occurring? Is it inevitable that the emphasis on factual organic material that is given to medical students will cause a deemphasis on the interpersonal aspects of an illness?[12]

The concluding remarks in the 'Summary' of this research report are:

> . . . . Freshmen were able to collect more interpersonal data, less organic factual data, and ask fewer leading questions than were the Seniors The importance of these findings must be given serious consideration as new Pediatric educational programs are planned.[13]

The School of Medicine at the University of California, Irvine, was the setting for a two-year study of one class of medical students which was reported to the same conference.[14] This study involved a ten-week training program in the Sophomore course in psychiatry.

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[12] Ibid., p. 137. [13] Ibid., p. 138.

[14] John E. Ware, Jr., Harvey D. Strassman, and Donald H. Naftulin, "A Negative Relationship Between the Understanding of Medical Interviewing Principles and Performance in Actual Interviews," Complete Papers for the Eighth Annual Conference on Research in Medical Education (Washington, D.C.: Association of American Medical Colleges, 1969), pp. 140-145. (Mimeographed.)

The film series, "Programmed Instruction in Medical Interviewing,"[15] was used as an important part of the course format. It was presented in its suggested order, and the pre- and post-test films developed in conjunction with this series were used to measure individual acquisition of theoretical knowledge of medical interviewing.

A second phase of this study involved the comparison of evaluations of actual interviews made at the beginning and at the end of a one-month clerkship in psychiatry during the Junior year of this medical school class. These ratings were made using the "Interview Evaluation Scale"[16] described by Hollifield and others.

In comparing the results of the two phases of this study the report of this research states that:

> The most interesting findings concerned the observed negative relationships between measures of cognitive understanding of interviewing principles and ratings of interviewing behavior. The significant relationship between the magnitude of increase in cognitive understanding and initial ratings of interviewing behavior supports the conclusion that adoption of the interviewing principles depicted in the films went hand-in-hand with poorer interview ratings. . . . We feel that this state of affairs resulted from the fact that the philosophy of interviewing presented in the courses was contradictory in important respects.[17]

Another medical communication related study reported to the same conference was conducted at the School of Medicine at the University of

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[15] A. J Enelow, and others, "Programmed Instruction in Medical Interviewing," (Film series produced for the Division of Physician Manpower, USPHS, by the Postgraduate Division of the Department of Psychiatry, University of Southern California School of Medicine, Los Angeles, 1968).

[16] G. Hollifield, and others, "A Method of Evaluating Student-Patient Interview," Journal of Medical Education, XXXII (1957), pp. 853-857.

[17] Ware, p. 144.

Wisconsin.[18] This investigation used a series of eight audio tapes of the history of present illness portion of medical interviews conducted during four stages of clinical training during their Sophomore, Junior, and Senior years by each of ten different medical students Each of these interviews was scored independently by faculty personnel previously trained in the use of a Medical Interview Rating Scale developed as a part of the research program.

This report acknowledged that the small number of subjects used precluded the attachment of statistical significance to the results of the study. The researchers contented themselves with a brief review of indicated trends they considered to be worth noting and concentrated much of their attention on efforts to develop an improved instrument for the evaluation and quantification of individual skill in medical interviewing and on the methodologies of its application.

The following observations relating to the learning of interviewing skills were included in this report:

> . . . . In general, the period of most rapid improvement in interviewing skill occurs during the initial training period in the sophomore year. For most students, performance became rather fixed by the end of the junior year, and . little change occurred in any student between the junior and senior years As with most educational experiences, however, a wide variation occurred among the students in the rate of learning. This seemed quite independent of previous nonclinical academic performance. Students who failed to improve during the introductory sophomore clinical experience generally had difficulty during their junior year.[19]

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[18]Robert A Barbee, M.D., and Solomon E Feldman, Ph.D., "A Three Year Longitudinal Study of the Medical Interview and Its Relationship to Student Performance in Clinical Medicine," Complete Papers for the Eighth Annual Conference on Research in Medical Education (Washington, D.C.: Association of American Medical Colleges, 1969), pp. 146-152. (Mimeographed.)

[19]Ibid., p. 151.

Reviews of Communication Related Research in Medical Practice

Although no systematic effort has been made to examine related literature originating from outside of this country, the British publication Communicating with the Patient[20] merits special mention. This book deals extensively with the theoretical aspects of doctor-patient communication events It also includes the reports of such imaginative and innovative empirical investigation of medical interviews that it all but defies succinct review and is recommended for inclusion and use in the private library of anyone with a dedicated interest in medical communication. In addition to its value as a source of intrinsic information, this book includes an extensive bibliography of communication research related to medical practice.

Patient satisfaction with communication in institutional experiences, patient understanding of diagnoses and instructions, lay knowledge of illness, relationships between serial order of presentation and patient memory of information communicated in medical interviews, and the quantification of the results of various methods of persuading patients to follow medical advice are some of the areas of medical communication investigated experimentally and reported in this treatise.

These salient comments quoted from the final chapter of this book, which sets forth the "Summary and Conclusions," of the authors, indicate something of the nature and results of their research:

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[20]P. Ley and M. S. Spelman, Communicating with the Patient (Worcester and London The Trinity Press, 1967). (Distributed in the United States by Warren H. Green, Inc., 10 South Brentwood Boulevard, St. Louis, Missouri.)

> . . there are two main types of communication addressed to patients. . . . The first of these is designed to give the patient information about his illness, and the appropriate criterion of a successful communication is the extent to which the patient is satisfied with the information given to him. Surveys of patients' satisfaction with such communications show that very large numbers of patients are not satisfied that they have been adequately informed This is true even in situations where the doctor has made an effort to see that the patient is informed. . . .
>
> The second category of communications consists of advice and instructions given to patients. The criterion of successful communication here is whether or not the patient follows the advice. Once more the evidence shows that such communications are frequently ineffective. . . .
>
> . . . . . .
>
> Our formulation also stresses the need for the patient to remember the communication if it is to be effective. These findings of our research on memory for medical information can be summarized as follows:
>
> 1. Patients forget much of what the doctor tells them.
> 2. Instructions and advice are more likely to be forgotten than other information.
> 3. The more a patient is told the greater the proportion he will forget.
> 4. Patients will remember best:
>   (a) what they are told first;
>   (b) what they consider most important.
> 5. Intelligent patients do not remember more than less intelligent patients.
> 6. Older patients remember just as much as younger ones.
> 7. Moderately anxious patients recall more of what they are told than highly anxious patients and patients who are not anxious.
> 8. The more medical knowledge a patient has the more he will recall.
> 9. If the patient writes down what the doctor says he will remember it just as well as if he merely hears it.[21]

Some of the work of Earl R. Babbie, M.D., as reported in Science and Morality in Medicine,[22] involved the investigation of a number of aspects of medical practice that are closely related to communication. The 1965-1966 national survey of medical school faculty members in the clinical departments of medicine and pediatrics reported in this book

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[21] Ibid., pp. 88-90.

[22] Earl R. Babbie, Science and Morality in Medicine (Berkeley, Los Angeles, London: University of California Press, 1970).

was concerned importantly with the relationships between the degree of scientific orientation of medical educators and their commitments to the humane aspects of medicine. Some of the more germane conclusions from his survey--for the purposes of this study--can be paraphrased briefly in this manner:

1) Science per se does not seem threatening to the traditional norms of humane patient-physician relations.
2) The orientation and perspectives which medical students acquire prior to medical school have a more profound and lasting influence on their attitudes toward the moral and social aspects of medical practice than has been generally realized.
3) Simply deemphasizing science in medicine will not make the profession more humane or moral.
4) Medical schools do not possess as much power for shaping medical orientations as has been supposed.
5) Matters of medical morality and humane patient care must be dealt with directly if they are to be influenced in medical education.

This book also would be of value if only for its numerous and extensive bibliographic references to communication oriented research. It includes a special list of "Selected Sociomedical Bibliographies"[23] which is a key to a vast reservoir of literary sources of information about the behavioral aspects of the professional provision of health care.

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[23] Ibid., pp. 255-256.

CHAPTER III

DESIGN AND IMPLEMENTATION OF THE STUDY

Overview

In one sense the entire medical profession and the total society within which it functions might be thought of as knowledgeable sources of information about the communicative aspects of medical practice, but practical considerations precluded the examination of this broad a population in this study. Medical practitioners, medical educators, and medical students constitute the three sub-populations selected for the systematic solicitation of information.

A decision was made to attempt to secure the cooperation of some school of medicine in the development of the design of this study and in its implementation. After several conferences and some correspondence with administrative officials, including committees concerned with various aspects of research involving student and faculty personnel, the facilities of the School of Medicine of The University of Kansas at Kansas City, Kansas, were made available for these purposes.

Concentrating on the active full-time faculty and the enrolled doctoral candidates of this institution made possible the random selection of test samples of medical educators and medical students. A matching number of the graduates of this institution engaged in the active practice of medicine in the Greater Kansas City metropolitan area

provided the base for the selection of a similar test sample of medical practitioners.

Questionnaires were designed, tested, and refined for later use as instruments for the solicitation of information from those selected as potential respondents in this survey.[1] Cover letters and envelopes were designed and prepared for the transmission and return of questionnaires.[2,3] These instruments were designed with a view to eliciting responses indicative of each respondent's

1) Opinion about the importance of competence in each of eleven different but generalized communication skills for physicians in modern medical practice.
2) Opinion about the importance, for physicians in modern medical practice, of competence in communication skills in each of nineteen more specific and medically oriented situational applications.
3) Attitude with reference to seven different statements about the effectiveness of formal programs of instruction in communication skills for future medical practitioners.
4) Background of formal training in communication, including the locus of such experience.
5) Evaluation of any formal training received in communication skills.

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[1]See Appendix A, pp 274-285, for samples of these instruments.

[2]See Appendix B, pp 287-289, for exhibits of these cover letters.

[3]See Appendix C, pp. 291-293, for exhibits of these items.

6) Recommendations for the development or improvement of communication training programs for medical and/or pre-medical students.
7) Personal background in such areas as age, sex, geographic origin, educational record, and professional experience.

Details of Test Sample Selection

General

Designation of Sub-Populations.--The administrative office of the School of Medicine reported that there were five hundred and seven candidates for the degree of Doctor of Medicine at The University of Kansas and about four hundred full-time faculty engaged in their instruction at the time the development of test sample lists was started. There also were reported to be about six hundred graduates of that school actively engaged in the practice of medicine in the local area.

Similar but separate selection processes were developed for each of these sub-populations. The specific details of the development of test samples for each of these groups will be presented in separate sections.

Description of Regular and Reserve Test Groups.--An initial decision was to select regular and reserve test groups of one hundred and two subjects each from the potential respondents in each of the three sub-populations. Each of the regular test groups was divided into seventeen cells with six subjects in each cell. The original intent of the reserve groups was for the provision of necessary replacements in the regular group for either of two reasons: (1) the failure of an individual subject from the test

group to respond due to reasons in no way prejudicial to the study; such as death, incapacity, or inability to contact; and (2) the discarding of a complete cell because of the prejudicial refusal of any individual represented in it to participate in the study.

Design of Specialized Lists of Random Numbers.--The development of appropriate lists of random numbers was accomplished in advance of the selection and randomization of test groups for any of the subpopulations.[4] The development of these lists utilized the final digits of a list of random digits from a convenient text on general statistics.[5] The procedure followed in the development of these tables was that of scanning the random digits tables from top to bottom in each column and from left to right by columns and identifying the order of appearance of the numbers in the list being randomized.

Selection of Medical Practitioner Test Samples

The office of The University of Kansas Medical Alumni Association maintains a list of graduates of that school with doctorates in medicine. This list is duplicated, for mailing purposes, in the form of "Addressograph" plates which are separated and filed by postal zip codes. A file of those alumni physicians with addresses in the Greater Kansas City metropolitan area was obtained by selecting the appropriate "Addressograph" plates by zip codes and having a four-inch by six-inch card imprinted by each of them. The total number of cards received was six hundred and thirty-nine.

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[4]See Appendix D, pp. 295-299.

[5]Audrey Haber and Richard P. Runyon, "Random Digits: Table Q," General Statistics (Reading, Mass.: Addison-Wesley Publishing Co., 1969), pp. 318-321.

A master list of these Medical Practitioners was produced in alphabetical order for convenience in recording classifications, assignments to test groups, and the dispatch and reception of transmittals.

This list was cross checked with a similar list of full-time faculty personnel provided by the office of the Dean of the School of Medicine. All names appearing on both lists were excluded from possible selection in the Medical Practitioner test groups. This arbitrary action was justified on the premise that the role of full-time faculty precluded simultaneous function as a medical practitioner actively engaged in the provision of patient care. Fortunately, it was apparent at this time also, that there would be more Medical Practitioners available for the purpose of this study than there would be of Medical Educators. Fourteen names were excluded in this process.

The office of the Medical Alumni Association advised against attempting mail contact with physicians during the first eight years after graduation on the basis of their experience. Because of the difficulty of maintaining current address records during the usual three to five years of internship and residencies plus two years of military service, they include the year of graduation on the "Addressograph" templates previously referred to for the purpose of eliminating this group from some of their mail dispatches The twenty-two potential subjects who received their M.D. degrees between the years 1964 and 1970 inclusive were excluded for this reason.

The cards of the remaining six hundred and three alumni M.D.s were separated by years of graduation. From an examination of this distribution it was apparent that by including six cards from the 1951

graduating year, selected on the basis of the random numbering system previously described, the cards for the years 1952 through 1963 closely approximated six groupings of thirty-five cards each when clustered in two-year groupings. In order to make these groupings exact, three randomly selected 1953 graduates were transferred to the 1954-1955 cluster and three from the year 1961 were moved to the 1962-3 group.

Each of these clusters was realigned alphabetically and numbered in sequence. The like numbered cards were then grouped together, thus insuring that each cell eventually selected for the regular test group would contain a representative from each of the six two-year clusters of the twelve-year span.

The random order table devised for groups of thirty-five was then used to select and identify the 17 cells of the regular test group of the Medical Practitioner sub-population.

A similar procedure was used to establish a randomized prescribed order of usage of the remaining one hundred and eight potential replacements who thus constituted the reserve test group.

Selection of Medical Educator Test Samples

Three hundred and ninety-one cards imprinted from the "Full-time Medical Faculty" mailing plates were provided by the office of the Dean of the School of Medicine at The University of Kansas. Each of these cards included the name, academic rank, title, department, and earned degrees of the individual it represented. Those cards which did not seem to reflect adequate credentials or appropriate rank and assignment for the instruction of doctoral candidates became the subject of a

conference with an Associate Dean of the School of Medicine. Ninety-seven of these were confirmed as having no instructional responsibilities and were thus removed from possible selection in the test samples of the Medical Educator sub-population.

An additional eighty-eight potential subjects were similarly excluded on the basis of their indicated instructional assignments in other than M.D. oriented curricula Another two were excluded because of their indicated temporary visiting status on the campus.

By coincidence, the total number remaining was two hundred and four--precisely enough for regular and reserve test groups of one hundred and two each. These remaining cards were separated by academic departments. By the arbitrary process of combining some of the cards from smaller departments it was possible to arrive at a convenient distribution of seventeen groups of twelve cards each in which each of the departmental groupings was represented by one card.

The random digits table of N = 12 was used to randomize the selection of seventeen cells of six subjects each for the regular test group. These cells were identified by the use of the random number tables for groups of N = 17 and N = 6 in the same manner in which the similar function was performed for the regular test samples of the Medical Practitioner sub-population. The procedures employed for the establishment of a prescribed order of usage of the reserve test sample of the Medical Educator sub-population also were essentially duplicative of those used for the Medical Practitioner reserve test sample.

Selection of Medical Student Test Samples

The Kansas University Medical Center student population routinely totals slightly in excess of 1,600. Of this number, 507 constitute the

normal enrollment of accepted candidates for the degree of Doctor of Medicine. Normally the distribution of these students is approximately equal among the four years of this degree program.

At the time of the development of this study, however, this school was in the process of shifting from a nine-month to an accelerated 12-month, or "Modular," academic calendar. During this transition the only students scheduled for enrollment during the summer period available for this survey were the 125 third year and the 125 fourth year class members. The selection of test samples from these two groups was thus imposed on the study as a matter of practical necessity.

The office of the Registrar of the School of Medicine provided an alphabetical list of the third and fourth year students, separated by years, drawn from the preceding year's enrollment records. On the last day of enrollment for the 1971 Module 0 these lists were cross checked against the new enrollment records to provide current address and telephone number information and to indicate those who had, and who had not, completed 1971 Summer Module enrollment. The 9 third year and 19 fourth year students who had not completed enrollment by the end of the last regular day for doing so were excluded from possible selection within the test samples.

The Chairman of the Curriculum Committee provided access to the "Modular Orientation Assignment List" and each student assigned a "Free" section in Module 0 on this record was excluded. Fifty-two third year and twenty-four fourth year students were thus removed from possible selection in the test samples. Three third year students also were excluded when a cross check revealed that they were not recorded on this

list and one fourth year student was excluded when it was noted that his modular assignment was off campus and in another part of the country.

The cards for the remaining fifty-nine third year and eighty-two fourth year students were alphabetized by classes. A seventeen cell structure similar to the regular test samples of the other two sub-populations was developed. The remaining available students were assigned as the reserve test sample by alternately selecting subjects from each group on the basis of their random numbers.

Recapitulation of Test Sample Selection

Identical sets of test samples were thus developed for each of the three sub-populations to be surveyed in this study. Each of these test samples included seventeen cells of six subjects each. A systematic combination of stratification and randomization procedures was employed to insure the assignment of subjects within cells and of cells within test samples on the basis of some meaningful criterion upon which information was available in advance. In the case of the Medical Practitioners this criterion was the year of the completion of the M.D. degree. Academic instructional assignment was used for the distribution of the Medical Educator group; and the year, or class, in the case of the Medical Student sub-population.

The same criteria and similar procedures were used in the development of reserve test samples for these three sub-populations.

Rationale for Test Sample Design

The purpose of conducting the survey was to secure the reception of usable responses from an adequate number of representative subjects

from each of the three sub-populations to be examined in the study. An adequate number of responses from each group was established at about one hundred. This was thought to be about twenty per cent of the total of each of the populations before exclusions, and a number that would lend itself conveniently to statistical interpretations and analyses of data.

The Medical Practitioner Test Samples were the first to be developed, and when the six two-year clusters of seventeen physicians each emerged from an observation of their years of graduation the format of seventeen cells of six began to develop. When, as previously described, this also proved to be a convenient way of distributing the Medical Educator and Medical Student sub-populations, the Regular Test Sample size of 102 was adopted for the study.

In addition to the previously described advantages of insuring uniformly distributed representation by stratification and unbiased selection by randomization, this cell structure of the Test Samples presented itself as a partial answer to problems that had been contemplated since Dr. Earl R. Babbie's reports[6] of survey research with somewhat similar populations came to this researcher's attention.

With National Institutes of Health funding, and Association of American Medical Colleges cooperation, Dr. Babbie was able to achieve a response of 454 out of a survey population of 627 full-time faculty at 12 selected medical colleges. He commented that this 72 per cent return "In comparison with other surveys of professions, and of medicine in particular, . . . is very high."[7] In one part of his study, 17 per cent

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[6]Babbie, pp. 230-235. [7]Ibid., p. 231.

of the part-time faculty of the same institutions responded to one initial and three follow-up efforts to secure their participation in a questionnaire survey.[8]

In view of these experiences and observations from another researcher engaged in a somewhat similar study, substantial doubts were raised about the ability of this researcher, lacking these credentials and this support, to secure an adequate number of usable responses in this survey. For this reason the cell format and the use of replacements became a matter of pressing concern during the design phase of its development. Alternative methods to the cell structure format were then sought for securing an adequate number of responses for examination in the event the originally planned replacement procedures should prove inadequate.

One alternative selected was to test the independence hypothesis or the null hypothesis that there were no statistically significant differences between the responses received from subjects in cells with a 100 per cent response rate and those received from subjects assigned to other cells. If this null hypothesis was not rejected, it would seem appropriate to include all responses received from the Regular Test Sample in any case where the initially planned replacement procedures could not provide an adequate number of responses for examination in the study. The chi-square test of independence in contingency tables was adopted for this purpose and for testing the acceptability of all responses then remaining in the Reserve Test Sample of the same sub-population if additional responses were still required.

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[8] Ibid., p. 234.

Design and Development of Test Instruments

Overview of Procedures Employed

After several conferences with faculty advisors and numerous revisions, the questionnaires to be used as instruments in soliciting the information sought in this study emerged tentatively as three separate but similar forms. Fifteen graduate students and fourteen Graduate School faculty members of Murray State University in Murray, Kentucky, were invited to execute these forms as a pre-test of the questionnaires.[9] Nine physicians from the same community also executed the medical practitioner version of the same instrument.[10]

Each of these "pilot-study" respondents was interviewed with reference to suggestions for the clarification or other improvement of any portion of the instrument. Several of their suggestions were embodied in the final form of these questionnaires.

The only differences among the final forms of these three instruments was in the initial identifying captions and in their final Personal Data sections. Even these differences were only those that were necessary to make them relevant. For example, instead of inquiring about the nature of the student respondents' present practice, as was done in the

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[9]It must be acknowledged, in passing, that there is no School of Medicine at Murray State University. All that was sought in this portion of the pre-test was the judgment of probable peers in age and academic achievement with reference to such matters as clarity, style, and structure.

[10]Since the instruments were not in final form and no attempt was made to arrange a systematic sample, none of these pre-test responses will be reflected in the reports of this study.

"Questionnaire for Medical Practitioners," they were asked to indicate the type of practice in which they contemplated engaging.[11]

In summary, the design of these questionnaires was accomplished with these objectives in mind:

1) The solicitation and reception of the information sought in the study.
2) The maintenance of parallel structure among the three instruments, to facilitate later analysis and comparison of data.
3) Maximal clarity.
4) The minimization of the time required for its execution.

Detailed Description of Development

The detailed development of the questionnaire instruments was structured around the questions indicated earlier in this report during the identification of important subareas of the problem under investigation.[12] The following subdivisions of these instruments were established in an effort to achieve the systematic solicitation of the information sought in this study:

1) Inquiries about the attitudes of respondents with reference to the importance of communication skill for physicians in modern medical practice in generalized areas of application.

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[11]See Appendix A, pp. 274-285, for copies of final forms of these instruments.

[12]See pp. 12, 13.

2) Inquiries about the attitudes of respondents with reference to the importance of communication skill for physicians in modern medical practice in more specific and medically oriented situational applications.
3) Inquiries seeking the opinions of respondents about the efficacy and efficiency of communication skills training for physicians in a variety of academic levels and settings.
4) Inquiries about the incidence and locus of communication skills training experienced by respondents.
5) Evaluations of specific communication skills training programs experienced by respondents.
6) Personal information about respondents.

These classifications of the information sought in this survey were discussed extensively with speech and medical educators, with those who participated in the preliminary testing of the tentatively designed instruments, and with others previously identified as having been consulted about the study. They were retained basically unchanged from the form in which they were originally developed by the principal researcher.

The final form of the individual items included in each of these subdivisions of the questionnaire, however, involved a contrastingly large amount of revision and development. Consultations with these same individuals resulted in numerous additions, deletions, major alterations, and minor refinements of individual items. Although most of the suggestions incorporated into the final form of the questionnaires were concerned with item content, their order of presentation within subdivisions received some attention in this phase of the design process.

Eleven items were selected for inclusion as generalized areas of oral and orally related communication skills for the initial section of the instrument. The attitudes of respondents about the importance of competence in them for physicians in modern medical practice were solicited on a five-point scale.

The options made available to respondents in this forced-choice evaluation were:

NI - Not Important At All
MI - Minimally Important
SI - Somewhat Important
QI - Quite Important
EI - Extremely Important

The areas about which respondents' attitudes were solicited were:

1) Public Address.
2) Oral Reading of Manuscripts.
3) Radio and TV Performance.
4) Group Participation.
5) Group Leadership.
6) Face-to-Face Interpersonal Communication.
7) Indirect (Telephone, e.g.) Interpersonal Communication.
8) Nonverbal Communication.
9) Interviewing.
10) Listening.
11) Analysis of Language.

Respondents were asked to use the same rating scale to express their attitudes toward the importance of communication competence for physicians in the following more specific and medically oriented situational applications:

1) Eliciting and receiving information from patients.
2) Giving instructions to patients.
3) Securing patients' confidence and rapport.
4) Therapeutic and inspirational communication with patients.
5) Receiving information from nurses.
6) Informing and instructing nurses.
7) Providing information to other doctors.
8) Securing information from other doctors.
9) Instructing paramedical and other personnel.
10) Receiving information from paramedical and other personnel.
11) Advising patients of terminal prognoses.
12) Medical team participation.
13) Medical team leadership and direction.
14) Medical team organization, development, and training
15) Evaluating medical team performance.
16) Administering the affairs of a medical office.
17) Advising and consulting with families and friends of patients.
18) Providing expert testimony in court.
19) Presenting technical papers and reports to learned societies.

The labels were changed on the scaling device used to indicate the opinions of respondents about the efficacy and efficiency of communication skills training for physicians. The labels selected for use in the questionnaire were

SA - Strongly Agree.
A - Agree.
U - Undecided.
D - Disagree.
SD - Strongly Disagree.

The statements retained as items in this third section of the questionnaire were:

1) Formal instruction in communication skills is a complete waste of time.
2) These skills can only be acquired in actual medical practice.
3) Such training can best be accomplished in extracurricular and nonacademic programs.
4) Such training can best be accomplished in secondary and undergraduate schools.
5) Instruction in communication skills should be integrated with existing medical school courses.
6) These skills can best be developed in discrete courses specifically geared to the needs of medical practice.
7) Communication skills training should be emphasized in postgraduate and continuing medical education programs.

The fourth and fifth sections of the questionnaires related to the indication and evaluation of course work taken in communication and communication related areas. A review of the related course offerings indicated in a number of college and university undergraduate catalogs was used to supplement the interviews used in the development of other sections of the questionnaires to arrive at the following 21-item list:

1) Public Address.
2) Interpersonal Communication.

3) Business and Professional Speech.

4) Interviewing.

5) Organizational Communication.

6) General Semantics.

7) Debate.

8) Group Discussion.

9) Logic.

10) Argumentation.

11) Human Relations.

12) Persuasion.

13) Group Dynamics.

14) Conference Leadership.

15) Nonverbal Communication.

16) Case Analysis.

17) Fundamentals of Speech.

18) Reading of Technical Papers.

19) Sensitivity Training.

20) Listening Improvement.

21) Medical History Taking

Two five-point scaling devices were associated with each of these items in the final form of the questionnaire. The "Historical" scale was used to indicate the incidence and locus of any of these course offerings that respondents had experienced and the "Evaluative" scale to indicate their opinions of them The options available on these scales were:

Historical	Evaluative
NT - Never Taken.	CWT - Complete waste of my time.
SS - Secondary School.	LVM - Of little value to me.
UG - Undergraduate School.	SVM - Of some value to me.
MS - Medical School.	QVM - Quite valuable to me.
EX - Extracurricular.	EVM - Extremely valuable to me.

The method selected for the solicitation of recommendations for the development, improvement, or other changes in communication training programs for physicians was a relatively unstructured and open-ended invitation to indicate suggestions of that nature.

The final "Personal Data" sections of the questionnaires were the only areas in which the individual items varied among the three subpopulations tested. Information solicited in these sections was restricted to age, sex, educational history, and professional experience.[13]

Other Preliminary Preparations

For the Dispatch and Return of Questionnaires

Cover Letters.--Similar cover letters were designed for dispatch with the questionnaires to be sent to each of the potential respondents.[14] Though printed, these were signed individually in ink of a color different from the printed instrument.

These letters included a general explanation of the study, an offer of an abstract of the completed study, a space for the indication of any desired change in address, and a place for the respondent to check if an abstract was desired.

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[13]See Appendix A, pp. 274-285, for complete copies of all questionnaire instruments used in this study.

[14]See Appendix B, pp. 287-289.

Envelopes.--Nesting envelopes were designed and printed with a return address on the transmittal envelope and a directing address on the pre-stamped envelope to be enclosed for the use of the respondent.[15]

Clerical and Convenience Arrangements.--The facilities of the Dean's Office at the School of Medicine were made available for the reception of returned questionnaires and any other communication by mail or telephone from those participating in the survey. Campus mail facilities also were made available for use with those respondents who were based in the Kansas University Medical Center complex.

Data Processing.--Advance arrangements were made for the later use of the staff, IBM 360 Model 40 computer, and related facilities of the Data Processing Center on the campus of Murray State University in Murray, Kentucky in processing and analyzing the data from the survey.

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[15]See Appendix C, pp. 291-293.

CHAPTER IV

EXECUTION OF THE SURVEY

Solicitation of Responses from Test Samples

Initial Dispatches.--Adequate supplies of questionnaires, cover letters, and envelopes were printed after they were approved in their final forms by Graduate School faculty advisors and the responsible administrative officials of the School of Medicine at The University of Kansas. Envelopes were addressed to each of those selected for the three regular test samples of the sub-populations.

Appropriate questionnaire forms, cover letters, and return envelopes were dispatched via first-class mail from the researcher's home post office in Murray, Kentucky, on May 24, 1971. This date was selected because it fell just two weeks before the scheduled arrival of the researcher at the Kansas University Medical Center for the summer. Three nundred and six invitations to participate in the survey were thus dispatched simultaneously at that time.

Over a period of the following two weeks another similar set of invitations was prepared and dispatched to the 229 potential respondents from the reserve test samples of the three sub-populations.

The decision to dispatch identical invitations to participate in the survey to those in the reserve test sample groups in advance of the beginning of follow-up procedures was based on an awareness of the

limited time available for the execution of the survey. At no time was any respondent aware of his or her regular or reserve status in the test samples.

Follow-up Procedures.--Immediately upon arrival at the medical center those responses that had been received were coded with an identification number, and the reception of each response was indicated on the master file and on the individual card for that respondent. A similar clerical procedure was followed almost daily throughout the summer.

A cursory examination was made of each response, at the time of its reception, for the detection of omissions, ambiguities, and comments that seemed to merit deeper exploration.

In a series of follow-up interviews, usually by appointment, all but four of these incomplete or otherwise inadequate responses were made acceptable for use in the study. One of these exceptions involved a signed response which bore only the comment "BE A WASP" written in large, red, capital letters diagonally across each of the four pages of the questionnaire. After several unsuccessful attempts to secure an interview appointment, and additional unsuccessful attempts to see the respondent in his office without appointment, this return was set aside and the respondent treated clerically as if no response had been received.

Two of the other returns in question involved failure to execute one complete page of the questionnaire, a common problem throughout the study. Some aspects of the fourth questionable response were illegible and unclear to a degree that made meaningful interpretation impossible. These latter three responses were received late in the data reception phase of the study, and follow-up efforts found these respondents

inaccessible for reasons of illness and vacation These responses also were set aside and treated clerically as if they had not been received.

A systematic schedule of follow-up calls was made on those who had not yet responded to their invitations to participate in the study. Each of the non-respondents in the three regular test samples, and each of the non-respondents among the next scheduled twenty replacements of the three reserve test samples, were called on three different times in either their offices or their places of residence. These rounds of calls were made during the months of June, July, and August of 1971 at intervals of about one month.

These calls were made without prior appointment, but in each instance an offer was made to schedule an appointment at the convenience of the potential respondent. In several cases such appointments were made and kept. The resulting interviews invariably resulted in the reception of completed responses. Typically, however, these calls involved a visit with a secretary or office receptionist. They were asked either to verify that the potential respondent still had his or her copy of the questionnaire or to accept a duplicate copy and direct it to his or her attention. In some cases a wife, husband, or roommate proved to be the intermediary agent, particularly in attempting to secure responses from medical students.

An earlier plan to schedule professional appointments with each of the Medical Practitioner group who had not responded at the time of the third round of follow-up calls, and to pay them an office call fee for executing the questionnaire was abandoned. Upon reflection this proposal was deemed to raise questions of professional ethics, of

economic discrimination against those who were responding of their own volition, and of possible biasing influences on responses obtained under the aegis of subterfuge.

Reception of Responses

Qualification of Test Samples

The removal of subjects for reasons deemed to be in no way prejudicial to the results of the study is a factor that should be considered before any review is made of the response to this survey. The following chart reflects the impact of removals that were effected, based on information received during follow-up efforts attempting to secure responses:[1, 2]

TABLE 1

RESULTS OF TEST SAMPLE REMOVALS

Test Sample	Initial Total	Final Total
Med. Prac. - Regular	102	102
- Reserve	108	101
Total	210	203
Med. Educ. - Regular	102	102
- Reserve	102	89
Total	204	191
Med. Stud. - Regular	102	102
- Reserve	19	17
Total	121	119
Grand Total	535	513

[1] See Appendix E, pp. 301-302, for specific details of identification and for reasons for individual removals.

[2] See Appendix F, p. 304, for detailed explanation of these effects.

This procedure served to effect the deletion of subjects who would not have been considered as part of the survey population in the design of the study had the disqualifying information about them been available at the time of its development. Those potential respondents represented in the "Final Total" column of the preceding chart were assumed to have been contacted in this survey and thus to constitute properly qualified test samples for the study.

Report of the Incidence of Responses

Incidence and Percentage of Responses by Regular and Reserve Test Samples.--The percentages of responses for each of the test samples can be observed from the following table:[3]

TABLE 2

PERCENTAGES OF RESPONSES BY TEST SAMPLES

Test Sample		Response Percentage
Medical Practitioner	- Regular	77
	- Reserve	50
	- Total	64
Medical Educator	- Regular	70
	- Reserve	55
	- Total	63
Medical Student	- Regular	82
	- Reserve	96
	- Total	83
Total Study	- Regular	76
	- Reserve	55
	- Total	68

[3]See Appendix G, p. 306, for complete details of the distribution of responses by Test Samples.

Incidence and Percentage of Responses by Cells.--The original design of the study provided for sixteen cells, of six subjects each, for each of the three sub-populations. The number and percentage of these cells for which complete responses were received are as follows:

TABLE 3

NUMBER AND PERCENTAGE OF CELLS FILLED

Test Samples	# of Cells Filled	% of Cells Filled
Medical Practitioner - Regular	4	25
Medical Educator - Regular	4	25
Medical Student - Regular	7	44
Total Study - Regular	15	31

A somewhat more detailed examination of these responses seemed in order before proceding to the consideration of their implications and the description of methods uses to qualify an adequate number of responses.

Incidence and Percentage of Responses by Stratification Criteria.--The criterion employed in the distribution of subjects within the Medical Practitioner Test Samples was the year of completion of the degree of Doctor of Medicine at The University of Kansas. The incidence of response based on this characteristic was as follows:

TABLE 4

MEDICAL PRACTITIONER RESPONSES BY YEAR OF RECEPTION OF M.D. DEGREE

Year	Total Responses Solicited	Total Responses Received	Percentage of Responses Received
1951	5	4	80
1952	13	9	69
1953	18	8	44
1954	14	12	86
1955	18	14	78
1956	19	13	68
1957	14	9	64
1958	18	9	50
1959	15	13	87
1960	19	12	63
1961	19	8	42
1962	11	8	73
1963	20	10	50
Total[4]	203	129	64

The Medical Educator group was distributed on the basis of instructional assignments by departments as indicated on the "Medical Faculty Mailing List" provided by the office of the Dean of the School

[4]See Appendix H, p. 308, for a more detailed breakdown of data related to this item.

of Medicine. Where more than one department was listed the initial department indicated was used for the purpose of this development.

The following chart reflects the response characteristics of this group when viewed from that perspective:

TABLE 5

MEDICAL EDUCATOR RESPONSES
BY DEPARTMENTAL ASSIGNMENTS

Department	Total Responses Solicited	Total Responses Received	Percentage of Responses Received
Anatomy	7	3	43
Anesthesiology	6	3	50
Biochemistry	12	7	58
Biometry	2	1	50
Hearing & Speech	7	4	57
History of Medicine	1	0	0
Human Ecology	1	1	100
Library	1	1	100
Medicine	33	23	70
Microbiology	9	7	78
Obstetrics & Gynecology	10	5	50
Opthalmology	1	1	100
Otolaryngology	4	2	50
Pathology & Oncology	12	10	84

TABLE 5--Continued

Department	Total Responses Solicited	Total Responses Received	Percentage of Responses Received
Pediatrics	15	8	53
Pharmacology	10	7	70
Physical Medicine	1	1	100
Physiology	8	4	50
Psychiatry	19	12	63
Radiology	11	8	73
Surgery	21	12	57
Totals	191	120	63

About the only meaningful information available for use in distributing the Medical Student sub-population at the time test samples were being selected for this study was the class, or year, in medical school. The incidence and percentage of response for these test samples is shown here:

TABLE 6

MEDICAL STUDENT RESPONSES BY YEAR IN MEDICAL SCHOOL

Test Sample	Total Responses Solicited	Total Responses Received	Percentage of Responses Received
Third Year			
Regular	50	37	74
Reserve	8	6	75
Total	58	43	74
Fourth Year			
Regular	52	47	90
Reserve	9	9	100
Total	61	56	92
TOTAL			
Regular	102	84	82
Reserve	17	15	88
TOTAL	119	99	83

Incidence and Percentage of Responses by Other Characteristics Known Prior to Dispatch of Questionnaire.--The only other characteristic, relevant to all three of the sub-populations, about which information was available at the completion of the data gathering phase of this study and prior to any analysis of the information received from the survey was the sex of the individual respondents The enrollment forms of the medical students provided this information, but for the other two sub-populations the only procedure followed in determining this characteristic was that of assuming that all typically masculine given names and

all identification by the use of initials only were indicative of male subjects The following chart reflects the distribution of respondents by sexes:

TABLE 7

RESPONSES BY SEX OF RESPONDENT

	Total Responses Solicited	Total Responses Received	Percentage of Responses Received
Med. Prac.			
Male	197	126	64
Female	6	3	50
Total	203	129	64
Med. Educ.			
Male	174	109	63
Female	17	11	65
Total	191	120	63
Med. Stud.			
Male	109	94	86
Female	10	5	50
Total	119	99	83
Total Study			
Male	480	329	69
Female	33	19	58
Total	513	348	68

The academic rank and title of those selected for the Medical Educator Test Samples was known at the time of their selection. This information was gleaned from the then current catalog of the school.[5] The distribution of the incidence of response based on this criterion is as follows:

TABLE 8

MEDICAL EDUCATOR RESPONSES BY ACADEMIC RANK

Academic Rank	Total Responses Solicited	Total Responses Received	Percentage of Responses Received
Full Professor	69	52	75
Associate Prof.	55	33	60
Assistant Prof.	59	34	58
Inst., Lec., etc.	8	1	13
Total	191	120	63

The administrators of the school available during the period of the survey consisted of one Dean, one Associate Dean, and three Assistant Deans. They and the Departmental Chairmen as listed in the catalog are reported here with reference to their incidence and percentage of response:

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[5] University of Kansas · 1970-71 Catalog · School of Medicine. Dennis Branstiter, Ed. University Relations Office. Kansas City, Kansas.

TABLE 9

MEDICAL EDUCATOR RESPONSES BY
ADMINISTRATIVE ASSIGNMENT

Title	Total Responses Solicited	Total Responses Received	Percentage of Responses Received
Administrators	5	3	60
Departmental Chm.	17	12	71
Total	22	15	68

The academic degrees earned by most of those selected in the Medical Educator test samples also were noted from the catalog. A brief report of the incidence and percentage of responses based on these notations follows:

TABLE 10

MEDICAL EDUCATOR RESPONSES BY
TYPE OF DOCTORATE

Academic Degree	Total Responses Solicited	Total Responses Received	Percentage of Responses Received
Doctor of Medicine	125	77	62
Doctor of Philosophy + 3 Misc. other Doctorates	69	47	68
Total	194	124	64

The Veterans' Administration Hospital, located almost diametrically across the Kansas City Metropolitan complex from the Kansas University Medical Center, functions in many of its aspects as a form of satellite campus for the School of Medicine. The response characteristics of those Medical Educators assigned to this facility are compared below with those based at the main campus.

TABLE II

MEDICAL EDUCATOR RESPONSES BY LOCUS OF INSTRUCTIONAL ASSIGNMENT

Locus of Instructional Assignment	Total Responses Solicited	Total Responses Received	Percentage of Responses Received
Veterans' Administration Hosp.	21	17	81
Kansas University Medical Center	170	103	61
Total	191	120	63

Tests of the Significance of Differences in Response Characteristics

Rationale and Description of Tests Used.--Although percentages were included with the preceding reports of the incidences of reception based on several different criteria, they do not always provide an adequate base for their interpretation.

A basic chi-square test of independence[6] was used to indicate statistically the significance of the differences between observed and

[6]See Appendix I for formulas used and details of sample calculations, pp. 309-312.

expected incidences of response presented in these data. In each case the assumption tested was an independence hypothesis, or a null hypothesis that no divergence of observed from expected results occurred that could not reasonably be attributed to sampling fluctuations. The results of the tests for the significance of differences among the several preceding data presentations are given here in tabular form.

TABLE 12

RECAPITULATION OF RESULTS OF TESTS OF SIGNIFICANCE BY SUB-POPULATIONS

Difference in the Incidence of Response Between Regular and Reserve Subpopulations	Chi Square (X^2)	df	P	Significant at the		
				0.05 Level	0.02 Level	0.01 Level
Medical Practitioners	17.130	1	0.01 > P > 0.00	Yes	Yes	Yes (Highly)
Medical Educators	4.597	1	0.05 > P > 0.02	Yes		
Medical Students	.360	1	0.70 > P > 0.50			
Total Study	25.939	3	0.01 > P > 0.00	Yes	Yes	Yes (Highly)

TABLE 13

RECAPITULATION OF RESULTS OF TESTS OF SIGNIFICANCE COMPARING SUB-POPULATIONS

Difference in the Incidence of Response Between or Among:	Chi Square (X^2)	df	P	Significant at the		
				0.05 Level	0.02 Level	0.01 Level
Medical Practitioner, Medical Educator, and Medical Student Sub-Populations	16.773	2	0.01 > P > 0	Yes	Yes	Yes (Highly)
Medical Student and Combined Medical Educator and Medical Practitioner Sub-Populations	17.417	1	0.01 > P > 0	Yes	Yes	Yes (Highly)

TABLE 14

RECAPITULATION OF RESULTS OF TESTS OF SIGNIFICANCE
BY MISCELLANEOUS CHARACTERISTICS

Differences Among Or Between	Chi Square (X^2)	df	P	Significant at the		
				0.05 Level	0.02 Level	0.01 Level
Years Medical Practitioners received M.D. Degree	19.060	12	0.10 > P > 0.05			
Departmental assignments of Medical Educators	12.933	20	0.90 > P > 0.80			
Class years of Medical Students	6.425	1	0.02 > P > 0.01	Yes	Yes	
Sexes - Total Study	1.686	1	0.20 > P > 0.10			
- Med. Prac.	.474	1	0.50 > P > 0.30			
- Med. Educ.	.024	1	0.90 > P > 0.80			
- Med. Stud.	8.433	1	0.01 > P > 0.00	Yes	Yes	Yes (Highly)
Academic Ranks of Medical Educators	17.382	3	0.01 > P > 0.00	Yes	Yes	Yes (Highly)
Deans and Department Chairmen	.200	1	0.70 > P > 0.50			
Deans, Dept. Chm., & Other Med. Educators	.305	1	0.70 > P > 0.50			
M.D. and Ph.D. Medical Educators	.819	1	0.50 > P > 0.30			

Examination of the Results of Tests of Significance.--The solicitation and reception of responses was so central to the execution of this study that some brief examination of the implications of these tests seems in order.

The only known factor that could differentially have influenced the tendencies of reserve and regular test samples to respond to this survey was the reported follow-up effort conducted during the data-gathering phase of this study. It would be difficult to identify the impact of this effort with precision because all non-respondent subjects from the regular test samples and the next 20 non-respondents from the reserve test samples were contacted on each of the three rounds of follow-up calls. Thus no clear delineation exists, along regular and reserve test sample lines, between those who did and those who did not receive follow-up calls. All of the regular test sample non-respondents and all of the Medical Student reserve test sample non-respondents received three follow-up calls. Some of the Medical Practitioner and Medical Educator reserve test samples received follow-up calls, but most of the subjects in these two groups received only the initial invitation to participate in the survey.

The pattern of the results of the tests of the significance of differences in the incidence of response among these groups appears to support the assumption that follow-up procedures were productive of an increased incidence of response. They clearly indicate that some factor other than chance selection influenced the rate of response between regular and reserve test samples of the Medical Practitioner and Medical Educator sub-populations and did not significantly influence the Medical Student test samples.

The highly significant results of the tests of the differences in response characteristics of the three sub-populations of the study suggest the absence of meaningful differences between the Medical Practitioner and Medical Educator sub-populations and the existence of a difference between the Medical Students and those two groups that is too highly significant to attribute to chance. Without speculating on the reasons, medical students seemed markedly more inclined to respond than did either of the other sub-populations surveyed. It is interesting to note, also, that among medical students surveyed in this study, the higher incidence of response among fourth year students when compared with the third class significantly exceeds chance probabilities at the 0.02 level.

The relatively small number of female subjects in all of the sub-populations of the study suggests caution in the interpretation of data relating to differences in response characteristics along sexual lines. On the basis of observed versus expected frequencies of response, however, the sex of potential respondents seemed to make no significant difference in Medical Practitioner or Medical Educator test samples and a highly significant difference in the Medical Student groups from which responses were solicited.

It seems to be clearly established that some factor, or combination of factors, other than chance influenced the tendencies of Medical Educators to respond to this survey when this tendency is examined in terms of academic rank. Full Professors demonstrated a higher tendency to respond than did Associate Professors. Associate Professors responded at a slightly higher rate than did Assistant Professors. Instructors

and Lecturers were markedly less inclined to respond than those holding other academic ranks. The probability of these results being attributable to chance selection was significantly less than 0.01.

No other differences that could be considered as significant at the 0.05 level emerged from this examination of response characteristics.

Examination of Responses to Determine Data Presentation Procedures

At the completion of the data-gathering phase of this study its continuing viability was dependent, in accord with its design specifications, upon the development of about one hundred qualified and representative individual responses from the test samples of each of the three sub-populations that were surveyed. Three alternative procedures had been established for their possible development:

1) The substitution of blocks of six reserve test sample subjects for cells in the regular test sample with less than a 100 per cent response rate.
2) The inclusion of respondents from unfilled cells along with those from filled cells in the regular samples in cases with appropriately few indications of any significant differences existing between their response characteristics that might suggest limitations or qualifications of their use.
3) The transfer of respondents from the reserve to the regular test samples where it could be demonstrated that there were no significant differences between the responses of the two test samples, or that the nature and extent of

the limitations and qualifications inherent in any such differences found to exist were clearly indicated and identified.

The exploration of these possibilities and the determination of suitable procedures for qualifying adequate and acceptable test samples for each of the three sub-populations are the considerations to which this portion of the study is directed.

Exploration of the Possibilities of Cell Transfers

The results of effecting the transfer of unfilled cells into a discard file and replacing them with sets of six subjects drawn sequentially from the reserve test samples would have resulted in the following pattern of available and qualified samples for the presentation and analysis of data:[7]

TABLE 15

RESPONSE RESULTS BASED ON ORIGINAL CELLULAR DESIGN OF SUBJECT QUALIFICATION

Subject Status	Med. Prac.	Med Educ.	Med. Stud.	Total
Accepted	24	24	48	96
Unused	2	5	4	11
Rejected	177	162	67	406
Total	203	191	119	513

[7]See Appendix J, p. 313, for a display of the responses received in terms of cell and test sample distribution by sub-populations.

Although the resulting test samples from this system of development would have produced groups of subjects well qualified by selection criteria as representative of the populations from which they were drawn, they were judged inadequate in number for the purposes of this study, and this procedure for the development of final test samples was abandoned.

Comparison of Responses of Filled and Unfilled Cells

During the final round of follow-up calls in the data collection phase of this study a special effort was made to speak directly with the potential respondent whenever this was possible. In some cases the potential respondent indicated previous knowledge of the study and overtly indicated an unwillingness to participate. In many cases, however, the potential respondent indicated no previous knowledge of the study. Typically these individuals indicated that the pressure of their professional obligations required them to instruct a trusted secretary, receptionist, nurse, wife, or husband to open their mail and to handle all matters that did not require the immediate attention of the addressee. Everything else was to be placed in an "in basket" status, and these in-baskets usually held an accumulation of material received over a period of weeks or months.

Under these circumstances it was apparent that those being surveyed in this study were busy people, and that failure to respond should not be equated automatically with prejudicial refusal to participate. For this reason the responses of those assigned to cells which filled were compared with those from unfilled cells to determine the existence or absence of significant differences between them. This was

accomplished by the procedure of tabulating the frequency of response for each of these groups for each entry on the questionnaire form and testing each entry against a null, or indepencence hypothesis in a manner similar to that previously described for the comparison of incidences of response. The results are reported separately by sub-populations.

Medical Practitioner Sub-Populations Results.--The results of the tests for significant differences between the responses of subjects assigned to filled and unfilled cells of the Medical Practitioner sub-population are presented here in the form of chi-squares, chance probabilities of occurrence, and levels of significance.[8]

Table 16

COMPARISON OF RESPONSES RECEIVED FROM FILLED AND UNFILLED CELLS OF MEDICAL PRACTITIONER SUB-POPULATION

Item	Chi-Square	df	P	Significant at 0.05 Level	Significant at 0.02 Level	Significant at 0.01 Level
Question # 1	1.4386	4	0.90 > P > 0.80			
Question # 2	1.2914	4	0.90 > P > 0.80			
Question # 3	1.1390	4	0.90 > P > 0.80			
Question # 4	2.4400	4	0.70 > P > 0.50			
Question # 5	3.1630	4	0.70 > P > 0.50			
Question # 6	2.0839	4	0.80 > P > 0.70			
Question # 7	2.9056	4	0.70 > P > 0.50			
Question # 8	1.8668	4	0.80 > P > 0.70			
Question # 9	7.1468	4	0.20 > P > 0.10			
Question # 10	4.0514	4	0.50 > P > 0.30			
Question # 11	0.8230	4	0.95 > P > 0.90			
Question # 12	6.5692	4	0.20 > P > 0.10			
Question # 13	3.0969	4	0.70 > P > 0.50			
Question # 14	1.3088	4	0.90 > P > 0.80			
Question # 15	1.4729	4	0.90 > P > 0.80			
Question # 16	0.7014	4	1.00 > P > 0.95			
Question # 17	2.9521	4	0.70 > P > 0.50			

[8]See Appendix K, pp. 317-338, for complete details of frequency tabulations from which these calculations were made.

TABLE 16--Continued

Item	Chi-Square	df	P	Significant at 0.05 Level	Significant at 0.02 Level	Significant at 0.01 Level
Question # 18	0.0869	4	0 95 > P > 0.90			
Question # 19	4.1029	4	0.50 > P > 0.30			
Question # 20	3.0152	4	0.70 > P > 0.50			
Question # 21	0.2224	4	1.00 > P > 0.95			
Question # 22	5.7906	4	0.30 > P > 0.20			
Question # 23	5.7906	4	0.30 > P > 0.20			
Question # 24	1.7703	4	0.80 > P > 0.70			
Question # 25	2.3263	4	0.70 > P > 0.50			
Question # 26	2.3665	4	0.70 > P > 0.50			
Question # 27	5.4200	4	0.30 > P > 0.20			
Question # 28	1 7501	4	0.80 > P > 0.70			
Question # 29	0 9860	4	0.95 > P > 0.90			
Question # 30	1.3058	4	0.90 > P > 0.80			
Question # 31	2.6366	4	0.70 > P > 0.50			
Question # 32	1.6629	4	0.80 > P > 0.70			
Question # 33	6.8821	4	0.20 > P > 0.10			
Question # 34	4 3262	4	0.50 > P > 0.30			
Question # 35	7.4903	4	0.20 > P > 0.10			
Question # 36	1.6430	4	0.90 > P > 0.80			
Question # 37	2.1375	4	0.80 > P > 0.70			
Age	3.126	5	0.70 > P > 0.50			
Sex	0.258	1	0.70 > P > 0.50			
Loc. of H.S.	1.806	2	0.50 > P > 0.30			
Loc. of UG Sch	1.568	2	0.50 > P > 0.30			

The analysis of the responses of subjects from filled and unfilled cells reflects an overall chi-square of 2.8056, indicating a probability value of 0.70 > P > 0.50. No significant differences were found, at the 0.05 level, in the responses to any of the 37 questions inquiring about attitudes and opinions of the importance of communication and communication training for medical practitioners. Neither do significant differences appear to exist between these groups with reference to the "personal data" characteristics examined. These were age, sex, and geographic location of schools attended at the secondary and undergraduate levels.

The null hypothesis of no significant differences between the responses of subjects drawn from filled and unfilled cells seems clearly supported. The responses from unfilled, or incomplete, cells were thus retained in the Medical Practitioner test sample as acceptable for the purposes of this study.

Medical Educator Sub-Population Results.--The results of the tests for significant differences between the responses of subjects assigned to filled and unfilled cells of the Medical Educator group are presented here in a manner similar to that in which they were presented for the Medical Practitioner test sample.[9]

TABLE 17

COMPARISON OF RESPONSES RECEIVED FROM FILLED AND UNFILLED CELLS OF MEDICAL EDUCATOR SUB-POPULATION

Item	Chi-Square (X^2)	df	P	Significant at 0.05 Level	Significant at 0.20 Level	Significant at 0.10 Level
Question # 1	6.1875	4	0.20 > P > 0.10			
Question # 2	3.4450	4	0.50 > P > 0.30			
Question # 3	4.5870	4	0.50 > P > 0.30			
Question # 4	6.1432	4	0.20 > P > 0.10			
Question # 5	6.0766	4	0.20 > P > 0.10			
Question # 6	6.3516	4	0.20 > P > 0.10			
Question # 7	14.3764	4	0.10 > P > 0.00	Yes	Yes	Yes
Question # 8	12.3577	4	0.02 > P > 0.01	Yes	Yes	
Question # 9	4.5737	4	0.50 > P > 0.30			
Question # 10	3.4858	4	0.50 > P > 0.30			
Question # 11	7.6718	4	0.20 > P > 0.10			
Question # 12	2.2523	4	0.70 > P > 0.50			
Question # 13	2.5216	4	0.70 > P > 0.50			
Question # 14	8.3573	4	0.10 > P > 0.05			
Question # 15	10.7939	4	0.05 > P > 0.02	Yes		

[9]See Appendix K, pp. 317-338, for complete details of the frequency distributions from which these calculations were made.

TABLE 17--Continued

Item	Chi-Square (X^2)	df	P	Significant at 0.05 Level	Significant at 0.20 Level	Significant at 0.10 Level
Question # 16	5.1030	4	0.30 > P > 0.20			
Question # 17	9.3207	4	0.10 > P > 0.05			
Question # 18	7.3376	4	0.20 > P > 0.10			
Question # 19	5.8275	4	0.30 > P > 0.20			
Question # 20	11.5225	4	0.05 > P > 0.02	Yes		
Question # 21	6.2165	4	0.20 > P > 0.10			
Question # 22	4.5555	4	0.50 > P > 0.30			
Question # 23	5.9020	4	0.30 > P > 0.20			
Question # 24	12.0628	4	0.02 > P > 0.01	Yes	Yes	
Question # 25	12.2664	4	0.02 > P > 0.01	Yes	Yes	
Question # 26	7.3730	4	0.20 > P > 0.10			
Question # 27	2.4497	4	0.70 > P > 0.50			
Question # 28	4.0313	4	0.50 > P > 0.30			
Question # 29	3.9310	4	0.50 > P > 0.30			
Question # 30	2.6431	4	0.70 > P > 0.50			
Question # 31	4.6416	4	0.50 > P > 0.30			
Question # 32	1.9566	4	0.80 > P > 0.70			
Question # 33	4.9975	4	0.30 > P > 0.20			
Question # 34	0.9626	4	0.95 > P > 0.90			
Question # 35	3.4192	4	0.50 > P > 0.30			
Question # 36	7.5725	4	0.20 > P > 0.10			
Question # 37	8.3357	4	0.10 > P > 0.05			
Age	3.286	6	0.80 > P > 0.70			
Sex	0.095	1	0.80 > P > 0.70			
Loc. of H.S.	4.674	3	0.20 > P > 0.10			
Loc. of UG.S.	3.079	3	0.50 > P > 0.30			
Loc. of Dr.S.	8.808	3	0.05 > P > 0.02			
Pre-Dr. Deg.	0.172	3	1.00 > P > 0.95			
Dr. Degree	0.104	1	0.80 > P > 0.70			
Year of Dr.	15.148	7	0.05 > P > 0.02	Yes		
Academic Rk.	0.950	2	0.70 > P > 0.50			
Dept Assg't.	15.661	17	0.70 > P > 0.50			
Yrs. on Fac.	4.603	5	0.50 > P > 0.30			

The 6.2570 over-all, or average, chi-square for these comparisons indicates a probability value of 0.20 > P > 0.10. Although this value is somewhat lower than the similar composite value for the Medical Practitioner Test Sample, neither of these over-all tests of independence fail

significantly to support the null hypothesis. When the Medical Educator Test Sample responses are examined by individual questions, however, the existence of some factor other than chance distribution and sampling fluctuations must be acknowledged with reference to questions 7, 8, 15, 20, 24, and 25.

Eleven "personal data" characteristics of the respondents from these two groups were examined in a similar manner in an effort to ascertain and identify biasing influences in their distribution. Departmental assignment was the original basis for the distribution of medical educators in the test samples of the sub-population, and the tests reflected an acceptable distribution on that criterion. Other characteristics reflecting no significant differences in distribution not attributable to chance were age, sex, geographic location of secondary and undergraduate schools, pre-doctoral degrees, identity of doctoral degrees earned, academic rank, and number of years on the faculty.

The only characteristics reflecting significant differences, at the 0.05 level, by this analysis were the geographic location of the school issuing the doctorate, and the year in which individual faculty members' doctoral degrees were received.

For these purposes the schools issuing doctoral degrees to those respondents included in these groups were arbitrarily divided into four clusters; (1) those located in states east of the Appalachian Mountains, (2) those in states between the Appalachian and Rocky Mountains, (3) those in states west of the Rocky Mountains, and (4) another cluster including all schools not located in the United States. Examination of the response frequency data from which these calculations were made[10] discloses that

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[10]See Appendix K, p. 316.

5 of the 6 responses from subjects whose doctoral degrees were earned outside of the United States were included in the completed cells and constituted 21% of the total of those responses. Also contributing to the imbalance reflected in the $0.05 > P > 0.02$ rating was the fact that 16 of the 19 respondents with degrees from schools located in states east of the Appalachian mountains were from unfilled cells. No effort was made, in the design of the study, to structure the distribution of subjects on the basis of this criterion.

In calculating the dates of reception of earned doctorates, actual years were clustered in five-year groupings for convenience. In the instances of multiple doctorates, the year of the reception of the initial doctoral degree was used for the purposes of this calculation. The major factor contributing to the imbalance in the $0.05 > P > 0.02$ rating for this characteristic was the unexpectedly high 8 out of 16 responses from the 1950 - 1954 cluster found among those subjects in the completed cells. Again, no effort was attempted, in the selection of test samples, to manipulate this variable in any way.

No way is known, on the basis of information available from this study, to identify or verify the existence of other factors that might have contributed to the apparent bias influencing responses to these six questions.

The decision between discarding the 47 responses from the unfilled cells of the Medical Educator Regular Test Sample and retaining them with full acknowledgement of their limitations was made in favor of their retention. Numerically, this provides both better balance among the subpopulations and a more adequate test sample size while avoiding the waste of a large number of contributions to the survey. This decision also

establishes, however, a clear and important responsibility for the qualification of any later presentation or analysis of data based on them. It also will require the acknowledgement and identification of their possible limitations in the development of conclusions from the observation of data in this study.

Medical Student Sub-population Results.--The chi-squares, chance probabilities of occurrence, and levels of significance of the differences reflected in similar tests of responses by respondents from filled and unfilled cells of the Medical Student Regular Test Sample are presented here in a similar manner.[11]

TABLE 18

COMPARISON OF RESPONSES RECEIVED FROM FILLED AND UNFILLED CELLS OF MEDICAL STUDENT SUB-POPULATION

Item	Chi-Square (X^2)	df	P	Significant at 0.05 Level	Significant at 0.02 Level	Significant at 0.01 Level
Question # 1	2.7561	4	0.70 > P > 0.50			
Question # 2	6.1717	4	0.20 > P > 0.10			
Question # 3	0.7668	4	0.95 > P > 0.90			
Question # 4	3.4872	4	0.50 > P > 0.30			
Question # 5	6.2063	4	0.20 > P > 0.10			
Question # 6	1.0137	4	0.95 > P > 0.90			
Question # 7	2.5621	4	0.70 > P > 0.50			
Question # 8	1.5887	4	0.90 > P > 0.80			
Question # 9	8.9813	4	0.10 > P > 0.05			
Question # 10	3.4374	4	0.50 > P > 0.30			
Question # 11	3.7082	4	0.50 > P > 0.30			
Question # 12	0.0000	4	P = 1.00			
Question # 13	1.3607	4	0.90 > P > 0.80			
Question # 14	2.0645	4	0.80 > P > 0.70			

[11] See Appendix K, pp. 317-338, for complete details of the frequency distributions from which these calculations were made.

TABLE 18--Continued

Item	Chi-Square (X^2)	df	P	Significant at		
				0.05 Level	0.20 Level	0.10 Level
Question # 15	3.0496	4	0.70 > P > 0.50			
Question # 16	1.0323	4	0.95 > P > 0.90			
Question # 17	2.9516	4	0.70 > P > 0.50			
Question # 18	2.8287	4	0.70 > P > 0.50			
Question # 19	3.3954	4	0.50 > P > 0.30			
Question # 20	1.0303	4	0.95 > P > 0.90			
Question # 21	1.0818	4	0.90 > P > 0.80			
Question # 22	1.4370	4	0.90 > P > 0.80			
Question # 23	2.1333	4	0.80 > P > 0.70			
Question # 24	3.8435	4	0 50 > P > 0.30			
Question # 25	3.0146	4	0.70 > P > 0.50			
Question # 26	2.3072	4	0.70 > P > 0.50			
Question # 27	1.4537	4	0 90 > P > 0.80			
Question # 28	2.1243	4	0.80 > P > 0.70			
Question # 29	4.2550	4	0 50 > P > 0.30			
Question # 30	9.8385	4	0.05 > P > 0.02	Yes		
Question # 31	11.0706	4	0.05 > P > 0.02	Yes		
Question # 32	3.2481	4	0.70 > P > 0.50			
Question # 33	4.5886	4	0.50 > P > 0.30			
Question # 34	2.4538	4	0.70 > P > 0.50			
Question # 35	4.5377	4	0.50 > P > 0.30			
Question # 36	4.6198	4	0.50 > P > 0.30			
Question # 37	6.1967	4	0.20 > P > 0.10			
Age	1.914	3	0.70 > P > 0.50			
Sex	0.212	1	0.70 > P > 0.50			
Loc. of H.Sch.	2.052	2	0.50 > P > 0.30			
Loc. of UG Sch	2.334	2	0.50 > P > 0.30			
Class Year	1.616	2	0.50 > P > 0.30			
Pre-med. Deg.	3.007	4	0.70 > P > 0.50			

The over-all chi-square for these comparisons is 3.4215, which indicates that 0.50 > P > 0.30. The examination of known "personal data" characteristics of respondents from these two groups discloses no overt identification of factors that might be influencing the significantly differing responses to questions 30 and 31.

The decision to combine the responses from subjects represented in unfilled cells with those from filled cells to form a complete test

sample for the Medical Student sub-population was based on the same considerations that resulted in the similar decision in the case of the Medical Educator group. The low chi-square of 3.4215 and the high $0.50 > P > 0.30$ probability of independence seem supportive of such a decision. The potential value of 42 apparently bona fide responses was judged greater than the problems inherent in identifying and acknowledging their indicated biases and taking them into account.

Results of Filled and Unfilled Cell Treatment.--After the consolidation of filled and unfilled cells, those responding to the survey were distributed in this manner:

TABLE 19

RESULTS OF CONSOLIDATING RESPONSES FROM FILLED AND UNFILLED CELLS

	Test Samples		
	Regular	Reserve	Total
Medical Practitioners	79	50	129
Medical Educators	71	49	120
Medical Students	84	15	99
Total	234	114	348

The consolidation of filled and unfilled cells improved the regular Test Samples numerically but left them yet short of the initial objective of the study. The now established precedent for taking possible biases into account, and the existence of enough unused responses from subjects in the reserve Test Samples to accomplish this objective, led to

the decision to compare the responses of these regular and reserve groups. The procedures used for these comparisons were essentially duplicative of those employed in the similar comparative examination of the filled and unfilled cells of the regular Test Samples.

Medical Practitioner Sub-population Results.--The results of the tests for significant differences between the responses from subjects in the reserve and regular Test Samples of the Medical Practitioner sub-population are as follows:[12]

TABLE 20

COMPARISON OF RESPONSES FROM REGULAR AND RESERVE TEST SAMPLES OF MEDICAL PRACTITIONER SUB-POPULATION

Item	Chi-Square (X^2)	df	P	Significant at 0.05 Level	Significant at 0.02 Level	Significant at 0.10 Level
Question # 1	6.2638	4	0.20 > P > 0.10			
Question # 2	8.5646	4	0.10 > P > 0.05			
Question # 3	4.0128	4	0.90 > P > 0.80			
Question # 4	1.3191	4	0.90 > P > 0.80			
Question # 5	6.2996	4	0.20 > P > 0.10			
Question # 6	0.0122	4	1.00 > P > 0.95			
Question # 7	10.2515	4	0.05 > P > 0.02	Yes		
Question # 8	0.6987	4	1.00 > P > 0.95			
Question # 9	2.9806	4	0.70 > P > 0.50			
Question # 10	3.5919	4	0.50 > P > 0.30			
Question # 11	7.0447	4	0.20 > P > 0.10			
Question # 12	3.7759	4	0.50 > P > 0.30			
Question # 13	3.3966	4	0.50 > P > 0.30			
Question # 14	1.9036	4	0.80 > P > 0.70			
Question # 15	1.3305	4	0.90 > P > 0.80			
Question # 16	2.8810	4	0.70 > P > 0.50			
Question # 17	5.1806	4	0.30 > P > 0.20			
Question # 18	7.4475	4	0.20 > P > 0.10			
Question # 19	6.7052	4	0.20 > P > 0.10			

[12]See Appendix L, pp. 340-361, for complete details of the frequency distributions from which these calculations were developed.

TABLE 20--Continued

Item	Chi-Square (X^2)	df	P	Significant at		
				0.05 Level	0.02 Level	0.01 Level
Question # 20	1.7356	4	0 80 > P > 0.70			
Question # 21	2.0528	4	0 80 > P > 0.70			
Question # 22	7.5887	4	0.10 > P > 0.05			
Question # 23	11.2916	4	0.05 > P > 0.02	Yes		
Question # 24	11.8229	4	0.02 > P > 0.01	Yes	Yes	
Question # 25	8.9882	4	0.10 > P > 0.05			
Question # 26	4 0938	4	0 50 > P > 0.30			
Question # 27	4.7616	4	0.50 > P > 0.30			
Question # 28	2.5487	4	0.70 > P > 0.50			
Question # 29	6.2120	4	0.20 > P > 0.10			
Question # 30	3.1549	4	0.70 > P > 0.50			
Question # 31	1.7088	4	0 80 > P > 0.70			
Question # 32	4.8811	4	0.30 > P > 0.20			
Question # 33	2.0137	4	0.80 > P > 0.70			
Question # 34	0.9690	4	0.95 > P > 0.90			
Question # 35	0 7457	4	0.95 > P > 0.90			
Question # 36	1.1875	4	0 90 > P > 0.80			
Question # 37	3.9114	4	0 50 > P > 0.30			
Age	5.038	5	0.50 > P > 0.30			
Sex	0.229	1	0.70 > P > 0.50			
Loc. of H.S.	5.571	3	0.20 > P > 0.10			
Loc. of UG.S.	2.283	2	0.50 > P > 0.30			

The 0.50 > P > 0.30 based on the over-all chi-square of 4.4143 for the comparison of the responses of these two groups to the first 37 questions was judged supportive of the consolidation of these two groups into one Medical Practitioner Test Sample. The significant indications of factors other than chance having influenced the responses to questions 7, 23, and 24 were added to the list of qualifying limitations to be considered in the presentation and analysis of the data from the study.

Medical Educator Test Results.--The results of the tests for significant differences among the responses of the Regular and Reserve Test Samples

of the Medical Educator sub-population to the same questions are as follows:[13]

TABLE 21

COMPARISON OF RESPONSES FROM REGULAR AND RESERVE TEST SAMPLES OF MEDICAL EDUCATOR SUB-POPULATION

Item	Chi-Square (X^2)	df	P	Significant at		
				0.05 Level	0.02 Level	0.01 Level
Question # 1	3.6041	4	0.50 > P > 0.30			
Question # 2	5.4252	4	0.30 > P > 0.20			
Question # 3	1.8616	4	0.90 > P > 0.80			
Question # 4	4.8745	4	0.50 > P > 0.30			
Question # 5	9.8908	4	0.05 > P > 0.02	Yes		
Question # 6	1.3301	4	0.90 > P > 0.80			
Question # 7	2.4398	4	0.70 > P > 0.50			
Question # 8	2.8073	4	0.70 > P > 0.50			
Question # 9	0.2097	4	1.00 > P > 0.95			
Question # 10	1.4306	4	0.90 > P > 0.80			
Question # 11	3.3993	4	0.50 > P > 0.30			
Question # 12	4.0144	4	0.50 > P > 0.30			
Question # 13	1.6743	4	0.80 > P > 0.70			
Question # 14	3.3866	4	0.50 > P > 0.30			
Question # 15	3.7840	4	0.50 > P > 0.30			
Question # 16	3.7246	4	0.50 > P > 0.30			
Question # 17	4.5863	4	0.50 > P > 0.30			
Question # 18	0 7441	4	0.95 > P > 0.90			
Question # 19	3.9570	4	0.50 > P > 0.30			
Question # 20	3.0849	4	0.70 > P > 0.50			
Question # 21	4.6115	4	0.50 > P > 0.30			
Question # 22	4.8868	4	0.30 > P > 0.20			
Question # 23	5.1534	4	0.30 > P > 0.20			
Question # 24	5.1927	4	0.30 > P > 0.20			
Question # 25	5.4040	4	0.30 > P > 0.20			
Question # 26	3.2362	4	0.70 > P > 0.50			
Question # 27	3.7803	4	0.50 > P > 0.30			
Question # 28	1.7726	4	0.80 > P > 0.70			
Question # 29	1.7779	4	0.80 > P > 0.70			
Question # 30	2.3454	4	0.70 > P > 0.50			
Question # 31	2.9244	4	0.70 > P > 0.50			

[13]See Appendix L, pp. 340-361, for the complete frequency distribution data upon which these calculations were based.

TABLE 21--Continued

Item	Chi-Square (X^2)	df	P	Significant at 0.05 Level	Significant at 0.02 Level	Significant at 0.01 Level
Question # 32	3.5859	4	0.50 > P > 0.30			
Question # 33	2.6812	4	0.70 > P > 0.50			
Question # 34	1.5191	4	0.90 > P > 0.80			
Question # 35	2 8199	4	0.70 > P > 0.50			
Question # 36	5 1570	4	0.30 > P > 0.20			
Question # 37	5.1862	4	0.30 > P > 0.20			
Age	8.133	7	0.50 > P > 0.30			
Sex	0.078	1	0.80 > P > 0.70			
Loc. of H.S.	6.657	3	0.10 > P > 0.05			
Type of UG degree	7.698	4	0.10 > P > 0.05			
Type of Dr. Degree	0.015	1	0.95 > P > 0.90			
Loc. of UG School	5 454	3	0.20 > P > 0.10			
Loc of Dr. School	3.259	3	0.50 > P > 0.30			
Yr of Doctorate	4.218	6	0.70 > P > 0.50			
Academic Rank	4.500	3	0.30 > P > 0.20			
Dept. Ass'gt	9.045	17	0.95 > P > 0.90			
Years on Faculty	1.996	5	0.90 > P > 0.80			

The analyses of "personal data" characteristics reported in the preceding table were made in an effort to identify possible influences contributing to the statistically significant difference in responses between the regular and reserve Medical Educator Test samples with reference to question number five of the survey. Although the geographic location of the high school attended, the type of undergraduate degree received, and the geographic location of schools issuing baccalaureate and other pre-doctoral degrees to these respondents may merit some consideration because of their approach to significance at the 0.05 level; none of these characteristics examined proved to be demonstrably biasing in their influence on the response of these groups.

With a $0.50 > P > 0.30$ based on the average chi-square of 3.4665 for these questions, the consolidation of these groups into one Medical Educator Test Sample was deemed appropriate. The significant difference indicated in the responses of these two groups to question number five was added to the list of special considerations to be given to later data treatment.

Results of Medical Student Tests.--Tests of the significance of the difference between the responses to the same question by the regular and reserve Medical Student Test Samples are reflected here in a similar manner.[14]

TABLE 22

COMPARISON OF RESPONSES FROM REGULAR AND RESERVE TEST SAMPLES OF MEDICAL STUDENT SUB-POPULATION

Item	Chi-Square (X^2)	df	P	Significant at 0.05 Level	Significant at 0.02 Level	Significant at 0.01 Level
Question # 1	6.7743	4	$0.20 > P > 0.10$			
Question # 2	0.6124	4	$1.00 > P > 0.95$			
Question # 3	1.5223	4	$0.90 > P > 0.80$			
Question # 4	2.0688	4	$0.80 > P > 0.70$			
Question # 5	3.8042	4	$0.50 > P > 0.30$			
Question # 6	6.8587	4	$0.20 > P > 0.10$			
Question # 7	8.2557	4	$0.10 > P > 0.05$			
Question # 8	8.8161	4	$0.10 > P > 0.05$			
Question # 9	8.6384	4	$0.10 > P > 0.05$			
Question # 10	1.2623	4	$0.90 > P > 0.80$			
Question # 11	10.0446	4	$0.05 > P > 0.02$	Yes		
Question # 12	0.0244	4	$1.00 > P > 0.95$			
Question # 13	0.3629	4	$1.00 > P > 0.95$			
Question # 14	2.7964	4	$0.70 > P > 0.50$			
Question # 15	3.7557	4	$0.50 > P > 0.30$			

[14]See Appendix L, pp. 340-361, for the complete frequency distribution data from which these calculations were made.

TABLE 22--Continued

Item	Chi-Square (X^2)	df	P	Significant at 0.05 Level	Significant at 0.02 Level	Significant at 0.01 Level
Question # 16	5.3238	4	0 30 > P > 0.20			
Question # 17	1.5884	4	0.90 > P > 0.30			
Question # 18	1.5576	4	0.90 > P > 0.80			
Question # 19	1.6971	4	0.80 > P > 0.70			
Question # 20	6.7634	4	0.20 > P > 0.10			
Question # 21	3.3953	4	0.50 > P > 0.30			
Question # 22	5.5164	4	0.30 > P > 0.20			
Question # 23	2.6013	4	0 70 > P > 0.50			
Question # 24	0.5725	4	1.00 > P > 0.95			
Question # 25	0.0794	4	1.00 > P > 0.95			
Question # 26	9.5826	4	0.05 > P > 0.02	Yes		
Question # 27	7.6526	4	0 20 > P > 0.10			
Question # 28	3.5712	4	0 50 > P > 0.30			
Question # 29	7.6296	4	0.20 > P > 0.10			
Question # 30	3.2981	4	0.70 > P > 0.50			
Question # 31	1.3802	4	0 90 > P > 0.80			
Question # 32	10.2328	4	0 05 > P > 0.02	Yes		
Question # 33	2.4578	4	0.70 > P > 0.50			
Question # 34	1.6177	4	0.90 > P > 0.80			
Question # 35	8.5643	4	0.10 > P > 0.05			
Question # 36	2.0329	4	0 80 > P > 0.70			
Question # 37	5.8794	4	0 30 > P > 0.20			
Age	31.171	3	0.01 > P > 0.00	Yes	Yes	Yes
Sex	1.005	1	0.50 > P > 0.30			
Loc. of H.S.	0.736	2	0 70 > P > 0.50			
Class	2.228	2	0.50 > P > 0.30			
Loc. of UG.S.	3.211	2	0 30 > P > 0.20			

The average chi-square for the differences in the responses of the regular and reserve Test Samples to these questions was 4.28439, which supports the independence hypothesis at the level of 0.50 > P > 0.30. The regular and reserve groups were combined into one Test Sample for the Medical Student sub-population. Questions 11, 26, and 32 were added to the list of qualifications that will need to be noted in the presentation and analysis of data from the survey.

The examination of selected "personal data" characteristics in an effort to identify factors that might have contributed to the significant differences indicated in the comparison of responses to questions 11, 26, and 32 reflected a highly significant difference in the age distribution of the respondents in these two groups at the $0.01 > P > 0.00$ level. Twelve of the 15 reserve group respondents were under 20 years of age, while only 14 of the 84 from the regular group were in this age bracket. None of the 51 respondents in the 20 through 24 year bracket were from the reserve Test Sample. There were no statistically significant differences reflected in the examination of other items including sex, class, and geographic location of secondary and undergraduate schools.

Final Determination of Data Presentation Procedures

Overview and Rationale.--The results of the examination of responses to determine the most suitable among several alternative procedures available for the presentation of the data received in this survey may be summarized in this manner:

1) The use of replacement cells of six each, drawn sequentially from the reserve Test Samples, for unfilled cells in the regular Test Samples proved not to be feasible for any of the three sub-populations.
2) The consolidation of filled and unfilled cells within the original regular Test Samples was effected for each of the three sub-populations on the strength of the following comparative analyses based on tests of the significance of the differences in their responses to 36 key items relating to attitudes and opinions:

TABLE 23

DIFFERENCES BETWEEN RESPONSES FROM FILLED AND UNFILLED CELLS TO KEY ITEMS IN QUESTIONNAIRES

Regular Test Sample	Average Chi-Square	df	P
Med. Prac.	2.8506	4	0.70 > P > 0.50
Med. Educ.	6.2570	4	0.20 > P > 0.10
Med. Stud.	3.4215	4	0.50 > P > 0.30
Over-all	4.1797	4	0.50 > P > 0.30

3) The consolidation of reserve and regular Test Samples was effected for each of the three sub-populations and was based on a similar rationale supported by tests of the significance of differences between the responses of these groups to the same questions, as shown here.

TABLE 24

DIFFERENCES BETWEEN RESPONSES FROM REGULAR AND RESERVE TEST SAMPLES TO KEY ITEMS IN QUESTIONNAIRES

Test Sample	Average Chi-Square	df	P
Med Prac.	4.4143	4	0.50 > P > 0.30
Med. Educ.	3.4665	4	0.50 > P > 0.30
Med. Stud.	4.2839	4	0.50 > P > 0.30
Over-all	4.0549	4	0.50 > P > 0.30

Results of Consolidations.--The result of these consolidations was the development of the following Test Samples for use in the presentation and analysis of the data received from the survey:

TABLE 25

RESPONSE CHARACTERISTICS OF CONSOLIDATED TEST SAMPLES

Test Sample	Responses Solicited	Responses Received	Percentage of Responses Received
Medical Practitioners	203	129	64
Medical Educators	191	120	63
Medical Students	119	99	83
Total Study	513	348	68

Qualifications and Limitations of Data.--Each of these test samples appears well qualified when viewed from an over-all perspective. However, the previously described tests for significant differences in the response characteristics of component groups of the consolidated samples indicate the possible existence of biasing influences in the responses received to several of the individual questions of the survey instrument. These items and the source and extent of the qualifications and limitations imposed upon them are as follows:

TABLE 26

QUALIFICATIONS AND LIMITATIONS OF DATA RESULTING FROM TEST SAMPLE CONSOLIDATIONS

Item #		
5	Med. Educ. Reg. and Res. T. S.	0.05 > P > 0.02
7	Med. Educ. Filled and Unfilled Cells	0.01 > P > 0.00
7	Med. Prac. Reg. and Res. T. S.	0.05 > P > 0.02
8	Med. Educ. Filled and Unfilled Cells	0.02 > P > 0.01
11	Med. Stud. Reg. and Res. T. S.	0.05 > P > 0.02
15	Med Educ. Filled and Unfilled Cells	0.05 > P > 0.02
20	Med. Educ. Filled and Unfilled Cells	0.05 > P > 0.02
23	Med. Prac. Reg. and Res. T. S.	0.05 > P > 0.02
24	Med. Prac. Reg. and Res. T. S.	0.02 > P > 0.01
24	Med. Prac. Filled and Unfilled Cells	0.02 > P > 0.01
25	Med. Educ. Filled and Unfilled Cells	0.02 > P > 0.01
26	Med. Stud. Reg and Res. T. S.	0.05 > P > 0.02
30	Med. Stud. Filled and Unfilled Cells	0.05 > P > 0.02
31	Med. Stud. Filled and Unfilled Cells	0.05 > P > 0.02
32	Med. Stud. Reg. and Res. T. S.	0.05 > P > 0.02

CHAPTER V

PRESENTATION OF DATA

General Description of Procedures Employed

The format for the presentation of the data received from the survey consists primarily of a numerical record of the frequency and distribution of the responses indicated on returned questionnaires. They will be displayed in the following classifications:

1) Responses to eleven generalized questions about the importance of competence in communication skills for physicians in modern medical practice.
2) Responses to nineteen questions about the importance, for physicians in modern medical practice, of competence in communication skills in more specific and medically oriented situational applications.
3) Responses to seven different statements reflecting attitudes about the effectiveness of formal programs of instruction in communication skills for future medical practitioners.
4) Responses to inquiries about the incidence, locus, and personal evaluation of benefits received from formal course work taken in each of twenty-one different speech and speech related instructional programs.

5) Responses to an open-ended question seeking recommendations for the development or improvement of communication training programs for medical and/or premedical students.

6) Questions seeking basic "personal data" information about respondents for later use in the analysis of the other data received.

There were no question or item numbers on the instruments used in the gathering of data. Those used in its presentation were assigned numerically in the same sequence in which they were presented in the questionnaires.

The questionnaire forms presented to the three sub-populations surveyed in this study were identical except in the captions and in necessary details of the "personal data" sections. Each potential respondent received a form headed "QUESTIONNAIRE FOR MEDICAL PRACTITIONERS," "QUESTIONNAIRE FOR MEDICAL EDUCATORS," or "QUESTIONNAIRE FOR MEDICAL STUDENTS" as was appropriate in the individual case; but otherwise they were alike in the first five sections.

The frequency and distribution of responses to each item will be given by Test Samples for each of the three sub-populations followed by a total reflecting the over-all responses for the entire study. All forms of analysis and interpretation will be deliberately excluded from this portion of the report of this study.

Responses to Generalized Questions About the Importance of Competence in Communication Skills for Physicians in Modern Medical Practice

Items presented in this section were prefaced by the following instructions:

For each of the following oral and orally related communication skills please circle the response that best reflects your thinking about the importance of competence in them for physicians in modern medical practice, using this code:

NI = Not Important at All
MI = Minimally Important
SI = Somewhat Important
QI = Quite Important
EI = Extremely Important

The responses to the inquiries made in this section are as follows:

TABLE 27

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF PUBLIC ADDRESS

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	1	20	41	50	17	129
Medical Educators	9	21	44	35	11	120
Medical Students	3	19	45	25	7	99
Total	13	60	130	110	35	348

TABLE 28

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF ORAL READING OF MANUSCRIPTS

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	12	30	39	34	14	129
Medical Educators	12	33	40	23	12	120
Medical Students	15	44	26	8	6	99
Total	39	107	105	65	32	348

TABLE 29

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF RADIO AND TV PERFORMANCE

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	22	47	40	17	3	129
Medical Educators	22	50	37	10	1	120
Medical Students	27	50	16	3	3	99
Total	71	147	93	30	7	348

TABLE 30

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF GROUP PARTICIPATION

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	1	5	30	57	36	129
Medical Educators	4	6	37	49	24	120
Medical Students	0	5	27	44	23	99
Total	5	16	94	150	83	348

TABLE 31

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF FACE-TO-FACE INTERPERSONAL COMMUNICATION

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	0	0	16	113	129
Medical Educators	0	1	2	26	91	120
Medical Students	0	0	2	15	82	99
Total	0	1	4	57	286	348

TABLE 32

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF INDIRECT (TELEPHONE, e.g.) INTERPERSONAL COMMUNICATION

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	5	8	46	70	129
Medical Educators	1	2	14	50	53	120
Medical Students	1	3	13	42	40	99
Total	2	10	35	138	163	348

TABLE 33

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF NONVERBAL COMMUNICATION

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	3	8	25	55	38	129
Medical Educators	9	7	22	49	33	120
Medical Students	1	4	19	37	38	99
Total	13	19	66	141	109	348

TABLE 34

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF INTERVIEWING

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	3	5	16	31	74	129
Medical Educators	0	2	15	34	69	120
Medical Students	1	2	3	22	71	99
Total	4	9	34	87	214	348

TABLE 35

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF LISTENING

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	0	2	23	104	129
Medical Educators	1	0	1	28	90	120
Medical Students	0	0	1	17	81	99
Total	1	0	4	68	275	348

TABLE 36

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF ANALYSIS OF LANGUAGE

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	6	14	38	36	35	129
Medical Educators	7	17	35	35	26	120
Medical Students	8	14	27	25	25	99
Total	21	45	100	96	86	348

TABLE 37

RECAPITULATION OF RESPONSES TO ITEMS 1-11

	MED. PRAC.					MED. EDUC.					MED. STUD.					TOTAL STUDY				
	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI
1 Public Address	1	20	41	50	17	9	21	44	35	11	3	19	45	25	7	13	60	130	110	35
2 Oral R. of Man.	12	30	39	34	14	12	33	40	23	12	15	44	26	8	6	39	107	105	65	32
3 R. and TV Per.	22	47	40	17	3	22	50	37	10	1	27	50	37	10	1	71	147	93	30	7
4 Group Part.	2	3	34	63	27	1	8	23	72	16	1	7	30	45	16	4	18	87	180	59
5 Group Leadership	1	5	30	56	36	4	6	37	49	24	0	5	27	44	23	5	16	94	150	83
6 F-to-F Inter. C.	0	0	0	16	113	0	1	2	26	91	0	0	2	15	82	0	1	4	57	286
7 Indir. Inter. C.	0	5	8	46	70	1	2	14	50	53	1	3	13	42	40	2	10	35	138	163
8 Nonverbal Com.	3	8	25	55	38	9	7	22	49	33	1	4	19	37	38	13	19	66	141	109
9 Interviewing	3	5	16	31	74	0	2	15	34	69	1	2	3	22	71	4	9	34	87	214
10 Listening	0	0	2	23	104	1	0	1	28	90	0	0	1	17	81	1	0	4	68	275
11 Anal. of Lang.	6	14	38	36	35	7	17	35	35	26	8	14	27	25	25	21	45	100	96	86

Responses to Inquiries About the Importance, for Physicians in Modern Medical Practice, of Competence in Communication Skills in More Specific and Medically Oriented Situational Applications

Coding for this section of the survey was identical to that prescribed for the items previously presented. These items were preceded, on the questionnaire form, by these instructions:

> Please use the same system to indicate the response that best reflects your thinking about the importance of competence in communication for physicians in each of the following situations:

The responses to the inquiries made in this section are as follows:

TABLE 38

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN ELICITING AND RECEIVING INFORMATION FROM PATIENTS

Test Sample	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	0	1	15	113	129
Medical Educators	0	1	0	12	107	120
Medical Students	0	0	0	12	87	99
Total	0	1	1	39	307	348

TABLE 39

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN GIVING INSTRUCTIONS TO PATIENTS

Test Sample	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	1	1	24	103	129
Medical Educators	0	1	0	22	97	120
Medical Students	0	0	1	22	76	99
Total	0	2	2	68	276	348

TABLE 40

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN SECURING PATIENTS' CONFIDENCE AND RAPPORT

Test Sample	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	0	4	24	101	129
Medical Educators	0	1	3	18	98	120
Medical Students	0	0	3	26	70	99
Total	0	1	10	68	269	348

TABLE 41

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN THERAPEUTIC AND INSPIRATIONAL COMMUNICATION WITH PATIENTS

Test Sample	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	0	6	54	69	129
Medical Educators	2	2	10	35	71	120
Medical Students	0	2	10	42	45	99
Total	2	4	26	131	185	348

TABLE 42

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN RECEIVING INFORMATION FROM NURSES

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	0	13	64	52	129
Medical Educators	1	1	7	59	52	120
Medical Students	0	2	12	50	35	99
Total	1	3	32	173	139	348

TABLE 43

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN INFORMING AND INSTRUCTING NURSES

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	1	8	57	63	129
Medical Educators	1	2	3	46	68	120
Medical Students	0	0	15	45	39	99
Total	1	3	26	148	170	348

TABLE 44

RESPONSES TO INOUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN PROVIDING INFORMATION TO OTHER DOCTORS

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	1	0	10	48	70	129
Medical Educators	0	1	9	46	64	120
Medical Students	0	0	8	54	37	99
Total	1	1	27	148	171	348

TABLE 45

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN SECURING INFORMATION FROM OTHER DOCTORS

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	1	12	56	60	129
Medical Educators	1	1	7	47	64	120
Medical Students	1	1	7	55	35	99
Total	2	3	26	158	159	348

TABLE 46

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN INSTRUCTING PARAMEDICAL AND OTHER PERSONNEL

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	0	19	58	52	129
Medical Educators	0	2	13	52	53	120
Medical Students	0	1	18	50	30	99
Total	0	3	50	160	135	348

TABLE 47

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN RECEIVING INFORMATION FROM PARAMEDICAL AND OTHER PERSONNEL

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	1	29	58	41	129
Medical Educators	0	3	13	61	43	120
Medical Students	0	3	21	47	28	99
Total	0	7	63	166	112	348

TABLE 48

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN ADVISING PATIENTS OF TERMINAL PROGNOSES

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	3	2	16	49	59	129
Medical Educators	1	5	12	40	62	120
Medical Students	0	2	12	35	50	99
Total	4	9	40	124	171	348

TABLE 49

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN MEDICAL TEAM PARTICIPATION

Test Samples	NI	MI	SI	OI	EI	Total
Medical Practitioners	2	1	19	73	34	129
Medical Educators	2	2	13	54	49	120
Medical Students	1	1	14	48	35	99
Total	5	4	46	175	118	348

TABLE 50

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN MEDICAL TEAM LEADERSHIP AND DIRECTION

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	2	3	26	63	35	129
Medical Educators	4	2	13	56	45	120
Medical Students	0	2	15	48	34	99
Total	6	7	54	167	114	348

TABLE 51

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN MEDICAL TEAM ORGANIZATION, DEVELOPMENT, AND TRAINING

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	2	4	34	58	31	129
Medical Educators	3	4	24	61	28	120
Medical Students	0	7	26	37	29	99
Total	5	15	84	156	88	348

TABLE 52

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN EVALUATING MEDICAL TEAM PERFORMANCE

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	2	7	38	56	26	129
Medical Educators	3	8	29	53	27	120
Medical Students	1	11	38	35	14	99
Total	6	26	105	144	67	348

TABLE 53

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN ADMINISTERING THE AFFAIRS OF A MEDICAL OFFICE

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	6	25	58	40	129
Medical Educators	3	12	38	49	18	120
Medical Students	2	9	42	31	15	99
Total	5	27	105	138	73	348

TABLE 54

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN ADVISING AND CONSULTING WITH FAMILIES AND FRIENDS OF PATIENTS

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	0	4	18	69	38	129
Medical Educators	1	5	14	59	41	120
Medical Students	0	1	31	43	24	99
Total	1	10	63	171	103	348

TABLE 55

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN PROVIDING EXPERT TESTIMONY IN COURT

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	6	21	38	39	24	129
Medical Educators	4	15	49	26	26	120
Medical Students	3	17	38	28	13	99
Total	13	53	125	93	64	348

TABLE 56

RESPONSES TO INQUIRIES ABOUT THE IMPORTANCE OF COMMUNICATION COMPETENCE IN PRESENTING TECHNICAL PAPERS AND REPORTS TO LEARNED SOCIETIES

Test Samples	NI	MI	SI	QI	EI	Total
Medical Practitioners	7	20	44	43	15	129
Medical Educators	4	14	41	39	22	120
Medical Students	10	23	38	21	7	99
Total	21	57	123	103	44	348

TABLE 57

RECAPITULATION OF RESPONSES TO ITEMS 12-32

	MED. PRAC.					MED. EDUC.					MED. STUD.					TOTAL STUDY				
	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI
12 Eliciting and receiving information from patients	0	1	1	15	113	0	1	0	12	107	0	0	0	12	107	0	1	1	39	307
13 Giving instructions to patients	0	1	1	23	103	0	1	0	22	97	0	0	1	22	76	0	2	2	68	276
14 Securing patients' confidence and rapport	0	0	4	24	101	0	1	3	18	98	0	0	3	26	70	0	1	10	68	269
15 Therapeutic and inspirational comm. with patients	0	0	6	54	69	2	2	10	35	71	0	2	10	42	45	2	4	26	131	185
16 Receiving information from nurses	0	0	13	64	52	1	1	7	59	52	0	2	12	50	35	1	3	32	173	139
17 Informing and instructing nurses	0	1	8	57	63	1	2	3	46	68	0	0	15	45	39	1	3	26	148	170
18 Providing information to other doctors	1	0	10	48	70	0	1	9	46	64	0	0	8	54	37	1	1	27	148	171

TABLE 57--Continued

RECAPITULATION OF RESPONSES TO ITEMS 12-30

	MED. PRAC.					MED. EDUC.					MED. STUD.					TOTAL STUDY				
	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI
19 Securing information from other doctors	0	1	12	56	60	1	1	7	47	64	1	1	7	55	35	2	3	26	158	159
20 Instructing paramedical and other personnel	0	0	19	58	52	0	2	13	52	53	0	1	18	50	30	0	3	50	160	135
21 Receiving information from paramedical and other personnel	0	1	29	58	41	0	3	13	61	43	0	3	21	47	28	0	7	63	166	112
22 Advising patients of terminal prognoses	3	2	16	49	59	1	5	12	40	62	0	2	12	35	50	4	9	40	124	171
23 Medical team participation	2	1	19	73	34	2	2	13	54	49	1	1	14	48	35	5	4	46	175	118
24 Medical team leadership and direction	2	3	26	63	35	4	2	13	56	45	0	2	15	48	34	6	7	54	167	114
25 Medical team organization, development, and training	2	4	34	58	31	3	4	24	61	28	0	7	26	37	29	5	15	84	156	88
26 Evaluating medical team performance	2	7	38	56	26	3	8	29	53	27	1	11	38	35	14	6	26	105	144	67

TABLE 57--Continued

RECAPITULATION OF RESPONSES TO ITEMS 12-30

	MED. PRAC.					MED. EDUC.					MED. STUD.					TOTAL STUDY				
	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI	NI	MI	SI	QI	EI
27 Administering the affairs of a medical office	0	6	25	58	40	3	12	38	49	18	2	9	42	31	15	5	27	105	138	73
28 Advising and consulting with families and friends of patients	0	4	18	69	38	1	5	14	59	41	0	1	31	43	24	1	10	63	171	103
29 Providing expert testimony in court	6	21	38	39	25	4	15	49	26	26	3	17	38	28	13	13	53	125	93	64
30 Presenting technical papers and reports to learned societies	7	20	44	43	15	4	14	41	39	22	10	23	38	21	7	21	57	123	103	44

A blank line was placed, without explanation, immediately following this section of the questionnaire. It was intended for use by those who wished to insert a "write-in" situational application not offered in the prepared list. It was left blank in most cases, but those responses indicating anything in this space are quoted individually here with careful attention to precise transcription:

Medical Practitioners

"Blank" followed by no evaluative notation.

"Doctor-patient Relationship" followed by an "EI" evaluative indication.

"?" was inserted by four respondents.

"Peer review--Local Medical Society, etc." followed by a "QI" notation.

Medical Educators

"Ability to communicate with patients" followed by an "EI" indication.

"Participation in community health planning" followed by a "QI" evaluative marking.

"Providing information to medical students or other trainees" followed by a "QI" indication.

Medical Students

"?" indication by one respondent.

"Teaching" followed by an "EI" evaluative indication.

Responses to Inquiries Soliciting Opinions About the Effectiveness and Desirability of Training in Communication Skills for Future Medical Practitioners

The seven items in this section of the questionnaire were preceded by these instructions:

Please select and circle the response that best reflects your position with reference to each of the following statements about the effectiveness of formal programs of instruction in communication skills for future medical practitioners, using this code:

SA = Strongly Agree
A = Agree
U = Undecided
D = Disagree
SD = Strongly Disagree

The responses received from this portion of the survey are as follows:

TABLE 58

RESPONSES RECEIVED TO THE STATEMENT THAT FORMAL INSTRUCTION IN COMMUNICATION SKILLS IS A COMPLETE WASTE OF TIME

Test Samples	SA	A	U	D	SD	Total
Medical Practitioners	3	5	10	61	50	129
Medical Educators	2	6	14	64	34	120
Medical Students	3	11	15	54	16	99
Total	8	22	39	179	100	348

TABLE 59

RESPONSES RECEIVED TO THE STATEMENT THAT THESE SKILLS CAN ONLY BE ACQUIRED IN ACTUAL MEDICAL PRACTICE

Test Samples	SA	A	U	D	SD	Total
Medical Practitioners	4	18	6	75	26	129
Medical Educators	5	9	14	73	19	120
Medical Students	3	18	18	51	9	99
Total	12	45	38	199	54	348

TABLE 60

RESPONSES RECEIVED TO THE STATEMENT THAT SUCH TRAINING CAN BEST BE ACCOMPLISHED IN EXTRACURRICULAR AND NONACADEMIC PROGRAMS

Test Samples	SA	A	U	D	SD	Total
Medical Practitioners	6	26	32	50	15	129
Medical Educators	3	17	34	58	8	120
Medical Students	6	26	26	37	4	99
Total	15	69	92	145	27	348

TABLE 61

RESPONSES RECEIVED TO THE STATEMENT THAT SUCH TRAINING CAN BEST BE ACCOMPLISHED IN SECONDARY AND UNDERGRADUATE SCHOOLS

Test Samples	SA	A	U	D	SD	Total
Medical Practitioners	8	44	40	33	4	129
Medical Educators	7	37	36	39	1	120
Medical Students	4	38	30	25	2	99
Total	19	119	106	97	7	348

TABLE 62

RESPONSES RECEIVED TO THE STATEMENT THAT INSTRUCTION IN COMMUNICATION SKILLS SHOULD BE INTEGRATED WITH EXISTING MEDICAL SCHOOL COURSES

Test Samples	SA	A	U	D	SD	Total
Medical Practitioners	23	79	13	10	4	129
Medical Educators	26	57	19	15	3	120
Medical Students	8	44	18	21	8	99
Total	57	180	50	46	15	348

TABLE 63

RESPONSES RECEIVED TO THE STATEMENT THAT THESE SKILLS CAN BEST BE DEVELOPED IN DISCRETE COURSES SPECIFICALLY GEARED TO THE NEEDS OF MEDICAL PRACTICE

Test Samples	SA	A	U	D	SD	Total
Medical Practitioners	11	56	37	24	1	129
Medical Educators	11	42	39	25	3	120
Medical Students	6	34	24	28	7	99
Total	28	132	100	77	11	348

TABLE 64

RESPONSES RECEIVED TO THE STATEMENT THAT COMMUNICATION SKILLS TRAINING SHOULD BE EMPHASIZED IN POSTGRADUATE AND CONTINUING MEDICAL EDUCATION PROGRAMS

Test Samples	SA	A	U	D	SD	Total
Medical Practitioners	22	75	13	17	2	129
Medical Educators	23	65	14	13	5	120
Medical Students	9	45	21	20	4	99
Total	54	185	48	50	11	348

TABLE 65

RECAPITULATION OF RESPONSES TO ITEMS 31-37

	MED. PRAC.					MED. EDUC.					MED. STUD.					TOTAL STUDY				
	SA	A	U	D	SD	SA	A	U	D	SD	SA	A	U	D	SD	SA	A	U	D	SD
31 Formal instruction in comm. skills is a complete waste of time.	3	5	10	61	50	2	6	14	64	34	3	11	15	54	16	8	22	39	179	100
32 These skills can only be acquired in actual medical practice.	4	16	6	75	26	5	9	14	73	19	3	18	18	51	9	12	45	38	199	54
33 Such training can best be accomplished in extra-curricular and nonacademic programs.	8	44	40	33	4	7	37	36	39	1	4	38	30	25	2	19	119	106	97	7
34 Instruction in communication skills should be int. with existing medical school courses.	23	79	13	10	4	26	57	19	15	3	8	44	18	21	8	57	108	50	46	15

TABLE 65--Continued

RECAPITULATION OF RESPONSES TO ITEMS 31-37'

	MED. PRAC.					MED. EDUC.					MED. STUD.					TOTAL STUDY				
	SA	A	U	D	SD	SA	A	U	D	SD	SA	A	U	D	SD	SA	A	U	D	SD
36 These skills can best be developed in discrete c. sp. . . . med. practice.	11	56	37	24	1	11	42	39	25	3	6	34	24	28	7	28	132	100	77	11
37 Communication skills training should be emp. in PG and continuing medical education programs.	22	75	13	17	2	23	65	14	13	5	9	45	21	20	4	54	185	48	50	11

A blank line was included at the end of this section of the questionnaire. It was not explained, but was designed to provide opportunity for respondents to indicate "write-in" statements if positions they wished to establish or comment on were not adequately covered in the prepared list. Most of these were left blank, but those respondents who made any entries for this item are quoted here individually and with care for precision in transcription.

Medical Practitioners

"These skills are natural for some." followed by an "SA" notation.

"Somewhere you have to continue to practice these skills to maintain them in public." followed by an "A" evaluative marking.

"The moon is made of green cheese." followed by a "U" code indication.

"Blank" without evaluative marking.

Medical Educators

"Complete waste of time and money for all concerned, including the authors of the questionnaire." followed by an "SA" notation.

"In the end analysis, Empathy is the basis of successful patient communication and I am undecided as to whether this can be taught." followed by a "U" marking.

Medical Students

"Medical schools should not try to cover ever [sic] phase of one's learning but adding extra recquired [sic] courses that one doesn't have time for when there are things can best be learned elsewhere." followed by an "SA" evaluative marking.

"So far I have never seen a program I consider adequate for M.D.'s." with no evaluative marking indicated.

"M.D.'s are never (to the public's eye) undecided. Are quite defensive on this point and so you will have few 'U' replys since 'U' indicates a deficiency in character. I suggest a better term might have been more significant." followed by an "A" notation.

> "Some communication training should be an undergrad. pre-med. requirement and offered again in 3rd or 4th year med. school." followed by an "A" notation.

Responses to Inquiries Seeking Identification and Evaluation of Communication Training

The items in this section of the questionnaire sought to identify the incidence and locus of any formal instruction in communication skills experienced by those responding to the survey and to secure personal evaluations of these experiences. Their presentation was preceded by these instructions·

> Please indicate any course work or other training programs you may have taken and your evaluation of them, indicating both historical and evaluative information by circling appropriate responses using these codes:

Historical	Evaluative
NT = Never Taken	CWT = Complete waste of my time
SS = Secondary School	LVM = Of little value to me
UG = Undergraduate School	SVM = Of some value to me
MS = Medical School	QVM = Quite valuable to me
EX = Extracurricular	EVM = Extremely valuable to me

The need for a sixth historical classification for Graduate School, particularly for the Medical Educator Test Sample, soon became apparent. A combination of errors permitted the distribution of the original questionnaires without provision for the indication of graduate level instruction in other than schools of medicine Had the pre-tests of the Medical Educator questionnaires been made with medical school faculty personnel, or had the principal researcher been more knowledgeable about the composition of medical school faculties, the original design of the study could have taken the Ph.D. and other than M.D. faculty members more adequately into consideration.

Since this design weakness was not detected earlier, no alternative was left other than to secure interviews to complete the returned questionnaires received from those with no other meaningful way of executing this portion of the survey This was done, and the classification of GS = Graduate School was added by hand for each of these questionnaires at that time.

The responses to the items in this portion of the questionnaire are presented here in tabular form.

TABLE 66

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN PUBLIC ADDRESS

Test Sample	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	2	12	9	4	27
	UG	1	0	25	27	5	58
	MS	0	1	0	0	0	1
	EX	0	1	2	3	4	10
	Total	1	4	39	39	13	96
Medical Educator	SS	0	2	12	11	4	29
	UG	0	5	13	19	9	46
	MS	0	0	1	0	0	1
	EX	0	1	2	3	4	10
	Total	0	8	28	33	17	86
Medical Student	SS	1	5	13	9	4	32
	UG	2	8	23	13	4	50
	MS	0	0	0	2	0	2
	EX	0	0	1	2	3	6
	Total	3	13	37	26	11	90
Over-all Study	SS	1	9	37	29	12	88
	UG	3	13	61	59	18	154
	MS	0	1	1	2	0	4
	EX	0	2	5	8	11	26
	Total	4	25	104	98	41	272

TABLE 67

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN INTERPERSONAL COMMUNICATION

Test Sample	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	1	1	0	2
	UG	0	0	2	4	2	8
	MS	0	0	1	2	4	7
	EX	0	0	1	1	7	9
	Total	0	0	5	8	13	26
Medical Educator	SS	0	0	0	0	0	0
	UG	0	0	2	3	3	8
	MS	0	0	0	6	4	10
	GS	0	0	0	2	1	3
	EX	0	0	3	3	5	11
	Total	0	0	5	14	13	32
Medical Student	SS	0	1	1	0	0	2
	UG	0	1	2	2	4	9
	MS	0	1	1	2	0	4
	EX	0	0	1	1	2	4
	Total	0	3	5	5	6	19
Over-all Study	SS	0	1	2	1	0	4
	UG	0	1	6	9	9	25
	MS	0	1	2	10	8	21
	GS	0	0	0	2	1	3
	EX	0	0	5	5	14	24
	Total	0	3	15	27	32	77

TABLE 68

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN BUSINESS AND PROFESSIONAL SPEECH

Test Sample	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	1	1	1	3
	UG	0	0	6	8	3	17
	MS	0	0	0	1	2	3
	EX	0	0	1	2	2	5
	Total	0	0	8	12	8	28
Medical Educator	SS	0	2	0	2	1	5
	UG	0	1	5	6	2	14
	MS	0	0	2	0	0	2
	EX	0	0	1	3	0	4
	Total	0	3	8	11	3	25
Medical Student	SS	0	0	0	0	0	0
	UG	1	3	4	1	1	10
	MS	0	0	0	0	0	0
	EX	0	0	1	1	0	2
	Total	1	3	5	2	1	12
Over-all Study	SS	0	2	1	3	2	8
	UG	1	4	15	15	6	41
	MS	0	0	2	1	2	5
	EX	0	0	3	6	2	11
	Total	1	6	21	25	12	65

TABLE 69

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN INTERVIEWING

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	0	0	0	0
	UG	0	0	1	2	2	5
	MS	0	0	3	19	16	38
	EX	0	0	0	4	2	6
	Total	0	0	4	25	20	49
Medical Educator	SS	0	0	0	0	0	0
	UG	0	0	1	2	3	6
	MS	0	0	2	13	13	28
	GS	0	0	0	4	3	7
	EX	0	0	1	2	3	6
	Total	0	0	4	21	22	47
Medical Student	SS	0	0	0	1	1	2
	UG	0	0	2	2	0	4
	MS	0	2	4	9	8	23
	EX	0	0	1	0	2	3
	Total	0	2	7	12	11	32
Over-all Study	SS	0	0	0	1	1	2
	UG	0	0	4	6	5	15
	MS	0	2	9	41	37	89
	GS	0	0	0	4	3	7
	EX	0	0	2	6	7	15
	Total	0	2	15	58	53	128

TABLE 70

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN ORGANIZATIONAL COMMUNICATION

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	0	0	0	0
	UG	0	0	0	0	1	1
	MS	0	0	0	0	2	2
	EX	0	0	2	1	1	4
	Total	0	0	2	1	4	7
Medical Educator	SS	0	0	0	0	1	1
	UG	0	0	0	2	1	3
	MS	0	0	1	0	0	1
	GS	0	0	0	1	0	1
	EX	0	0	0	3	1	4
	Total	0	0	1	6	3	10
Medical Student	SS	0	0	0	0	0	0
	UG	0	0	0	3	0	3
	MS	0	0	1	3	0	4
	EX	0	2	0	0	2	4
	Total	0	2	1	6	2	11
Over-all Study	SS	0	0	0	0	1	1
	UG	0	0	0	5	2	7
	MS	0	0	2	3	2	7
	GS	0	0	0	1	0	1
	EX	0	2	2	4	4	12
	Total	0	2	4	13	9	28

TABLE 71

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN GENERAL SEMANTICS

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	1	4	3	8
	UG	0	0	3	4	3	10
	MS	0	0	0	2	4	6
	EX	0	0	0	3	2	5
	Total	0	0	4	13	12	29
Medical Educator	SS	0	0	1	1	1	3
	UG	0	0	5	8	1	14
	MS	0	0	0	1	0	1
	GS	0	0	0	1	0	1
	EX	0	0	1	4	2	7
	Total	0	0	7	15	4	26
Medical Student	SS	0	0	5	0	2	7
	UG	0	0	4	3	1	8
	MS	0	0	0	0	0	0
	EX	0	0	0	1	0	1
	Total	0	0	9	4	3	16
Over-all Study	SS	0	0	7	5	6	18
	UG	0	0	12	15	5	32
	MS	0	0	0	3	4	7
	GS	0	0	0	1	0	1
	EX	0	0	1	8	4	13
	Total	0	0	20	32	19	71

TABLE 72

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN DEBATE

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	1	4	13	6	4	28
	UG	0	2	3	2	2	9
	EX	0	0	1	0	2	3
	Total	1	6	17	8	8	40
Medical Educator	SS	0	3	8	8	7	26
	UG	0	1	3	9	2	15
	EX	0	0	0	0	1	1
	Total	0	4	11	17	10	42
Medical Student	SS	1	1	11	12	4	29
	UG	0	2	4	3	2	11
	EX	0	1	0	0	2	3
	Total	1	4	15	15	8	43
Over-all Study	SS	2	8	32	26	15	83
	UG	0	5	10	14	6	35
	EX	0	1	1	0	5	7
	Total	2	14	43	40	26	125

TABLE 73

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN GROUP DISCUSSION

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	2	1	3	6
	UG	0	0	5	6	4	15
	MS	0	0	4	5	5	14
	EX	0	0	4	8	4	16
	Total	0	0	15	20	16	51
Medical Educator	SS	0	0	1	2	0	3
	UG	0	1	1	5	4	11
	MS	0	1	2	9	4	16
	GS	0	0	0	1	4	5
	EX	0	0	3	6	8	17
	Total	0	2	7	23	20	52
Medical Student	SS	0	1	7	7	2	17
	UG	0	0	6	13	4	23
	MS	0	0	3	8	0	11
	EX	0	0	1	4	4	9
	Total	0	1	17	32	10	60
Over-all Study	SS	0	1	10	10	5	26
	UG	0	1	12	24	12	49
	MS	0	1	9	22	9	41
	GS	0	0	0	1	4	5
	EX	0	0	8	18	16	42
	Total	0	3	39	75	46	163

TABLE 74

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN LOGIC

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	2	1	1	4
	UG	1	3	22	17	2	45
	MS	0	0	0	1	0	1
	EX	0	0	0	2	1	3
	Total	1	3	24	21	4	53
Medical Educator	SS	0	0	2	2	2	6
	UG	4	8	10	12	9	43
	GS	0	0	1	0	0	1
	EX	0	0	0	2	1	3
	Total	4	8	13	16	12	53
Medical Student	SS	0	2	5	1	0	8
	UG	2	4	17	9	2	34
	MS	0	0	1	0	0	1
	EX	0	0	0	0	0	0
	Total	2	6	23	10	2	43
Over-all Study	SS	0	2	9	4	3	18
	UG	7	15	49	38	6	122
	MS	0	0	1	1	0	2
	GS	0	0	1	0	0	1
	EX	0	0	0	4	2	6
	Total	7	17	60	47	11	149

TABLE 75

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN ARGUMENTATION

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	0	0	0	0
	UG	0	0	0	2	0	2
	EX	0	0	1	2	0	3
	Total	0	0	1	4	0	5
Medical Educator	SS	0	0	2	3	1	6
	UG	0	0	1	2	0	3
	EX	0	0	0	2	0	2
	Total	0	0	3	7	1	11
Medical Student	SS	0	0	3	0	1	4
	UG	0	0	2	4	1	7
	EX	0	0	0	0	2	2
	Total	0	0	5	4	4	13
Over-all Study	SS	0	0	5	3	2	10
	UG	0	0	3	8	1	12
	EX	0	0	1	4	2	7
	Total	0	0	9	15	5	29

TABLE 76

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN HUMAN RELATIONS

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	2	1	1	4
	UG	0	0	13	9	3	25
	MS	0	0	2	4	3	9
	EX	0	0	0	3	4	7
	Total	0	0	17	17	11	45
Medical Educator	SS	0	0	0	1	0	1
	UG	0	1	2	4	3	10
	MS	0	0	0	2	2	4
	GS	0	0	0	1	2	3
	EX	0	0	1	2	5	8
	Total	0	1	3	10	12	26
Medical Student	SS	0	1	0	0	1	2
	UG	0	2	5	6	4	17
	MS	1	1	0	0	1	3
	EX	0	0	3	1	1	5
	Total	1	4	8	7	7	27
Over-all Study	SS	0	1	2	2	2	7
	UG	0	3	20	19	10	52
	MS	1	1	2	6	6	16
	GS	0	0	0	1	2	3
	EX	0	0	4	6	10	20
	Total	1	5	28	34	30	98

TABLE 77

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN PERSUASION

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	0	0	0	0
	UG	0	0	0	0	0	0
	MS	0	0	0	2	0	2
	EX	0	0	1	1	1	3
	Total	0	0	1	3	1	5
Medical Educator	SS	0	0	1	0	0	1
	UG	0	0	0	1	0	1
	MS	0	0	0	0	0	0
	EX	0	0	0	1	1	2
	Total	0	0	1	2	1	4
Medical Student	SS	0	0	1	2	0	3
	UG	0	2	0	3	0	5
	MS	0	0	0	0	0	0
	EX	0	0	0	0	1	1
	Total	0	2	1	5	1	9
Over-all Study	SS	0	0	2	2	0	4
	UG	0	2	0	4	0	6
	MS	0	0	0	2	0	2
	EX	0	0	1	2	3	6
	Total	0	2	3	10	3	18

TABLE 78

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN GROUP DYNAMICS

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	0	0	0	0
	UG	0	0	2	2	2	6
	MS	0	0	2	3	2	7
	EX	0	0	2	4	3	9
	Total	0	0	6	9	7	22
Medical Educator	SS	0	0	0	0	0	0
	UG	0	0	3	1	2	6
	MS	0	0	1	2	3	6
	GS	0	1	0	0	1	2
	EX	0	0	0	6	6	12
	Total	0	1	4	9	12	26
Medical Student	SS	0	0	1	0	0	1
	UG	0	1	2	5	2	10
	MS	0	0	2	2	0	4
	EX	0	0	2	0	1	3
	Total	0	1	7	7	3	18
Over-all Study	SS	0	0	1	0	0	1
	UG	0	1	7	8	6	22
	MS	0	0	5	7	5	17
	GS	0	1	0	0	1	2
	EX	0	0	4	10	10	24
	Total	0	2	17	25	22	66

TABLE 79

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN CONFERENCE LEADERSHIP

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	0	0	0	0
	UG	0	0	0	2	0	2
	MS	0	0	1	1	0	2
	EX	0	0	4	4	2	10
	Total	0	0	5	7	2	14
Medical Educator	SS	0	0	0	1	0	1
	UG	0	0	0	1	0	1
	MS	0	0	1	0	1	2
	GS	0	0	0	1	1	2
	EX	0	0	4	3	6	13
	Total	0	0	5	6	8	19
Medical Student	SS	0	0	2	1	1	4
	UG	0	1	3	1	0	5
	MS	0	0	2	0	0	2
	EX	0	2	4	1	1	8
	Total	0	3	11	3	2	19
Over-all Study	SS	0	0	2	2	1	5
	UG	0	1	3	4	0	8
	MS	0	0	4	1	1	6
	GS	0	0	0	1	1	2
	EX	0	2	12	8	9	31
	Total	0	3	21	16	12	52

TABLE 80

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN NONVERBAL COMMUNICATION

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	2	0	0	2
	UG	0	0	4	2	0	6
	MS	0	0	4	4	1	9
	EX	0	0	2	4	5	11
	Total	0	0	12	10	6	28
Medical Educator	SS	0	0	2	2	3	7
	UG	0	0	3	2	4	9
	MS	0	0	0	2	3	5
	GS	0	0	0	0	2	2
	EX	0	0	2	5	6	13
	Total	0	0	7	11	18	36
Medical Student	SS	0	0	2	3	0	5
	UG	0	0	2	4	1	7
	MS	0	0	0	2	1	3
	EX	0	0	2	1	5	8
	Total	0	0	6	10	7	23
Over-all Study	SS	0	0	6	5	3	14
	UG	0	0	9	8	5	22
	MS	0	0	4	8	5	17
	GS	0	0	0	0	2	2
	EX	0	0	6	10	16	32
	Total	0	0	25	31	31	87

TABLE 81

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN CASE ANALYSIS

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	0	0	0	0
	UG	0	1	1	0	0	2
	MS	0	0	6	18	7	31
	EX	0	0	1	1	1	3
	Total	0	1	8	19	8	36
Medical Educator	SS	0	0	0	0	0	0
	UG	0	0	0	1	1	2
	MS	0	0	3	10	10	23
	GS	0	0	0	1	1	2
	EX	0	0	0	0	4	4
	Total	0	0	3	12	16	31
Medical Student	SS	0	0	0	0	0	0
	UG	0	0	2	3	0	5
	MS	0	1	4	8	3	16
	EX	0	0	0	0	0	0
	Total	0	1	6	11	3	21
Over-all Study	SS	0	0	0	0	0	0
	UG	0	1	3	4	1	9
	MS	0	1	13	36	20	70
	GS	0	0	0	1	1	2
	EX	0	0	1	1	5	7
	Total	0	2	17	42	27	88

TABLE 82

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN FUNDAMENTALS OF SPEECH

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	3	15	16	3	37
	UG	0	3	25	26	4	58
	MS	0	0	0	0	0	0
	EX	0	0	2	0	0	2
	Total	0	6	42	42	7	97
Medical Educator	SS	0	0	3	9	0	12
	UG	0	1	11	18	3	33
	MS	0	0	0	1	0	1
	EX	0	0	0	3	1	4
	Total	0	1	14	31	4	50
Medical Student	SS	3	3	12	10	0	28
	UG	5	16	28	15	3	67
	MS	1	0	0	0	0	1
	EX	0	0	0	0	1	1
	Total	9	19	40	25	4	97
Over-all Study	SS	3	6	30	35	3	77
	UG	5	20	64	59	10	158
	MS	1	0	0	1	0	2
	EX	0	0	2	3	2	7
	Total	9	26	96	98	15	244

TABLE 83

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN READING OF TECHNICAL PAPERS

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	UG	0	0	1	4	0	5
	MS	0	0	5	6	1	12
	GS	0	0	0	0	0	0
	EX	0	1	4	3	1	2
	Total	0	1	10	13	2	26
Medical Educator	UG	0	0	3	2	2	7
	MS	0	0	2	4	9	15
	GS	0	0	0	1	0	1
	EX	1	0	1	7	8	17
	Total	1	0	6	14	19	40
Medical Student	UG	0	0	5	4	2	11
	MS	0	2	2	6	2	12
	GS	0	0	0	0	0	0
	EX	0	0	2	2	0	4
	Total	0	2	9	12	4	27
Over-all Study	UG	0	0	9	10	4	23
	MS	0	2	9	16	12	39
	GS	0	0	0	1	0	1
	EX	1	1	7	12	9	30
	Total	1	3	25	39	25	93

TABLE 84

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN SENSITIVITY TRAINING

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	UG	0	0	0	0	0	0
	MS	0	0	0	0	1	1
	GS	0	0	0	0	0	0
	EX	1	1	2	6	4	14
	Total	1	1	2	6	5	15
Medical Educator	UG	0	0	0	0	0	0
	MS	0	0	0	0	1	1
	GS	0	0	1	1	0	2
	EX	0	0	2	5	5	12
	Total	0	0	3	6	6	15
Medical Student	UG	1	0	2	1	3	7
	MS	0	1	3	2	2	8
	GS	0	0	0	0	0	0
	EX	1	1	2	2	1	7
	Total	2	2	7	5	6	22
Over-all Study	UG	1	0	2	1	3	7
	MS	0	1	3	2	4	10
	GS	0	0	1	1	0	2
	EX	2	2	6	13	10	33
	Total	3	3	12	17	17	52

TABLE 85

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN LISTENING IMPROVMENT

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	SS	0	0	0	0	0	0
	UG	0	0	0	0	0	0
	MS	0	0	1	3	0	4
	EX	0	0	2	4	2	8
	Total	0	0	3	7	2	12
Medical Educator	SS	0	0	0	0	0	0
	UG	0	0	0	0	0	0
	MS	0	0	0	0	0	0
	EX	0	0	1	4	3	8
	Total	0	0	1	4	3	8
Medical Student	SS	0	0	0	1	0	1
	UG	0	0	1	0	1	2
	MS	0	0	1	0	0	1
	EX	0	0	0	1	2	3
	Total	0	0	2	2	3	7
Over-all Study	SS	0	0	0	1	0	1
	UG	0	0	1	0	1	2
	MS	0	0	2	3	0	5
	EX	0	0	3	9	7	19
	Total	0	0	6	13	8	27

TABLE 86

REPORTED INCIDENCE, LOCUS, AND EVALUATION OF COURSE WORK IN MEDICAL HISTORY TAKING

Test Samples	Course Level	EVALUATION					
		CWT	LVM	SVM	QVM	EVM	Total
Medical Practitioner	MS	0	1	6	46	55	108
	EX	0	0	0	1	1	2
	Total	0	1	6	47	56	110
Medical Educator	MS	0	0	6	29	36	71
	EX	0	0	0	1	3	4
	Total	0	0	6	30	39	75
Medical Student	MS	0	4	15	36	30	85
	EX	0	0	0	1	1	2
	Total	0	4	15	37	31	87
Over-all Study	MS	0	5	27	111	121	264
	EX	0	0	0	3	5	8
	Total	0	5	27	114	126	272

TABLE 87

RECAPITULATION OF INCIDENCE AND LOCUS OF COURSES TAKEN

	MED. PRAC.						MED. EDUC.						MED. STUD.						TOTAL STUDY					
	SS	UG	GS	MS	EX	TOT	SS	UG	GS	MS	EX	TOT	SS	UG	GS	MS	EX	TOT	SS	UG	GS	MS	EX	TOT
Public Address	27	58	0	1	10	96	29	46	0	1	10	86	32	50	0	2	6	90	88	154	0	4	26	272
Interpersonal Communi.	2	8	0	7	9	26	0	8	3	10	11	32	2	9	0	4	4	19	4	25	3	21	24	77
Business and Prof. Sp.	3	17	0	3	5	28	5	14	0	2	4	25	0	10	0	0	2	12	8	41	0	5	11	65
Interviewing	0	5	0	38	6	49	0	6	7	28	6	47	2	4	0	23	3	32	2	15	7	89	15	128
Organizational Communi.	0	1	0	2	4	7	1	3	1	1	4	10	0	3	0	4	4	11	1	7	1	7	12	28
General Semantics	8	10	0	6	5	29	3	14	1	1	7	26	7	8	0	0	1	16	18	32	1	7	13	71
Debate	28	9	0	0	3	40	26	15	0	0	1	42	29	11	0	0	3	43	83	35	0	0	7	125
Group Discussion	6	15	0	14	16	51	3	11	5	16	17	52	17	23	0	11	9	60	26	49	5	41	5	163
Logic	4	45	0	1	3	53	6	43	1	0	3	53	8	34	0	1	0	43	18	122	1	2	6	149
Argumentation	0	2	0	0	3	5	6	3	0	0	2	11	4	7	0	0	2	13	10	12	0	0	7	29
Human Relations	4	25	0	9	7	45	1	10	3	4	8	26	2	17	0	3	5	27	7	52	3	16	20	98
Persuasion	0	0	0	2	3	5	1	1	0	0	2	4	3	5	0	0	1	9	4	6	0	2	6	18
Group Dynamics	0	6	0	7	9	22	0	6	2	6	12	26	1	10	0	4	3	18	1	22	2	17	2	66
Conference Leadership	0	2	0	2	10	14	1	1	2	2	13	19	4	5	0	2	8	19	5	8	2	6	31	52
Nonverbal Communication	2	6	0	9	11	28	7	9	2	5	13	36	5	7	0	3	8	23	14	22	2	17	32	87
Case Analysis	0	2	0	31	3	36	0	2	2	23	4	31	0	5	0	16	0	21	0	9	2	70	7	88
Fundamentals of Speech	37	58	0	0	2	97	12	33	0	1	4	50	28	67	0	1	1	97	77	158	0	2	7	244
Reading of Tech. Papers	0	5	0	12	9	26	0	7	1	15	17	40	0	11	0	12	4	27	0	23	1	39	30	93
Sensitivity Training	0	0	0	1	14	15	0	0	2	1	12	15	0	7	0	8	7	22	0	7	2	10	33	52
Listening Improve. Tr.	0	0	0	4	8	12	0	0	0	0	8	8	1	2	0	1	3	7	1	2	0	5	19	27
Medical History Taking	0	0	0	108	2	110	0	0	0	71	4	75	0	0	0	85	2	87	0	0	0	264	8	272

TABLE 88

REPORTS OF OTHER THAN SINGLE INCIDENCES OF COURSES TAKEN

COURSE	MED. PRAC.				MED. EDUC.				MED. STUD.				TOTAL STUDY			
	# OF TIMES TAKEN				# OF TIMES TAKEN				# OF TIMES TAKEN				# OF TIMES TAKEN			
	0	2	3	4	0	2	3	4	0	2	3	4	0	2	3	4
Public Address	50	11	3	0	44	6	2	0	29	10	5	0	123	27	10	0
Interpersonal Communi.	106	1	1	0	89	1	0	0	81	1	0	0	276	3	1	0
Bus and Prof. Sp.	104	1	1	0	96	1	0	0	87	0	0	0	287	2	1	0
Interviewing	84	2	1	0	76	3	0	0	69	0	1	0	229	5	2	0
Organizational Communi.	122	0	0	0	110	0	0	0	88	0	0	0	320	0	0	0
General Semantics	112	3	0	3	95	1	0	0	85	2	0	0	292	6	0	3
Debate	93	2	1	0	85	5	1	0	62	2	2	0	240	9	4	0
Group Discussion	93	4	4	1	77	7	1	0	60	6	6	1	230	17	11	2
Logic	79	3	0	0	68	1	0	0	58	2	0	0	205	6	0	0
Argumentation	124	0	0	0	109	0	0	0	88	2	0	0	321	2	0	0
Human Relations	93	2	2	1	96	2	0	0	73	1	0	0	262	5	2	1
Persuasion	125	1	0	0	116	0	0	0	91	1	0	0	332	2	0	0
Group Dynamics	109	2	0	0	96	2	0	0	83	2	0	0	288	6	0	0
Conference Leadership	117	2	0	0	102	1	0	0	81	1	0	0	300	4	0	0
Nonverbal Communication	103	2	0	0	93	7	1	0	83	5	1	0	279	14	2	0
Case Analysis	94	1	0	0	91	2	0	0	79	1	0	0	264	4	0	0
Fundamentals of Speech	46	14	0	0	76	4	1	0	20	18	0	0	142	36	1	0
Reading of Tech. Papers	110	5	1	0	86	4	1	0	77	5	0	0	273	14	2	0
Sensitivity Training	114	0	0	0	107	2	0	0	83	4	1	0	304	6	1	0
Listening Improve. Tr.	118	1	0	0	112	0	0	0	92	0	0	0	322	1	0	0
Medical History Taking	21	2	0	0	47	2	0	0	12	0	0	0	80	4	0	0

TABLE 89

RECAPITULATIONS OF COURSE EVALUATIONS

COURSE	MED. PRAC.					MED. EDUC.					MED. STUD.					TOTAL STUDY				
	CWT	LVM	SVM	QVM	EVM	CWT	LVM	SVM	QVM	EVM	CWT	LVM	SVM	QVM	EVM	CWT	LVM	SVM	QVM	EVM
Public Address	1	4	39	39	13	0	8	28	33	17	3	13	37	26	11	4	25	104	98	41
Interpersonal Communi.	0	0	5	8	13	0	0	5	14	13	0	0	5	5	6	0	3	15	27	32
Business & Prof. Sp.	0	0	8	12	8	0	3	8	11	3	1	3	5	2	1	1	6	21	25	12
Interviewing	0	0	4	25	20	0	0	4	21	22	0	2	7	12	11	0	2	15	58	53
Organizational Comm.	0	0	2	1	4	0	0	1	6	3	0	2	1	6	2	0	2	4	13	9
General Semantics	0	0	4	13	12	0	0	7	15	4	0	0	9	4	3	0	0	20	32	19
Debate	1	6	17	8	8	0	4	11	17	10	1	4	15	15	8	2	14	43	40	26
Group Discussion	0	0	15	20	16	0	2	7	23	20	0	1	17	32	10	0	3	39	75	46
Logic	1	3	21	24	4	4	8	13	16	12	2	6	23	10	2	7	17	60	47	11
Argumentation	0	0	1	4	0	0	0	3	7	1	0	0	5	4	4	0	0	9	15	5
Human Relations	0	0	17	17	11	0	1	3	10	12	1	4	8	7	7	1	5	28	34	30
Persuasion	0	0	1	3	1	0	0	1	2	1	0	2	1	5	1	0	2	3	10	3
Group Dynamics	0	0	6	9	7	0	1	4	9	12	0	1	7	7	3	0	2	17	25	22
Conf. Leadership	0	0	5	7	2	0	0	5	6	8	0	3	11	3	2	0	3	21	16	12
Nonverbal Communi.	0	0	12	10	6	0	0	7	11	18	0	0	6	10	7	0	0	25	31	31
Case Analysis	0	1	8	19	8	0	0	3	12	16	0	1	6	11	3	0	2	17	42	27
Fundamentals of Sp.	0	6	42	42	7	0	1	14	31	4	9	19	40	25	4	9	26	96	98	15
Read. Tech. Papers	0	1	10	13	2	1	0	6	14	19	0	2	9	12	4	1	3	25	39	25
Sensitivity Train.	1	1	2	6	5	0	0	3	6	6	2	2	7	5	6	3	3	12	17	17
Listening Improve.	0	0	3	7	2	0	0	1	4	3	0	0	2	2	3	0	0	6	13	8
Med. History Taking	0	1	6	47	56	0	0	6	30	39	0	4	15	37	31	0	5	27	114	126

An additional blank line was left following the list of communication oriented course offerings. No instructions were given, but the following "write-in" responses were volunteered:

Medical Practitioners

"Extemporaneous Speaking" coded "UG" and "EVM."

Medical Educators

"Semantic Presentations" coded "MS" and "EVM."
"Case Presentations" coded "MS" and "EVM."
"Research Reports" coded "MS" and "EVM."
"Teaching" coded "MS" and "EVM."

"Methods of Instruction" coded "EX" and "EVM."

"Seminar Preparation" coded "MS," "EX," and "QVM."

Medical Students

"Fellowship group at church - combination of honesty, caring, sharing, and praying group" coded "EX" and "EVM."

"Physical Diagnosis" coded "MS" and "EVM."

"Religous [sic] counseling" coded "UG" and "QVM."

As has been the policy in similar presentations in this report, the preceding quotations have been copied with careful precision in transcription and without editing.

Responses to Request for Recommendations

The following instructions constituted an open ended invitation to respond in a less structured manner than had been prescribed for the preceding portions of the questionnaire:

> Please indicate in some detail, using the reverse sides of questionnaire forms if you wish, any recommendations you have for the development or improvement of communication training programs for medical and/or premedical students. Your inclusion of specific suggestions for course, content, format, or teaching methods will be appreciated. Please indicate any tests, films, tapes,

other audio or visual aids, etc. that might contribute to useful syllabi for such programs.

Two hundred and thirty-one of the responses received and used in this survey failed to respond to this invitation to contribute to the study in any way. The remaining 117 responses would be too voluminous to report ver batim. The only objective report that can be made, in a presentation chapter committed to an absence of analysis and interpretation, is the following tabulation of the comparative frequency of some form of response among the three Test Samples:

TABLE 90

ENUMERATION OF RESPONSES INCLUDING RECOMMENDATIONS

Test Sample	Total # of Responses Received	Responses Received With Some Entry Under "Recommendations" #	%
Medical Practitioners	129	44	34
Medical Educators	120	30	25
Medical Students	99	43	43
Over-all Study	348	117	34

Report of Personal Data Characteristics

Some of the "personal data" characteristics of those responding to the survey lend themselves readily to succinct presentation in tabular form.

TABLE 91

AGES OF RESPONDENTS AT TIME OF EXECUTION OF QUESTIONNAIRES

Test Sample	-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60+	N =
Medical Practitioner			1	12	41	46	19	10			129
Medical Educator			3	14	20	24	23	18	10	8	120
Medical Student		26	51	20	2						99
Over-all Study		26	55	46	63	70	42	28	10	8	348

TABLE 92

SEX OF RESPONDENTS

Test Sample	Female	Male	N =
Medical Practitioner	3	126	129
Medical Educator	11	109	120
Medical Student	5	94	99
Over-all Study	19	329	348

TABLE 93

GEOGRAPHIC LOCATION OF HIGH SCHOOLS ATTENDED BY RESPONDENTS

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Other Than U.S.	N =
Medical Practitioner	3	123	3		129
Medical Educator	19	79	11	11	120
Medical Student	2	96	1		99
Over-all Study	24	298	15	11	348

TABLE 94

GEOGRAPHIC LOCATION OF UNDERGRADUATE SCHOOLS ATTENDED BY RESPONDENTS

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Other Than U.S.	N =
Medical Practitioner	2	125	2		129
Medical Educator	13	88	15	4	120
Medical Student	3	89	7		99
Over-all Study	18	302	24	4	348

CHAPTER VI

ANALYSIS OF DATA

Overview

General

The data available for examination in this study consist of the responses received from the questionnaire survey of three discrete but related and medically oriented sub-populations. Structurally, the individual items of information solicited in the questionnaires can be separated into six separate classifications, videlicet:

1) Importance of generalized communication skills for physicians in modern medical practice.
2) Importance of communication competence for physicians in more specific and medically oriented situational applications.
3) Opinions about the effectiveness of formal programs or instruction in communication skills for future medical practitioners.
4) Identification and evaluation of formal instruction received in communication skills and related areas.
5) Recommendations for the development or improvement of communication training programs for medical and/or premedical students.

6) Age, sex, and other personal information descriptive of the individual respondents.

The information received in the initial four of these classifications was converted into a form suitable for limited statistical analysis. Responses to the open-ended invitation for recommendations for the development or improvement of communication training programs did not lend themselves to statistical treatment. They are reported in a cursory content analysis in expository form. Personal data received in the survey was used only to develop profiles of typical respondents and to provide bases for comparative analyses of data received from the first four sections of the questionnaires.

Description of Basic Format

The examination and analysis of the information received in this survey will be presented in this order:

1) A descriptive profile of the individual characteristics of theoretically typical respondents from each of the sub-populations examined and from the over-all study.
2) Individual and composite analyses of the responses to questions from each of the first four sections of the questionnaire for each of the three sub-populations and for the over-all study.
3) Comparative analyses of the same data between the responses supplied by Medical Practitioner and Medical Educator, Medical Practitioner and Medical Student, and Medical Educator and Medical Student Test Samples and among the variables available from "personal data" information received.

4) A brief expository review of responses received to the invitation to submit "Recommendations."

Description of Basic Statistical Procedures

Conversion of Raw Data to Numerical Form.--All evaluative information sought in the survey was solicited by asking respondents to circle coded options on the questionnaire form[1] indicating positions on a five point scale, or continuum, which best reflected their attitudes, thoughts, or opinions about each of the statements or questions. Numerical values were assigned arbitrarily to each of these options in this manner.

NI = Not Important at All = 1
MI = Minimally Important = 2
SI = Somewhat Important = 3
QI = Quite Important = 4
EI = Extremely Important = 5

SA = Strongly Agree = 1
A = Agree = 2
U = Undecided = 3
D = Disagree = 4
SD = Strongly Disagree = 5

CWT = Complete Waste of My Time = 1
LVM = Of Little Value to Me = 2
SVM = Of Some Value to Me = 3
QVM = Quite Valuable to Me = 4
EVM = Extremely Valuable to Me = 5

Description of Basic Statistical Procedures.--Two basic statistical procedures are used extensively in the analysis of data in this study. They are:

1) The conventional calculation of the arithmetic mean as a measurement of central tendency, and

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[1]See Appendix A, pp. 274-285, for sample copies of these forms.

2) The application of chi-square tests in contingency tables[2] as a form of comparative analysis of frequency distribution.

Rationale for Statistical Procedures Employed.--The use of relatively unsophisticated statistical procedures for the measurements of central tendency and divergence from null, or independence, hypothesis is justified by the inherent simplicity and lack of precision of the scaling devices used in the quantification of the data received in the survey. Admittedly such evaluative terms as minimally, somewhat, quite, extremely, strongly, little, and some leave much to be desired because the differences among the distinctions between them vary both situationally and idiosyncratically.

In the absence of known instruments characterized by better standardization and validation, however, these scaling devices were employed in the belief that they were capable of providing gross, but meaningful, measurements of the attitudes and opinions of those responding to this survey. It would seem incongruous, in view of the admitted lack of precision in quantification, to attempt to apply more complex and sophisticated statistical procedures to the analysis of the data received in this study.

Profiles of Theoretically Typical Respondents

Conventional methods of measuring central tendencies were applied to known personal characteristics data to develop profiles that most probably would be descriptive of the theoretically typical respondent from each of the test samples.

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[2]See Appendix 1, pp. 310-312, for formula and sample calculations.

Typical Medical Practitioner Respondent

The typical respondent from this group was male, 41 years old, attended high school in the state of Kansas, and received a Bachelor of Arts degree from The University of Kansas with an undergraduate major in Chemistry. The reception of his M.D. degree from The University of Kansas was a selection criterion. The median among these respondents received this degree in 1956 and reported one board certification, probably in Internal Medicine. He was actively engaged in the private practice of medicine in the Greater Kansas City metropolitan area, probably in either General Medicine or a specialization in Internal Medicine.

Typical Medical Educator Respondent

These characteristics have the greatest probability of describing a typical respondent from the Medical Educator Test Sample. He was male and was 46 years old at the time of his response in the summer of 1971. He attended high school in the state of Kansas and received a Bachelor of Arts degree from The University of Kansas with an undergraduate major in chemistry. The probability of his credentials including an earned doctorate were absolute (P = 1.0), and the probability that this doctorate was in medicine proved to be .58. The median year for the reception of an initial doctoral degree was 1954. The typical respondent from this group reported one board certification, probably in Internal Medicine, held the academic rank of Full Professor in the Department of Medicine, and was in his eleventh year as a member of the faculty of the School of Medicine at The University of Kansas.

Typical Medical Student Respondent

Less information is known about the typical respondent from this group, but these observations can be made:

The typical respondent from this group was male, was 22 years old, and a fourth year student in the core curriculum at the time of the execution of this questionnaire. He attended high school in the state of Kansas and received a Bachelor of Arts degree from The University of Kansas with an undergraduate major in Chemistry. He plans to enter Family Practice.

Individual and Composite Analyses of Responses

Attitudes Toward Importance of Communication Skills

The preceding chapter presented the frequency and distribution of responses to eleven questions seeking to determine attitudes about the importance, in medical practice, of communication skills expressed as abstract concepts.[3] The conversion of these data into numerical form[4] permits the individual and composite analysis of the responses to questions in this section in terms of arithmetic means and rank orders of indicated importance. Thus they might be thought of as the responses of the theoretically typical subjects previously described.

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[3]See Appendix M, pp. 363-370, for a tabular presentation of these data.

[4]Using the formula:
NI = Not Important at All = 1
MI = Minimally Important = 2
SI = Somewhat Important = 3
QI = Quite Important = 4
EI = Extremely Important = 5

TABLE 95

ARITHMETIC MEANS OF RESPONSES TO QUESTIONS ABOUT GENERALIZED IMPORTANCE OF COMMUNICATION SKILLS

#	Question	Arithmetic Mean for			
		Med. Prac.	Med Educ.	Med. Stud.	Total Study
1	Public Address	3.48	3.15	3.14	3.27
2	Oral Reading of Manuscripts	3.06	2.91	2.45	2.83
3	Radio and TV Performance	2.47	2.31	2.04	2.29
4	Group Participation	3.85	3.78	3.68	3.78
5	Group Leadership	3.94	3.69	3.85	3.83
6	Face-to-Face Interpersonal Communication	4.87	4.72	4.80	4.80
7	Indirect (Telephone, e.g.) Interpersonal Communication	4.40	4.26	4.18	4.29
8	Nonverbal Communication	3.90	3.75	4.08	3.90
9	Interviewing	4 30	4.41	4.61	4.43
10	Listening	4.79	4.71	4.80	4.77
11	Analysis of Language	3.62	3.46	3.45	3.52
	Composite	3.88	3.74	3.73	3.79

TABLE 96

RANK ORDERS OF INDICATED IMPORTANCE OF GENERALIZED COMMUNICATION SKILLS

Rank Order for Total Study	Item #	Generalized Communication Skill	Rank Order By Sub-Populations		
			Med. Prac.	Med. Educ.	Med. Stud.
1	6	Face-to-Face Interpersonal Comm.	1	1	1.5
2	10	Listening	2	2	1.5
3	9	Interviewing	4	3	3
4	7	Indirect (Tel., e.g.) Interper. C.	3	4	4
5	8	Nonverbal Communication	6	6	5
6	5	Group Leadership	5	7	6
7	4	Group Participation	7	5	7
8	11	Analysis of Language	8	8	8
9	1	Public Address	9	9	9
10	2	Oral Reading of Manuscripts	10	10	10
11	3	Radio and TV Performance	11	11	11

TABLE 97

COEFFICIENTS OF CORRELATIONS OF RESPONSES TO QUESTIONS ABOUT IMPORTANCE OF GENERALIZED COMMUNICATION SKILLS

Test Samples	Correlation Coefficient
Medical Practitioner and Medical Educator	0.95
Medical Practitioner and Medical Student	0.98
Medical Educator and Medical Student	0.97
Medical Practitioner and Total Study	0.98
Medical Educator and Total Study	0.98
Medical Student and Total Study	0.99

Attitudes Toward the Importance of Communication Competence In Medically Oriented Situational Applications

Frequency and distribution response data also were presented in the preceding chapter for 19 questions seeking information about attitudes toward the importance of communication competence for physicians in more specific and medically oriented situational applications.[5]

[5]Appendix N, pp. 372-374 , for a tabular presentation of these data.

TABLE 98

ARITHMETIC MEANS OF RESPONSES TO QUESTIONS ABOUT THE IMPORTANCE OF COMMUNICATION SKILLS IN MEDICALLY ORIENTED SITUATIONAL APPLICATIONS

#	Question	Arithmetic Mean for			
		Med. Prac.	Med. Educ.	Med. Stud.	Total Study
12	Eliciting and receiving information from patients	4.86	4.87	4.87	4.87
13	Giving instructions to patients	4.77	4.79	4.75	4.77
14	Securing patients' confidence and rapport	4.75	4.77	4.67	4.73
15	Therapeutic and inspirational communication with patients	4.48	4.42	4.31	4.41
16	Receiving information from nurses	4.30	4.33	4.19	4.28
17	Informing and instructing nurses	4.41	4.48	4.24	4.38
18	Providing information to other doctors	4.44	4.44	4.29	4.39
19	Securing information from other doctors	4.35	4.43	4.23	4.34
20	Instructing paramedical and other personnel	4.25	4.30	4.10	4.22
21	Receiving information from paramedical and other personnel	4.07	4.20	4.01	4.10
22	Advising patients of terminal prognoses	4.23	4.30	4.34	4.29
23	Medical team participation	4.05	4.21	4.16	4.15
24	Medical team leadership and direction	3.97	4.13	4.15	4.08
25	Medical team organization, development, and training	3.86	3.89	3.88	3.88
26	Evaluating medical team performance	3.75	3.77	3.50	3.68
27	Administering the affairs of a medical office	4.02	3.55	3.48	3.70

TABLE 98--Continued

#	Question	Arithmetic Mean for			
		Med. Prac.	Med. Educ.	Med. Stud.	Total Study
28	Advising and consulting with families and friends of patients	4.09	4.11	3.90	4.04
29	Providing expert testimony in court	3.43	3.45	3.31	3.40
30	Presenting technical papers and reports to learned societies	3.30	3.50	2.91	3.26
	Composite	4.18	4.21	4.07	4.16

TABLE 99

RANK ORDER OF INDICATED IMPORTANCE OF COMMUNICATION SKILLS IN MEDICALLY ORIENTED SITUATIONAL APPLICATIONS

Rank Order for Total Study	Item #	Medically Oriented Situational Applications of Communication Skills	Rank Order By Sub-Populations		
			Med. Prac.	Med. Educ.	Med. Stud.
1	12	Eliciting and receiving information from patients	1	1	1
2	13	Giving instructions to patients	2	2	2
3	14	Securing patients' confidence and rapport	3	3	3
4	15	Therapeutic and inspirational communication with patients	4	7	5
5	18	Providing information to other doctors	5	5	6
6	17	Informing and instructing nurses	6	4	7
7	19	Securing information from otner doctors	7	6	8

TABLE 99--Continued

Rank Order for Total Study	Item #	Medically Oriented Situational Applications of Communication Skills	Rank Order By Sub-Populations		
			Med. Prac.	Med. Educ.	Med. Stud.
8	22	Advising patients of terminal prognoses	10	9.5	4
9	16	Receiving information from nurses	8	8	9
10	20	Instructing paramedical and other personnel	9	9.5	12
11	23	Medical team participation	13	11	10
12	21	Receiving information from paramedical and other personnel	12	12	13
13	24	Medical team leadership and direction	15	13	11
14	28	Advising and consulting with families and friends of patients	11	14	14
15	25	Medical team organization, development, and training	16	15	15
16	26	Evaluating medical team performance	17	16	16
17	27	Administering the affairs of a medical office	14	17	17
18	29	Providing expert testimony in court	18	19	18
19	30	Presenting technical papers and reports to learned societies	19	18	19

TABLE 100

COEFFICIENTS OF CORRELATIONS OF RESPONSES TO QUESTIONS ABOUT IMPORTANCE OF COMMUNICATION SKILLS IN MEDICALLY ORIENTED SITUATIONAL APPLICATIONS

Test Samples	Correlation Coefficient
Medical Practitioner and Medical Educator	0.96
Medical Practitioner and Medical Student	0.92
Medical Educator and Medical Student	0.94
Medical Practitioner and Total Study	0.97
Medical Educator and Total Study	0.97
Medical Student and Total Study	0.97

Opinions About the Feasibility of Formal Programs of Instruction In Communication Skills for Future Medical Practitioners

Seven statements about the effectiveness of formal programs of instruction in communication skills were included in this section.[6] The respondents indicated their degree of agreement with these statements. These responses do not lend themselves to composite analysis because of the variety of the structure and phrasing of the statements and the lack of uniform direction in the five point scale provided for the indication of responses. They are appropriate, however, for meaningful analysis on an individual basis.[7]

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[6] See Appendix M, pp. 363-370, for a tabular presentation of these data.

[7] Note, however, a shift in evaluative codes to the formula

SA = Strongly agree = 1
A = Agree = 2
U = Undecided = 3
D = Disagree = 4
SD = Strongly Disagree = 5

TABLE 101

ARITHMETIC MEANS OF RESPONSES TO INQUIRIES ABOUT THE FEASIBILITY OF FORMAL PROGRAMS OF INSTRUCTION IN COMMUNICATION SKILLS

#	Statement	Arithmetic Mean for			
		Med. Prac.	Med Educ.	Med. Stud.	Total Study
31	Formal instruction in communication skills is a complete waste of time.	4.16	4.01	3.69	3.97
32	These skills can only be acquired in actual medical practice.	3.78	3.76	3.45	3.68
33	Such training can best be accomplished in extracurricular and nonacademic programs	3.32	3.42	3.07	3.28
34	Such training can best be accomplished in secondary and undergraduate schools.	2.85	2.91	2.82	2.86
35	Instruction in communication skills should be integrated with existing medical school courses.	2.17	2.26	2.76	2.37
36	These skills can best be developed in discrete courses specifically geared to the needs of medical practice.	2.59	2.72	2.95	2.74
37	Communication skills training should be emphasized in post-graduate and continuing medical education.	2.24	2.26	2.64	2.36

Identification and Evaluation of Communication Training

Many of the data received from inquiries in this section are self-explanatory in the form in which they were presented in the preceding chapter They are viewed here, however, from somewhat different perspectives.

TABLE 102

REPORTED INCIDENCE OF COURSES TAKEN

# of Courses Taken	Medical Practitioners	Medical Educators	Medical Students	Total Study
0	8	12	0	20
1	8	11	3	22
2	18	9	10	37
3	20	15	13	48
4	12	12	13	37
5	13	13	14	40
6	12	8	11	31
7	10	9	6	25
8	5	10	8	23
9	6	3	6	15
10	5	1	1	7
11	5	2	7	14
12	3	2	5	10
13	3	2	1	6
14	0	6	1	7
15	1	0	3	4
16	2	1	1	4
17	2	2	0	4
18	2	1	0	3
19	0	1	0	1
20	0	1	1	2
21	1	0	1	2
26	2	0	0	2
35	1	0	0	1
39	0	1	0	1
Total	810	711	694	2215
Per Respondent	6.3	5.9	7.0	6.4

TABLE 103

DISTRIBUTION OF COURSES TAKEN BY ACADEMIC LEVELS

Course	SS	UG	MS	GS	EX	Total
Public Address	88	154	4	0	26	272
Interpersonal Communication	4	25	21	3	24	77
Business and Professional Speech	8	41	5	0	11	65
Interviewing	2	15	89	7	15	128
Organizational Communication	1	7	7	1	12	28
General Semantics	18	32	7	1	13	71
Debate	83	35	0	0	7	125
Group Discussion	26	49	41	5	42	163
Logic	18	122	2	1	6	149
Argumentation	10	12	0	0	7	29
Human Relations	7	52	16	3	20	98
Persuasion	4	6	2	0	6	18
Group Dynamics	1	22	17	2	24	66
Conference Leadership	5	8	6	2	31	52
Nonverbal Communication	14	22	17	2	32	87
Case Analysis	0	9	70	2	7	88
Fundamentals of Speech	77	158	2	0	7	244
Reading of Technical Papers	0	23	39	1	30	93
Sensitivity Training	0	7	10	2	33	52
Listening Improvement	1	2	5	0	19	27
Medical History Taking	0	0	264	0	8	272
Miscellaneous Write-in Courses	0	2	6	0	3	11
Total	367	803	630	32	383	2215

Evaluation of Courses Taken.--The arithmetic means, rank orders, and correlation coefficients of reported course evaluations were calculated by assigning numerical values to the rating scale as follows:

1 = CWT = Complete waste of my time.
2 = LVM = Of little value to me.
3 = SVM = Of some value to me.
4 = QVM = Quite valuable to me.
5 = EVM = Extremely valuable to me.[8]

TABLE 104

ARITHMETIC MEANS OF REPORTED COURSE EVALUATIONS

Course	Test Sample			
	Med. Prac.	Med. Educ.	Med. Stud.	Total Study
Public Address	3.62	3.68	3.32	3.54
Interpersonal Communication	4.33	4.25	3.71	4.14
Business and Professional Speech	4.00	3.56	2.92	3.63
Interviewing	4.33	4.38	4.00	4.27
Organizational Communication	4.29	4.20	3.64	4.04
General Semantics	3.93	3.88	3.63	3.99
Debate	3.40	3.79	3.58	3.59
Group Discussion	4.04	4.17	3.86	4.01
Logic	3.40	3.45	3.09	3.11
Argumentation	3.80	3.82	3.92	3.86
Human Relations	3.82	4.27	3.93	3.89
Persuasion	4.00	4.00	3.71	3.78
Group Dynamics	4.05	4.23	3.67	4.02

[8]See Appendix N, pp. 372-374, for a detailed presentation of data from which these calculations were derived.

TABLE 104--Continued

Course	Test Sample			
	Med. Prac.	Med. Educ.	Med. Stud.	Total Study
Conference Leadership	3.79	4.16	3.21	3.71
Nonverbal Communication	3.79	4.31	4.04	4.07
Case Analysis	3.94	4.42	3.76	4.07
Fundamentals of Speech	3.52	3.76	2.96	3.34
Reading of Technical Papers	3.62	4.25	3.67	3.90
Sensitivity Training	3.87	4.20	3.50	3.81
Listening Improvement	3.92	4.25	4.14	4.07
Medical History Taking	4.43	4.57	4.09	4.33
Composite	3.89	4.06	3.56	3.84

These courses can thus be ranked in descending order of reported value to the responding enrollee.

TABLE 105

RANK ORDER OF REPORTED COURSE EVALUATIONS

Rank Total Study	Course	Rank		
		Med. Prac.	Med. Educ.	Med. Stud.
1	Medical History Taking	1	1	2
2	Interviewing	2.5	3	4
3	Interpersonal Communication	2.5	7	9
5	Nonverbal Communication	15.5	4	3
5	Case Analysis	9	2	8
5	Listening Improvement	11	7	1
7	Organizational Communication	4	10.5	13
8	Group Dynamics	5	9	11.5
9	Group Discussion	6	12	7
10	General Semantics	10	15	14
11	Reading of Technical Papers	17.5	7	11.5
12	Human Relations	13	5	5
13	Argumentation	14	16	6
14	Sensitivity Training	12	10.5	16
15	Persuasion	7.5	14	10
16	Conference Leadership	15.5	13	18
17	Business and Professional Speech	7.5	20	21
18	Debate	20	17	15
19	Public Address	17.5	19	17
20	Fundamentals of Speech	19	18	20
21	Logic	21	21	19

TABLE 106

COEFFICIENTS OF CORRELATIONS OF REPORTED COURSE EVALUATIONS

Test Samples	Correlation Coefficient
Medical Practitioner and Medical Educator	0.52
Medical Practitioner and Medical Student	0.45
Medical Educator and Medical Student	0.79
Medical Practitioner and Total Study	0.75
Medical Educator and Total Study	0.87
Medical Student and Total Study	0.79

Another potentially meaningful analysis of these same data can be accomplished by examining their distribution by academic levels.

TABLE 107

REPORTED INCIDENCE AND EVALUATION OF COURSES BY ACADEMIC LEVELS

COURSE	SS		UG		GS		MS		EX		TOTAL STUDY	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
Public Address	88	3 48	154	3 49	0		4	3.50	26	4.46	272	3.54
Interpersonal Communication	4	3.00	25	4 04	3	4.33	21	4.19	24	4.46	77	4.14
Business and Professional Speech	8	3.63	41	3.51	0		5	4.00	11	3.91	65	3.63
Interviewing	2	4.50	15	4.07	7	4.43	89	4.29	15	4 33	128	4.27
Organizational Communication	1	5.00	7	3.57	1	4 00	7	4.00	12	3.83	28	4.04
General Semantics	18	3.94	32	3.78	1	4.00	7	4.57	12	4.23	71	3 99
Debate	83	3.53	35	3.60	0		0		7	4.29	125	3.59
Group Discussion	26	3.73	49	3.96	5	4.80	41	3.95	42	4.19	163	4.01
Logic	18	3.44	122	3.00	1	3.00	2	3.50	6	4.33	149	3.11
Argumentation	10	3.70	12	3.82	0		0		7	4.14	29	3.86
Human Relations	7	3.71	52	3.50	3	4.67	16	3.94	20	4.30	98	3.89
Persuasion	4	3.50	6	3.33	0		2	4.00	6	4.33	18	3.78
Group Dynamics	1	3.00	22	3.86	2	3.50	17	4.00	24	4.25	66	4.02

TABLE 107--Continued

COURSE	SS		UG		GS		MS		EX		TOTAL STUDY	
	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$
Conference Leadership	5	3.80	8	3.38	2	4.50	6	3.50	31	3.77	52	3.71
Nonverbal Communication	14	3.79	22	3.82	2	5.00	17	4.24	32	4.31	87	4.07
Case Analysis	0		9	3 71	2	4.50	70	4.07	7	4.57	88	4.07
Fundamentals of Speech	77	3.38	158	3.31	0		2	2.50	7	4 00	244	3.34
Reading of Technical Papers	0		23	3.78	1	4.00	39	3.97	30	3.90	93	3.90
Sensitivity Training	0		7	3.71	2	3.50	10	3.90	33	3.82	52	3.81
Listening Improvement	1	4.00	2	4.00	0		5	3.60	19	4.21	27	4.07
Medical History Taking	0		0		0		264	4.32	8	4.33	272	4.33
Composite	367	3.54	801	3.26	32	4.35	624	4.18	380	4.16	2204	3.83

This provides the information necessary for a rank order analysis of reported course evaluations on the basis of the academic level at which they were taken. This listing is presented here in descending order of indicated value to the enrollees reporting.

TABLE 108

RANK ORDER OF ACADEMIC LEVELS OF COMMUNICATION SKILLS TRAINING

Rank	Academic Level	Number of Courses Taken	Arithmetic Mean of Evaluations
1	Graduate School	32	4.35
2	Medical School	624	4.18
3	Extracurricular	380	4.16
4	Secondary School	367	3.54
5	Undergraduate School	801	3.26
	Composite	2,204	3.83

TABLE 109

RANK ORDER OF COMMUNICATION COURSES BY REPORTED INCIDENCES AND EVALUATIONS

Rank Order Of Incidence	Course	Rank Order Of Evaluation $\bar{X}$
1	Medical History Taking	1
2	Public Address	19
3	Fundamentals of Speech	20
4	Group Discussion	9
5	Interviewing	2
6	Logic	21
7	Debate	18
8	Human Relations	12
9	Reading of Technical Papers	11
10	Case Analysis	5
11	Nonverbal Communication	5
12	Interpersonal Communication	3
13	General Semantics	10
14	Group Dynamics	8
15	Business and Professional Speech	17
16	Sensitivity Training	14
17	Conference Leadership	16
18	Organizational Communication	7
19	Argumentation	13
20	Listening Improvement	5
21	Persuasion	15

The correlation coefficient of the rank orders based on reported incidences and evaluations of communication courses taken is not significant.

Comparative Analyses of Responses

Although some of the gross differences and close similarities among the data received from this survey can be observed from the examination of rank orders and central tendencies, the statistical significance of these relationships is not always overtly apparent. It is the purpose of this section of the report to effect a comparative analysis of differences among the responses received from subjects in the three discrete test samples of the study and to establish their degrees of statistical significance.

Basically this involves the testing of the independence, or null, hypothesis that there are no indicated differences between the responses received from different test samples to the same questions that could not reasonably be accounted for by chance. The chi-square formula for contingency tables, previously used in this report,[9] is the procedure employed in the calculation of these probabilities.

Attitudes Toward the Importance of Communication Skills

Responses received from the initial section of the questionnaire related to the attitudes of respondents toward the importance of communication skills for physicians. The responses received from each test sample are compared here with those received from each of the other two

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[9]See Appendix I, pp. 310-312.

test samples on an item-by-item basis.[10] Questions have been paraphrased from their abbreviated questionnaire form for ease of identification and comprehension.

Question #1.--What response best reflects your thinking about the importance of competence in Public Address for physicians in modern medical practice.

TABLE 110

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #1

Test Sample Responses Compared	Chi-square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	10.1510	4	0.05 > P > 0.02	Yes		
Med. Prac. with Med. Stud.	9.9363	4	0.05 > P > 0.02	Yes		
Med. Educ. with Med. Stud.	3.6870	4	0.50 > P > 0.30			
Total Study	11.7027	8	0.20 > P > 0.10			

[10] See Appendix M, pp.363-370, for a tabular presentation of frequencies and distributions of responses upon which these calculations were based.

Question #2 --What response best reflects your thinking about the importance of competence in the Oral Reading of Manuscripts for physicians in modern medical practice?

TABLE 111

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #2

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	2.1096	4	0.80 > P > 0.70			
Med. Prac. with Med. Stud.	21.2986	4	0.01 > P > 0.00	Yes	Yes	Yes
Med. Educ. with Med. Stud.	12.2313	4	0.02 > P > 0.01	Yes	Yes	
Total Study	4.1640	8	0.90 > P > 0.80			

Question #3.--What response best reflects your thinking about the importance of competence in Radio and TV Performance for physicians in modern medical practice?

TABLE 112

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #3

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0 02	0.01
Med. Prac. with Med. Educ.	2.7027	4	0.70 > P > 0.50			
Med. Prac. with Med. Stud.	17.0363	4	0.01 > P > 0.00	Yes	Yes	Yes
Med. Educ. with Med. Stud.	11.6940	4	0.02 > P > 0.01	Yes	Yes	
Total Study	10.5462	8	0.30 > P > 0.20			

Question #4.--What responses best reflects your thinking about the importance of competence in Group Participation for physicians in modern medical practice?

TABLE 113

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #4

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	7.8278	4	0.10 > P > 0.05			
Med. Prac. with Med. Stud.	4.1213	4	0.50 > P > 0.30			
Med. Educ. with Med. Stud.	5.2566	4	0.30 > P > 0.20			
Total Study	1.1079	8	1.00 > P > 0.95			

Question #5.--What response best reflects your thinking about the importance of competence in Group Leadership for physicians in modern medical practice?

TABLE 114

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #5

Test Sample Response Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.[a]	5.3076	4	0.30 > P > 0.20			
Med. Prac. with Med. Stud.	1.7790	4	0.80 > P > 0.70			
Med Educ.[a] with Med. Stud.	3.9663	4	0.50 > P > 0.30			
Total Study[a]	7.5659	8	0.50 > P > 0.30			

[a]The difference, significant at the 0.05 level, between the responses to this question from subjects in the original Regular and Reserve groups which were combined to create this test sample should be noted in connection with any analysis of these results. See Chapter IV, pp, 89-90, for a detailed development of this factor.

Question #6.--What response best reflects your thinking about the importance of competence in Face-to-Face Interpersonal Communication for physicians in modern medical practice?

TABLE 115

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #6

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	7.4379	4	0.20 > P > 0.10			
Med. Prac. with Med. Stud.	3.0662	4	0.70 > P > 0.50			
Med. Educ. with Med. Stud.	2.4281	4	0.70 > P > 0.50			
Total Study	2.6066	8	1.00 > P > 0.95			

Question #7.--What response best reflects your thinking about the importance of competence in Indirect (Telephone, e.g.) Interpersonal Communication for physicians in modern medical practice?

TABLE 116

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #7

Test Sample Responses Compared	Chi-Square(X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac.[b] with Med. Educ.[c]	6.1210	4	0.20 > P > 0.10			
Med. Prac.[b] with Med. Stud.	7.2319	4	0.20 > P > 0.10			
Med. Educ.[c] with Med. Stud.	0.7430	4	0.95 > P > 0.90			
Total Study[b,c]	6.4867	8	0.70 > P > 0.50			

[b]The significant difference, at the 0.05 level, between the responses to this question by subjects in the original Regular and Reserve groups combined to create this test sample should be taken into consideration in connection with this analysis. See Chapter IV, pp. 87-88, for a detailed development of this factor.

[c]The highly significant difference, at the 0.01 level, between the responses to this question by subjects from filled and unfilled cells combined to form the original Regular Test Sample for this sub-population should be taken into consideration in connection with this analysis. See Chapter IV, pp. 80-84, for a detailed development of this factor.

Question #8.--What response best reflects your thinking about the importance of competence in Nonverbal Communication for physicians in modern medical practice?

TABLE 117

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #8

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.[d]	3.6359	4	0.50 > P > 0.30			
Med. Prac. with Med. Stud.	2.1139	4	0.70 > P > 0.50			
Med. Educ.[d] with Med. Stud.	7.5197	4	0.20 > P > 0.10			
Total Study[d]	8.7943	8	0.50 > P > 0.30			

[d]The quite significant difference, at the 0.02 level, between the responses to this question by subjects from filled and unfilled cells combined to form the original Regular Test Sample for this subpopulation should be taken into consideration in connection with this analysis. See Chapter IV, pp. 80-84, for a detailed development of this factor.

Question #9.--What response best reflects your thinking about the importance of competence in Interviewing for physicians in modern medical practice?

TABLE 118

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #9

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0 05	0 02	0.01
Med. Prac. with Med. Educ.	4.3116	4	0.50 > P > 0.30			
Med. Prac. with Med. Stud.	8.9780	4	0.10 > P > 0.05			
Med. Educ. with Med. Stud.	9.6753	4	0.05 > P > 0 02	Yes		
Total Study	11.3102	8	0.20 > P > 0.10			

Question #10.--What response best reflects your thinking about the importance of competence in Listening for physicians in modern medical practice?

TABLE 119

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #10

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	2.5118	4	0.70 > P > 0.50			
Med. Prac. with Med. Stud.	0.1480	4	1.00 > P > 0.95			
Med. Educ. with Med. Stud.	2.1688	4	0.80 > P > 0.70			
Total Study	2.3037	8	1.00 > P > 0.95			

Question #11.--What response best reflects your thinking about the importance of competence in Analysis of Language for physicians in modern medical practice?

TABLE 120

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION # 11

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	4.4179	4	0.50 > P > 0.30			
Med. Prac. with Med. Stud.[e]	1.8828	4	0.80 > P > 0.70			
Med Educ. with Med. Stud.[e]	7.4338	4	0.20 > P > 0.10			
Total Study[e]	6.5613	8	0 70 > P > 0.50			

[e]The significant difference, at the 0.05 level, between the responses to this question by subjects in the original Regular and Reserve groups combined to create this test sample should be taken into consideration in connection with this analysis. See Chapter IV, pp. 91-93, for a detailed development of this factor.

Composite Comparative Analysis of Attitudes Toward the Importance of Communication Skills.--Using the arithmetic mean as a measure of central tendency permits a composite description of the differences between these sub-populations in their indicated attitudes toward the importance of communication competence for physicians in modern medical practice

TABLE 121

COMPOSITE COMPARATIVE ANALYSES OF QUESTIONS 1-11

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	5.5941	4	0.30 > P > 0.20			
Med. Prac. with Med. Stud.	7.1139	4	0.20 > P > 0.10			
Med. Educ. with Med. Stud.	6.0733	4	0.20 > P > 0.10			
Total Study	6.6500	8	0.70 > P > 0.50			

Attitudes Toward the Importance of Communication Competence in Medically Oriented Situational Applications

This section presents an item-by-item comparative analysis of the differences between and among the responses of the three test samples to each of the nineteen items inquiring about the importance of communication competence in specific and medically oriented situational applications. The source of basic data, the treatment of these data, and the method of presentation are essentially duplicative of those used in the preceding portion of this chapter.

Question #12.--What response best reflects your thinking about the importance of communication competence for physicians in eliciting and receiving information from patients?

TABLE 122

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #12

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	2.1745	4	0.80 > P > 0.70			
Med. Prac. with Med. Stud.	0.7795	4	0.95 > P > 0.90			
Med. Educ. with Med. Stud.	1.0579	4	0.95 > P > 0.90			
Total Study	1.7073	8	1.00 > P > 0.95			

Question #13.--What response best reflects your thinking about the importance of communication competence for physicians in giving instructions to patients?

TABLE 123

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #13

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ	0.9429	4	0.95 > P > 0.90			
Med. Prac. with Med. Stud.	1.2336	4	0.90 > P > 0.80			
Med. Educ. with Med. Stud.	2.5590	4	0.70 > P > 0.50			
Total Study	1.1500	8	1.00 > P > 0.95			

Question #14.--What response best reflects your thinking about the importance of communication competence in securing patients' confidence and rapport?

TABLE 124

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #14

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	1.7222	4	0.80 > P > 0.70			
Med. Prac. with Med. Stud.	1.9288	4	0.80 > P > 0.70			
Med. Educ. with Med. Stud.	5.1549	4	0.50 > P > 0.30			
Total Study	0.1839	8	1.00 > P > 0.95			

Question #15.--What response best reflects your thinking about the importance of communication competence for physicians in therapeutic and inspirational communication with patients?

TABLE 125

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #15

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.[f]	8.7709	4	0.10 > P > 0.05			
Med. Prac. with Med. Stud.	5.7040	4	0.30 > P > 0.20			
Med. Educ.[f] with Med. Stud.	6.5101	4	0.20 > P > 0.10			
Total Study[f]	6.2359	8	0.70 > P > 0.50			

[f] The significant difference, at the 0.05 level, between the responses received from the filled and unfilled cells combined to create this test sample should be taken into consideration with this analysis. See pp. 80-84.

Question #16.--What response best reflects your thinking about the importance of communication competence for physicians in receiving information from nurses?

TABLE 126

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #16

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	3.6828	4	0 50 > P > 0.30			
Med. Prac. with Med. Stud.	3.1890	4	0.70 > P > 0.50			
Med. Educ. with Med Stud.	4.7440	4	0.50 > P > 0.30			
Total Study	5.1932	8	0.80 > P > 0.70			

Question #17.--What response best reflects your thinking about the importance of communication competence for physicians in informing and instructing nurses?

TABLE 127

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #17

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	4.6524	4	0.50 > P > 0.30			
Med. Prac. with Med. Stud.	6.3519	4	0.20 > P > 0.10			
Med. Educ. with Med. Stud.	17.0125	4	0.01 > P > 0.00	Yes	Yes	Yes
Total Study	16.9259	8	0.05 > P > 0.02	Yes		

Question #18.--What response best reflects your thinking about the importance of communication competence for physicians in providing information to other doctors?

TABLE 128

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #18

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	2.0412	4	0.80 > P > 0.80			
Med. Prac. with Med. Stud.	7.9429	4	0.10 > P > 0.05			
Med. Educ. with Med. Stud.	6.9670	4	0.20 > P > 0.10			
Total Study	2.3164	8	1.00 > P > 0.95			

Question #19.--What response best reflects your thinking about the importance of communication competence for physicians in securing information from other doctors?

TABLE 129

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #19

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	2 9097	4	0.70 > P > 0.50			
Med. Prac. with Med. Stud.	5.0437	4	0.50 > P > 0.30			
Med. Educ. with Med. Stud.	7.1747	4	0.20 > P > 0.10			
Total Study	3.1656	8	0.95 > P > 0.90			

Question #20.--What response best reflects your thinking about the importance of communication competence for physicians in instructing paramedical and other personnel?

TABLE 130

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #20

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.[g]	3.1406	4	0.70 > P > 0.50			
Med. Prac. with Med. Stud.	3.6377	4	0.50 > P > 0.30			
Med. Educ.[g] with Med. Stud.	5.5902	4	0.30 > P > 0.20			
Total Study[g]	4.4700	8	0.90 > P > 0.80			

[g]The significant difference, at the 0.05 level, between the responses received from the filled and unfilled cells combined to create this test sample should be taken into consideration in connection with this analysis. See p. 81.

Question #21.--What response best reflects your thinking about the importance of communication competence for physicians in receiving information from paramedical and other personnel?

TABLE 131

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #21

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	6.9022	4	0.20 > P > 0.10			
Med. Prac. with Med. Stud.	1.9684	4	0.80 > P > 0.70			
Med. Educ. with Med. Stud.	4.8975	4	0.30 > P > 0.20			
Total Study	5.8687	8	0.80 > P > 0.70			

Question #22.--What response best reflects your thinking about the importance of communication competence for physicians in advising patients of terminal prognoses?

TABLE 132

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #22

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ	3.5209	4	0.50 > P > 0.30			
Med. Prac. with Med. Stud.	2.7481	4	0.70 > P > 0.50			
Med. Educ. with Med. Stud.	1.9086	4	0.80 > P > 0.70			
Total Study	3.6143	8	0190 > P > 0.80			

Question #23.--What response best reflects your thinking about the importance of communication competence for physicians in medical team participation?

TABLE 133

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #23

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac.[h] with Med. Educ.	6.6951	4	0.20 > P > 0.10			
Med. Prac.[h] with Med. Stud.	2.3642	4	0.70 > P > 0.50			
Med. Educ. with Med. Stud.	1.3890	4	0.90 > P > 0.80			
Total Study[h]	3.3854	8	0.95 > P > 0.90			

[h]The significant difference, at the 0.05 level, between the responses received from subjects in the original regular and reserve groups combined to create this test sample should be taken into consideration in connection with this analysis. See p. 88.

Question #24.--What response best reflects your thinking about the importance of communication competence for physicians in medical team leadership and direction?

TABLE 134

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #24

Test Sample Responses Compared	Chi-Square(X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac.[1] with Med. Educ.[J]	6.5450	4	0.20 > P > 0.10			
Med. Prac.[1] with Med Stud.	3.3025	4	0.70 > P > 0.50			
Med. Educ.[J] with Med. Stud.	4.3159	4	0.50 > P > 0.30			
Total Study[1,J]	9.0176	8	0.50 > P > 0.30			

[1]The significant difference, at the 0.02 level, between the responses received from subjects in the original Regular and Reserve groups combined to create this test sample should be taken into consideration in connection with this analysis. See p. 88.

[J]The significant difference, at the 0.02 level, between the responses received from the filled and unfilled cells combined to create this test sample should be taken into consideration in connection with this analysis. See pp. 82-84.

Question #25.--What response best reflects your thinking about the importance of communication competence for physicians in medical team organization, development, and training?

TABLE 135

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #25

Test Sample Responses Compared	Chi-Square(X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.[k]	1.8294	4	0.80 > P > 0.70			
Med. Prac. with Med. Stud.	4.7281	4	0.50 > P > 0.30			
Med. Educ.[k] with Med. Stud.	7.8518	4	0.10 > P > 0 05			
Total Study[k]	3.5047	8	0.90 > P > 0.80			

[k]The significant difference, at the 0 02 level, between the responses received from subjects in the filled and unfilled cells combined to create this test sample should be taken into consideration in connection with this analysis. See pp. 81-84.

Question #26.--What response best reflects your thinking about the importance of communication competence for physicians in evaluating medical team performance?

TABLE 136

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #26

Test Sample Responses Compared	Chi-Square(X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0 01
Med. Prac. with Med. Educ.	1.2534	4	0.90 > P > 0.80			
Med. Prac. with Med. Stud.[1]	5.8218	4	0.30 > P > 0.20			
Med. Educ. with Med. Stud.[1]	8 5513	4	0.10 > P > 0.05			
Total Study[1]	6.1867	8	0.70 > P > 0.50			

[1] The significant difference, at the 0.05 level, between the responses received from subjects in the original Regular and Reserve groups combined to create this test sample should be taken into consideration in connection with this analysis. See pp. 92-93.

Question #27 --What response best reflects your thinking about the importance of communication competence for physicians in administering the affiars of a medical office?

TABLE 137

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #27

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	16.4806	4	0.01 > P > 0.00	Yes	Yes	Yes
Med. Prac. with Med. Stud.	22.9174	4	0.01 > P > 0.00	Yes	Yes	Yes
Med. Educ. with Med. Stud.	3.1667	4	0.70 > P > 0.50			
Total Study	21.6203	8	0.01 > P > 0 00	Yes	Yes	Yes

Question #28.--What response best reflects your thinking about the importance of communication competence for physicians in advising and consulting with families and friends of patients?

TABLE 138

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #28

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0 01
Med. Prac. with Med. Educ.	2.1838	4	0.80 > P > 0.70			
Med. Prac. with Med. Stud.	10 6836	4	0 05 > P > 0.02	Yes		
Med. Educ. with Med. Stud.	15 1707	4	0.01 > P > 0.00	Yes	Yes	Yes
Total Study	14.3710	8	0.10 > P > 0.05			

Question #29.--What response best reflects your thinking about the importance of communication competence for physicians in providing expert testimony in court?

TABLE 139

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #29

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	6.9808	4	0.20 > P > 0.10			
Med. Prac. with Med. Stud.	3.4104	4	0 50 > P > 0.30			
Med. Educ. with Med. Stud.	4.0900	4	0.50 > P > 0.30			
Total Study	3.4649	8	0.95 > P > 0.90			

Question #30 --What response best reflects your thinking about the importance of communication competence for physicians in presenting technical papers and reports to learned societies?

TABLE 140

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #30

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	3.1812	4	0.70 > P > 0.50			
Med. Prac. with Med. Stud.[m]	7 8376	4	0.10 > P > 0.05			
Med. Educ. with Med. Stud [m]	16 1681	4	0.01 > P > 0.00	Yes	Yes	Yes
Total Study[m]	9.6116	8	0.30 > P > 0.20			

[m]The significant difference, at the 0.05 level, between the responses received from subjects in the filled and unfilled cells combined to create this test sample should be taken into consideration in connection with this analysis See pp 85-86.

Composite Comparative Analysis of Responses to Questions in This Section.--The use of the arithmetic mean as a measure of central tendency permits a composite description of the differences between and among these test samples in their indicated attitudes toward the importance of communication competence for physicians in medically oriented situational applications.

TABLE 141

COMPOSITE COMPARATIVE ANALYSES OF QUESTIONS 12-30

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0 05	0 02	0 01
Med. Prac. with Med. Educ.	4.5058	4	0.50 > P > 0 30			
Med. Prac. with Med. Stud.	8.0944	4	0.10 > P > 0.05			
Med. Educ. with Med. Stud.	6.5448	4	0.20 > P > 0 10			
Total Study	6.4207	4	0.70 > P > 0.50			

Opinions About the Efficacy and Feasibility of Formal Communication Training Programs

The responses to seven items seeking indications of opinions about the efficacy and feasibility of formal training programs in communication skills for medical practitioners lend themselves individually to a similar form of analysis. Because of the variety of their orientations and frames of reference, however, composite analysis of this section of the questionnaire would be meaningless. These items were evaluated on a scale of

SA = Strongly Agree = 1
A = Agree = 2
U = Undecided = 3
D = Disagree = 4
SD = Strongly Disagree = 5

Question #31 --What response best reflects your position with reference to the following statement? Formal instruction in communication skills is a complete waste of time.

TABLE 142

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #31

Test Sample Responses Compared	Chi-Square(X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	3.7568	4	0.50 > P > 0.30			
Med. Prac with Med. Stud[n]	17.5477	4	0.01 > P > 0.00	Yes	Yes	Yes
Med. Educ. with Med. Stud[n]	7.0840	4	0.20 > P > 0.10			
Total Study[n]	11.0487	8	0 20 > P > 0.10			

[n]The significant difference, at the 0.05 level, between the responses of subjects in the filled and unfilled cells combined to create this test sample should be taken into consideration in connection with this analysis. See pp. 85-86.

Question #32.--What response best reflects your position with reference to the following statement? An adequate level of communication competence can only be acquired by physicians in actual medical practice.

TABLE 143

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #32

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	7.1110	4	0.20 > P > 0.10			
Med. Prac. with Med. Stud.[o]	15.2888	4	0.01 > P > 0.00	Yes	Yes	Yes
Med. Educ. with Med. Stud.[o]	9.5488	4	0 05 > P > 0.02	Yes		
Total Study[o]	14.2256	8	0 10 > P > 0 05			

[o]The significant difference, at the 0.05 level, between the responses of subjects in the original Regular and Reserve groups combined to create this test sample should be taken into consideration in connection with this analysis. See pp. 92-93.

Question #33.--What response best reflects your position with reference to the following statement? Formal training in communication skills can best be accomplished, for physicians, in extracurricular and nonacademic programs.

TABLE 144

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #33

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	5.3490	4	0.30 > P > 0.20			
Med. Prac. with Med. Stud.	5.0721	4	0.30 > P > 0.20			
Med. Educ. with Med Stud.	7.9855	4	0.10 > P > 0.05			
Total Study	6.0291	8	0.70 > P > 0.50			

Question #34.--What response best reflects your position with reference to the following statement? Formal training in communication skills, for physicians, can best be accomplished in secondary and undergraduate schools.

TABLE 145

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #34

Test Sample Responses Compared	Chi-Square(X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0 02	0.01
Med. Prac. with Med. Educ.	2 8606	4	0.70 > P > 0 50			
Med. Prac. with Med. Stud	1.0417	4	0.95 > P > 0 90			
Med. Educ. with Med. Stud.	2.7847	4	0.70 > P > 0.50			
Total Study	1.8289	8	1.00 > P > 0.95			

Question #35.--What response best reflects your position with reference to the following statement? Instruction in communication skills should be integrated with existing medical school courses.

TABLE 146

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #35

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac with Med. Educ.	5.6295	4	0.50 > P > 0.30			
Med. Prac. with Med. Stud.	19.6533	4	0.01 > P > 0.00	Yes	Yes	Yes
Med. Educ. with Med. Stud.	12.6046	4	0.02 > P > 0 01	Yes	Yes	
Total Study	12.4780	8	0.20 > P > 0.10			

Question #36.--What response best reflects your position with reference to the following statement? Communication skills can best be developed, for physicians, in discrete courses specifically geared to the needs of medical practice.

TABLE 147

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #36

Test Sample Responses Compared	Chi-Square(X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Med. Prac. with Med. Educ.	2.7513	4	0.70 > P > 0.50			
Med. Prac. with Med. Stud.	10.6638	4	0.05 > P > 0.02	Yes		
Med. Educ. with Med. Stud.	5 6926	4	0.50 > P > 0.30			
Total Study	8.9249	8	0.50 > P > 0.30			

Question #37.--What response best reflects your position with reference to the following statement? Communication skills training should be emphasized in postgraduate and continuing medical education programs.

TABLE 148

COMPARATIVE ANALYSES OF RESPONSES TO QUESTION #37

Test Sample Responses Compared	Chi-Square (X^2) of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0 02	0.01
Med. Prac. with Med. Educ.	2.2703	4	0.70 > P > 0.50			
Med. Prac. with Med. Stud.	12.0043	4	0.02 > P > 0.01	Yes	Yes	
Med. Educ with Med. Stud.	10.8433	4	0.05 > P > 0.02	Yes		
Total Study	10.0487	8	0 30 > P > 0.20			

Historical and Evaluative Course Information

Responses to inquiries about the incidence, locus, and evaluation of formal instruction in communication skills were analyzed comparatively on an item-by-item basis by pairs of test samples. The frequency and distribution of NT = Never Taken, the several academic level indications of incidence, and reported course evaluations were examined by the previously described chi-square contingency formula. In this way both the experiences and the evaluations of Medical Practitioners, Medical Educators, and Medical Students responding to this survey may be reviewed in

terms of their degrees of similarity and the statistical significance of their divergence.

Incidence and Locus of Formal Training in Communication Skills.--The null hypothesis tested was that there were no differences between any of the pairs of test samples representing the three sub-populations surveyed in this study that could not reasonably be attributed to chance distribution or sampling fluctuations. The assumed constants in these comparisons were

1) The incidence of having received, or not received, formal instruction in specific communication skills courses, and
2) The academic level at which received instruction was experienced.

The probabilities indicated in the following tables[11] are those of the observed results supporting the null hypothesis as stated

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[11] See pp. 78-96, and Appendix N, pp. 372-374, for the data upon which these calculations were based.

TABLE 149

COMPARISON OF MEDICAL PRACTITIONER AND MEDICAL EDUCATOR TEST SAMPLE INCIDENCE AND LOCUS OF COMMUNICATION SKILLS TRAINING

Course Title	Chi-Square of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0 05	0 02	0.01
Public Address	0 9281	4	0.95 > P > 0.90			
Interpersonal Comm	7 0678	5	0 30 > P > 0 20			
Business & Pro Sp.	0 9970	4	0.95 > P > 0 90			
Interviewing	8 4619	4	0.10 > P > 0.05			
Organizational Comm.	3 4496	5	0.70 > P > 0 50			
General Semantics	7 3688	5	0.20 > P > 0.10			
Debate	2.9161	3	0.50 > P > 0 30			
Group Discussion	7 3586	5	0.20 > P > 0.10			
Logic	1 2265	4	0.90 > P > 0.80			
Argumentation	7.7039	3	0.10 > P > 0.05			
Human Relations	12 2529	5	0.05 > P > 0.02	Yes		
Persuasion	6 1295	5	0.30 > P > 0 20			
Group Dynamics	2 8872	4	0 70 > P > 0 50			
Conference Leadership	4 1082	4	0 70 > P > 0.50			
Nonverbal Comm.	7 0533	5	0.30 > P > 0.20			
Case Analysis	2.9705	4	0.70 > P > 0.50			
Fundamentals of Sp.	27.7060	4	0.01 > P > 0.00	Yes	Yes	Yes
Read. of Tech. Papers	6.6015	4	0 20 > P > 0 10			
Sensitivity Training	2.0581	3	0.70 > P > 0.50			
Listening Improvement	3.6859	2	0.10 > P > 0 05			
Medical History Takg.	17.9211	2	0.01 > P > 0 00	Yes	Yes	Yes
Composite	6 7073	4	0.20 > P > 0 10			

TABLE 150

COMPARISON OF MEDICAL PRACTITIONER AND MEDICAL STUDENT TEST SAMPLE INCIDENCE AND LOCUS OF COMMUNICATION SKILLS TRAINING

Course Title	Chi-Square of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0 05	0.02	0.01
Public Address	5 0019	4	0 30 > P > 0 20			
Interpersonal Comm	1.4217	4	0 90 > P > 0 80			
Business & Pro. Sp.	6.1594	4	0 20 > P > 0 10			
Interviewing	3 6234	4	0.50 > P > 0 30			
Organizational Comm	3.3946	3	0 30 > P > 0 20			
General Semantics	6.1777	4	0 20 > P > 0.10			
Debate	3.0711	3	0 50 > P > 0 30			
Group Discussion	6 7317	4	0 20 > P > 0.10			
Logic	4 9765	4	0 30 > P > 0 20			
Argumentation	12.8816	3	0 01 > P > 0 00	Yes	Yes	Yes
Human Relations	2 9072	4	0 70 > P > 0.50			
Persuasion	12 5830	4	0 02 > P > 0 01	Yes	Yes	
Group Dynamics	5 1722	4	0.30 > P > 0 20			
Conference Leadership	8 2997	4	0 10 > P > 0 05			
Nonverval Comm.	4.5316	5	0.50 > P > 0.30			
Fundamentals of Sp.	11 2423	4	0 05 > P > 0 02	Yes		
Read. of Tech. Papers	5 8691	3	0 20 > P > 0 10			
Sensitivity Training	17.7139	3	0.10 > P > 0 00	Yes	Yes	Yes
Listening Improvement	6 3384	4	0.20 > P > 0 10			
Medical History Tkg.	0 7664	2	0.70 > P > 0.50			
Composite	6 1360	4	0.20 > P > 0 10			

TABLE 151

COMPARISON OF MEDICAL EDUCATOR AND MEDICAL STUDENT TEST SAMPLE INCIDENCE AND LOCUS OF COMMUNICATION SKILLS TRAINING

Course Title	Chi-Square of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0 02	0 01
Public Address	3.9033	4	0 50 > P > 0 30			
Interpersonal Comm.	9.5798	5	0 10 > P > 0 05			
Business & Pro. Sp.	6 4809	4	0.20 > P > 0.10			
Interviewing	9.3432	5	0 10 > P > 0.05			
Organizational Comm.	4.5141	5	0 50 > P > 0.30			
General Semantics	8.8881	5	0 20 > P > 0 10			
Debate	3.3476	3	0.50 > P > 0.20			
Group Discussion	15.0308	5	0 02 > P > 0.01	Yes	Yes	
Logic	3.4501	4	0 50 > P > 0 30			
Argumentation	2.5858	3	0.50 > P > 0 30			
Human Relations	7 0561	5	0.30 > P > 0 20			
Persuasion	5.4118	3	0.20 > P > 0.10			
Group Dynamics	8.6826	5	0.20 > P > 0.10			
Conference Leadership	2.0694	5	0 90 > P > 0.80			
Nonverbal Comm	2.6116	5	0.80 > P > 0.70			
Case Analysis	7 1758	4	0.20 > P > 0 10			
Fundamentals of Sp.	52 0995	4	0 01 > P > 0 00	Yes	Yes	Yes
Read. of Tech Papers	8 9777	4	0 10 > P > 0.05			
Sensitivity Training	17 5890	4	0 01 > P > 0 00	Yes	Yes	Yes
Listening Improvement	18.5001	3	0 01 > P > 0 00	Yes	Yes	Yes
Medical History Tkg	20.4550	2	0 01 > P > 0 00	Yes	Yes	Yes
Composite	10 3691	4	0 05 > P > 0 02	Yes		

Computing the arithmetic means of the 21 individual chi-squares of difference and degrees of freedom from each of the preceding tables permits the following comparison of these three pairings of test samples

TABLE 152

COMPOSITE COMPARATIVE ANALYSES OF RESPONSES TO INQUIRIES ABOUT INCIDENCE AND LOCUS OF COMMUNICATION SKILLS TRAINING

Test Sample Responses Compared	Chi-Square of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0 05	0 02	0.01
Med. Prac. with Med. Educ.	6.7073	4 05	0 20 > P > 0.10			
Med. Prac. with Med. Stud.	6.1310	3 52	0.20 > P > 0 10			
Med Educ. with Med Stud.	10 3691	4.19	0 05 > P > 0 02	Yes		
Total Study	7 7368	3.92	0 20 > P > 0 10			

Evaluation of Communication Training Received --Testing the null hypothesis that there were no differences between the responses of these three pairs of test samples in their reported evaluations of communication skills training received was the procedure employed to effect a comparative analysis of this information from the survey. The method

of computing and representing these differences in course evaluations is similar to that used in the preceding comparisons of the incidence of course work taken.[12, 13]

TABLE 153

COMPARISON OF MEDICAL PRACTITIONER AND MEDICAL EDUCATOR TEST SAMPLE EVALUATIONS OF COMMUNICATION SKILLS TRAINING RECEIVED

Course	Chi-Square of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0.01
Public Address	4.6912	4	0.50 > P > 0 30			
Interpersonal Comm.	0 9469	2	0.70 > P > 0 50			
Business & Pro. Sp	5 2628	3	0.20 > P > 0 10			
Interviewing	0.2983	2	0.90 > P > 0.80			
Organizational Comm.	3.7265	2	0.20 > P > 0 10			
General Semantics	4 8943	2	0 10 > P > 0 05			
Debate	6.0069	4	0 20 > P > 0 10			
Group Discussion	5 6015	4	0.30 > P > 0.20			
Logic	12.0188	4	0.02 > P > 0.01	Yes	Yes	
Argumentation	0.6198	2	0 80 > P > 0.70			
Human Relations	7 7808	3	0.10 > P > 0.05			
Persuasion	0 0719	2	1.00 > P > 0.95			

[12] It should be noted, however, that in each instance N = the total reported number of incidences of having taken a given course rather than the total number of the respondents to a given test sample. Thus there are substantial variations in the N for different course offerings.

[13] See Appendix N, pp. 372-374, for the data upon which these calculations were based.

TABLE 153--Continued

Course	Chi-Square of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0 05	0 02	0 01
Group Dynamics	2.5394	3	0.50 > P > 0.30			
Conference Leadership	2.9573	2	0.30 > P > 0.20			
Nonverbal Comm.	6.4838	2	0.05 > P > 0 02	Yes		
Case Analysis	7.3225	3	0.10 > P > 0.05			
Fundamentals of Sp.	5 6559	3	0.20 > P > 0 10			
Reading of Tech. Pap.	14.3686	4	0 01 > P > 0.00	Yes	Yes	Yes
Sensitivity Training	2.5818	4	0.70 > P > 0 50			
Listening Improvement	1.3143	2	0 70 > P > 0.50			
Medical History Tkg.	1 7207	3	0 70 > P > 0 50			
Composite	4.6125	3	0.30 > P > 0 20			

TABLE 154

COMPARISON OF MEDICAL PRACTITIONER AND MEDICAL STUDENT TEST SAMPLE EVALUATIONS OF COMMUNICATION SKILLS TRAINING RECEIVED

Course	Chi-Square of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0 05	0.02	0.01
Public Address	8.3553	4	0 10 > P > 0.05			
Interpersonal Comm.	5.1282	3	0.20 > P > 0 10			
Business & Pro. Sp.	15.6520	4	0.01 > P > 0.00	Yes	Yes	Yes
Interviewing	0 7428	3	0.10 > P > 0.05			

TABLE 154--Continued

Course	Chi-Square of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0.05	0.02	0 01
Organizational Comm	6 0023	3	0.20 > P > 0.10			
General Semantics	9.0873	2	0.02 > P > 0.01	Yes	Yes	
Debate	2.5929	4	0.70 > P > 0.50			
Group Discussion	4.7936	3	0 20 > P > 0 10			
Logic	5.6919	4	0.30 > P > 0.20			
Argumentation	4.0046	2	0.20 > P > 0 10			
Human Relations	9.2264	4	0.10 > P > 0 05			
Persuasion	1.4776	3	0 70 > P > 0.50			
Group Dynamics	7.0521	3	0.10 > P > 0.05			
Conference Leadership	6.4329	3	0.10 > P > 0 05			
Nonverbal Comm.	1.5672	2	0 50 > P > 0 30			
Case Analysis	0.8652	3	0.90 > P > 0.80			
Fundamentals of Sp.	16 6268	4	0.01 > P > 0.00	Yes	Yes	Yes
Read. of Tech. Papers	1 0797	4	0.90 > P > 0.80			
Sensitivity Training	2.2365	4	0.70 > P > 0.50			
Listening Improvement	2.0950	2	0.50 > P > 0 30			
Medical History Tkg.	11.2844	3	0.02 > P > 0.01	Yes	Yes	
Composite	6.0960	3	0.20 > P > 0 10			

TABLE 155

COMPARISON OF MEDICAL EDUCATOR AND MEDICAL STUDENT TEST SAMPLE EVALUATIONS OF COMMUNICATION SKILLS TRAINING RECEIVED

Course	Chi-Square of Differences	df	Probability of Supporting Null Hypothesis	Differences are Significant at Level of P =		
				0 05	0.02	0.01
Public Address	7.6500	4	0 20 > P > 0 10			
Interpersonal Comm.	5.7889	3	0 20 > P > 0.10			
Business & Pro. Sp.	4.3619	4	0.50 > P > 0.30			
Interviewing	5.7205	3	0.20 > P > 0 10			
Organizational Comm.	2.3186	3	0.70 > P > 0.50			
General Semantics	4 5724	2	0.10 > P > 0 05			
Debate	2.6554	4	0 70 > P > 0 50			
Group Discussion	8.7448	3	0 05 > P > 0.02	Yes		
Logic	11.4403	4	0.05 > P > 0.02	Yes		
Argumentation	3 0738	2	0.30 > P > 0 20			
Human Relations	7.1111	4	0 20 > P > 0 10			
Persuasion	1.6456	3	0.70 > P > 0 50			
Group Dynamics	5.1204	3	0.20 > P > 0 10			
Conference Leadership	9.8500	3	0 02 > P > 0.01	Yes	Yes	
Nonverbal Comm	2 1375	2	0.50 > P > 0 30			
Case Analysis	9.5121	3	0.05 > P > 0 02	Yes		
Fundamentals of Sp.	26.2360	4	0 01 > P > 0 00	Yes	Yes	Yes
Read of Tech. Papers	11.9303	4	0.02 > P > 0.01	Yes	Yes	
Sensitivity Training	5.7637	4	0 30 > P > 0 20			
Listening Improvement	0 9357	2	0 70 > P > 0.50			
Medical History Takg	8 7725	3	0 05 > P > 0.02	Yes		
Composite	6.9211	3	0 10 > P > 0.05			

Review of Recommendations and Suggestions

The open-ended invitation to indicate recommendations for the development or improvement of communication training programs for medical and premedical students has been described previously in this report. The comments of respondents who addressed themselves in writing to this item in the questionnaire can be classified in the following manner.

1) Those which indicated an awareness of the inquiry but included no recommendations or suggestions.
2) Responses directed primarily to the nature and value of the study itself.
3) Responses expressing generalized opinions about the value of formal training in communication skills for medical and premedical students.
4) Those making rather general recommendations of course content and teaching methodologies.
5) Those including specific suggestions that might contribute to useful syllabi.

Responses Including No Recommendations or Suggestions

Typically these responses were brief, including only such succinct observations as "None," "No comment," or "I do not feel qualified to comment."

Responses Directed Primarily to the Study Itself

Although such comments were not specifically soliticed, a substantial number of those responding to this portion of the study elected

to interest themselves more in the examination and evaluation of the study itself than in the broader area of communication training for medical practitioners. These comments ran the gamut between such polarized positions as "The study is a complete waste of time for all concerned, including the author of the questionnaire" to "This is great! When you find the answers please share them with me."

A number of other comments, some of them quite detailed, extensive, and valuable, might be thought of as being distributed over a continuum between these polar positions. Although they may form the base for a subsequent and related report it was felt that they were not specifically germane to this study, per se, and they will not be expanded upon here.

Responses Expressing Opinions About the Value of Communication Training

The number of responses in this category and their characteristic depth of insight and extensive development seem indicative of widespread interest in, and concern about, the importance of communication competence for physicians in modern medical practice. Among these responses such expressed positions as "Get the intending physician into a medical environment as soon as possible and stay away from educators and the like" and "Any communication training program would be welcome at any academic level" were notably atypical both because of their brevity and the polarity of the positions represented.

These responses also may provide the base for a separate but related study in themselves. For the purposes of this report, however, they seem to constitute an expansion and restatement of positions

already established by earlier questions in a more convenient and statistically manipulatable form.

Responses Making General Recommendations of Course Content and Methods of Instruction

The number of responses of this type was almost equaled by their variety, a circumstance which all but precludes their meaningful classification. One recurring theme does emerge from reviewing them which serves as a meaningful form of summation.

This recurring theme is paraphrased in the following observations.

1) The importance of communication competence for physicians in modern medical practice is an a priori assumption.
2) The rigorous demands of modern medical education do not permit the proliferation of courses or the introduction of communication skills emphases into existing medical school courses needed to provide this competence.
3) Existing course offerings at the secondary, undergraduate and extracurricular academic levels are adequate to these needs in course content and format.
4) Although individual exceptions can be cited, many among the instructors of such courses fail to demonstrate a capability for achieving the real potential of such course offerings for pre-professional students

Responses Suggesting Specific Items for Inclusion in Course Syllabi

Responses to this portion of the inquiry were so few in number that specific suggestions included in them are listed as identified by individual respondents.

Interviewing Techniques by Annette Garrett.

A text on the problem method in Medical Records by Weed.

Harris's I'm O K, You're O K.

Berne's Games People Play.

A high school textbook called Thought and Statement.

Interviewing and the Health Professions by Bernstein & Dana, (New York) Appleton-Century-Crofts, Educational Division/ Meredith Corporation, 1970 (Paperback) 170 pages.

Book on style by Strunk and White.

Practical Anatomie by Lanz and Wechtmuth as an example of excellence in textbook illustration technique needed in speech texts.

A two-page general orientation "Bibliography" on psychiatry and child psychiatry.

Other Analyses of Data Received

The primary focus of the examination and analysis of data received from the survey, to this point, has been along the lines of test sample classifications of Medical Practitioner, Medical Educator, and Medical Student. This section of the report disregards these classifications completely and presents a brief analysis of some of these data based on the reported age, sex, and geographic location of high school and undergraduate school attended.[14]

[14]See Appendix O, pp. 376-380, for a full presentation of these data.

The graphic format used in their presentation includes the following code symbols not previously found in this report.

2 = Age 20 through 29 at time of survey	(N = 100)
3 = Age 30 through 39 at time of survey	(N = 91)
4 = Age 40 through 49 at time of survey	(N = 111)
5 = Age 50 through 59 at time of survey	(N = 38)
6 = Age 60 or over at time of survey	(N = 8)
F = Female	(N = 19)
M = Male	(N = 329)
High School	
E = Eastern United States	(N = 24)
M = Middle United States	(N = 293)
W = Western United States	(N = 17)
O = Outside of United States	(N = 14)
Undergraduate School	
E = Eastern United States	(N = 22)
M = Middle United States	(N = 293)
W = Western United States	(N = 21)
O = Outside of United States	(N = 12)

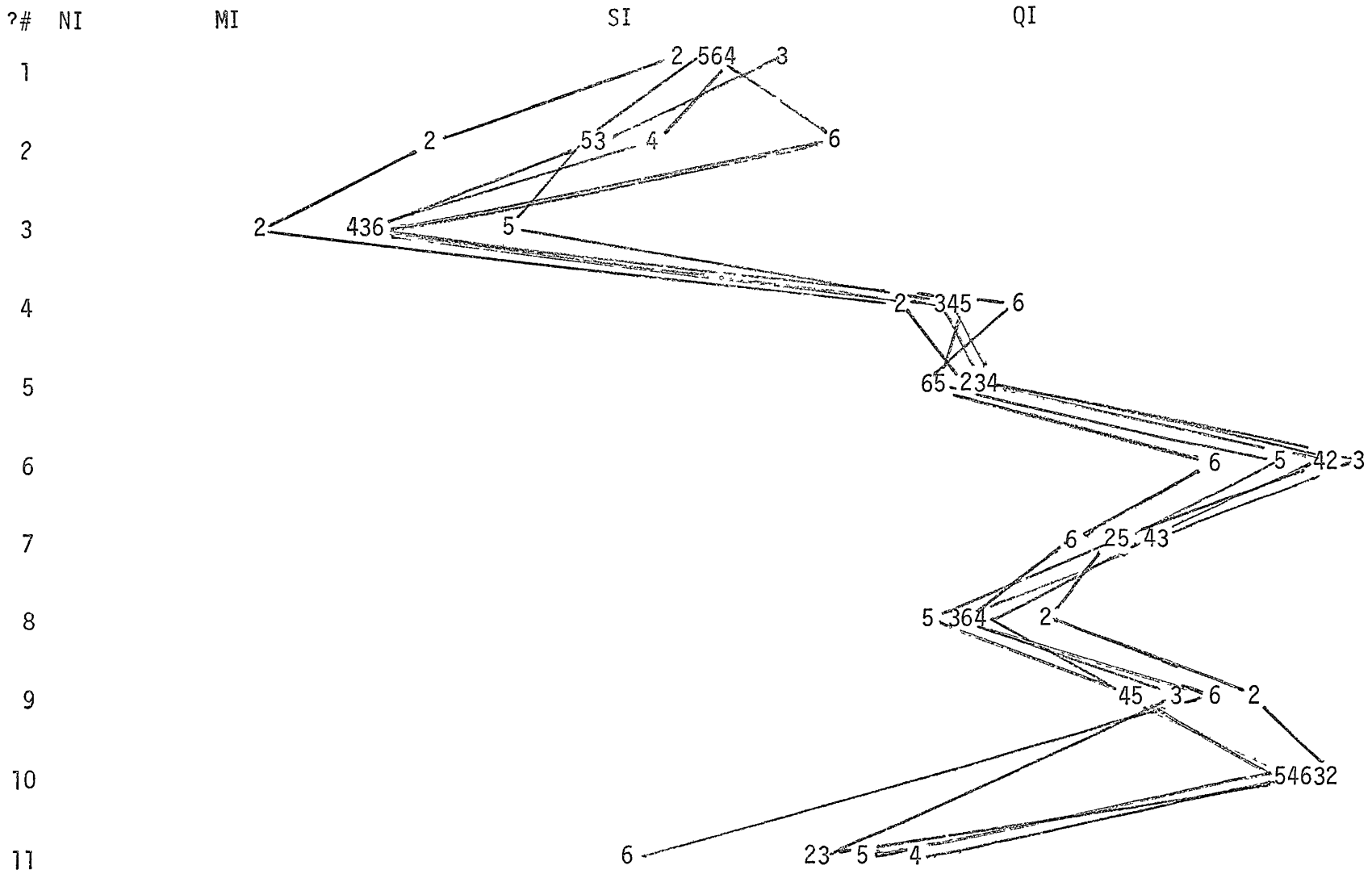

Fig. 1.--Average Responses to Questions About Importance of Communication Skills by Age Groups

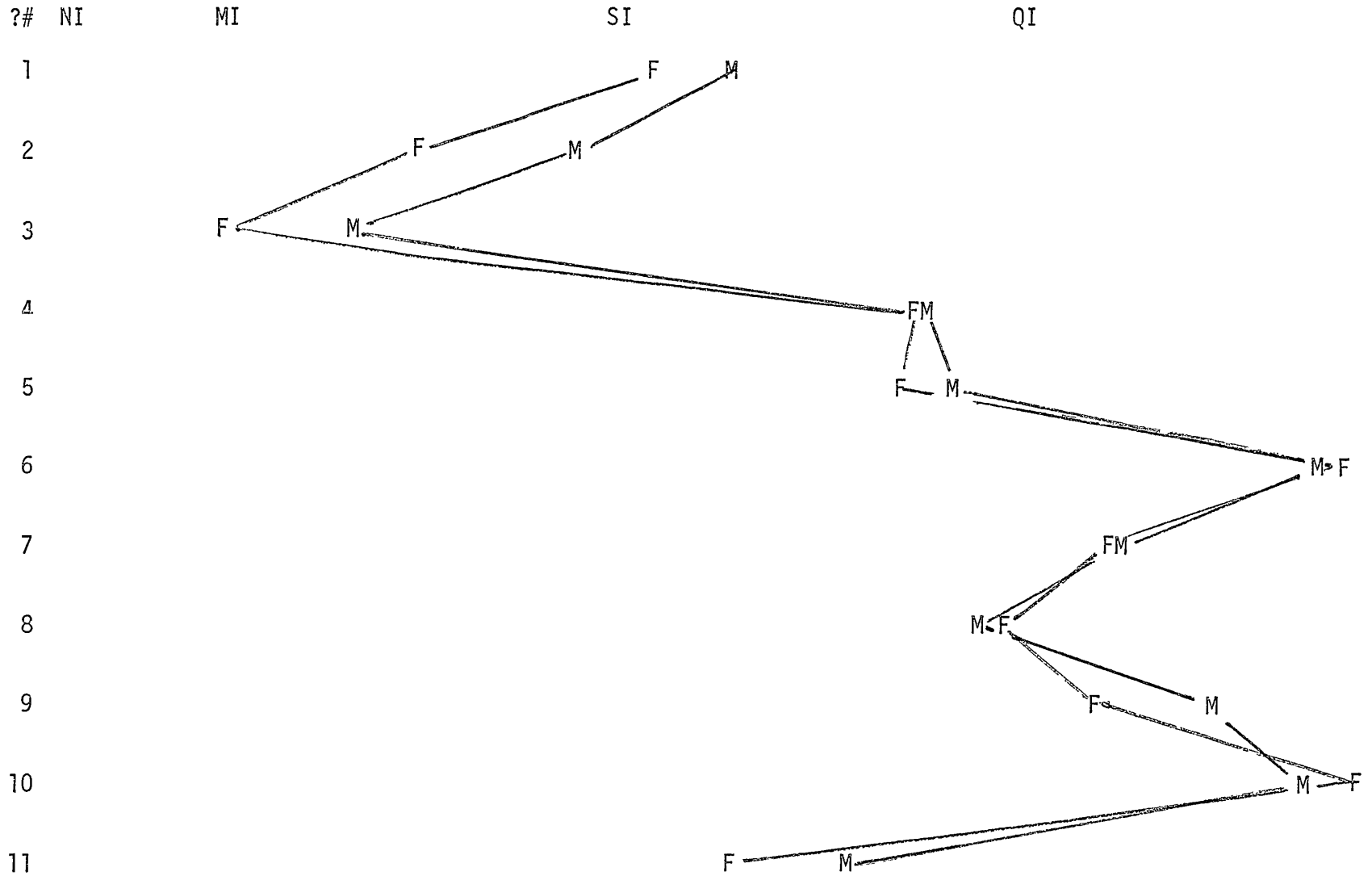

Fig. 2.--Average Responses to Questions About Importance of Communication Skills by Sexes

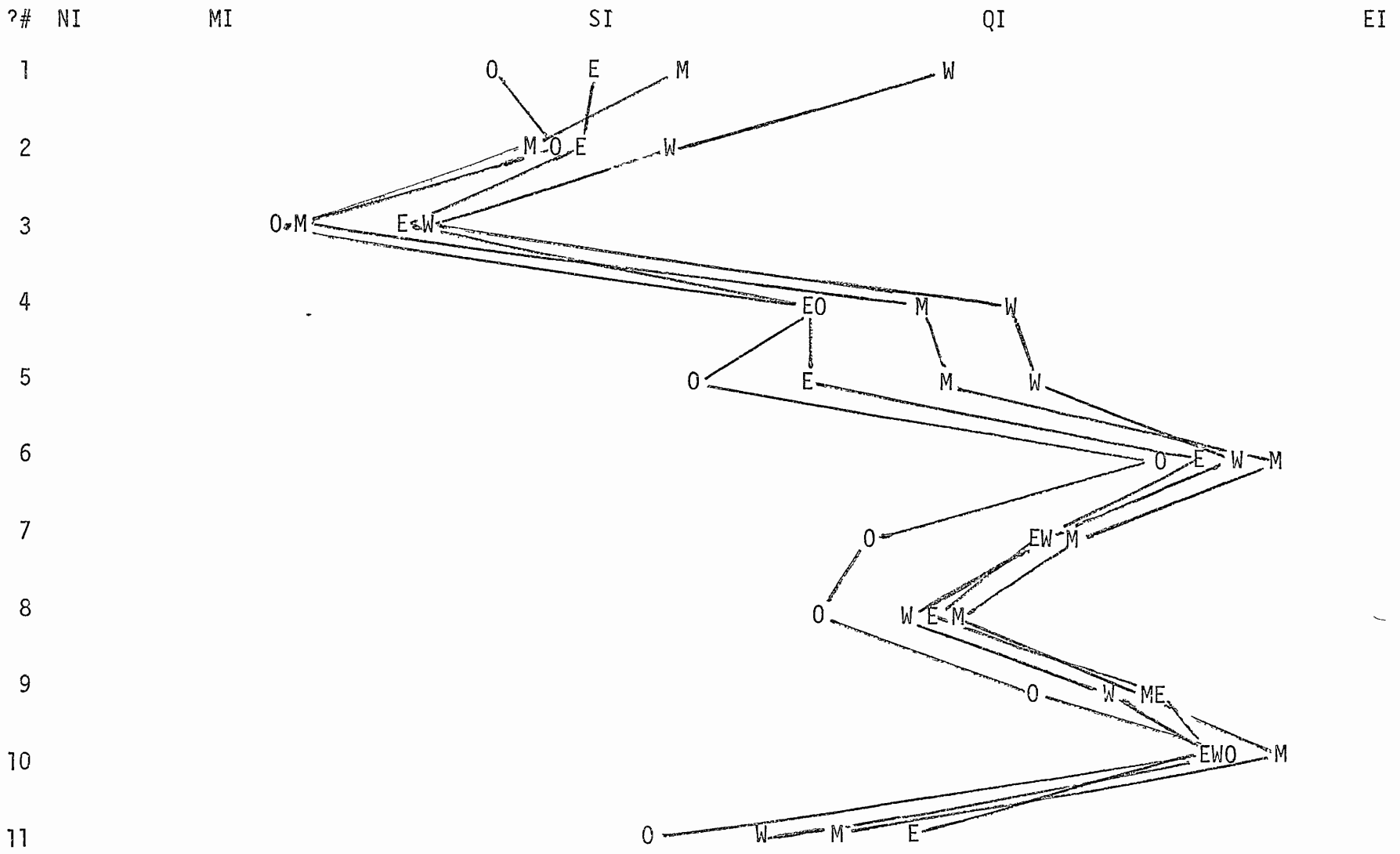

Fig. 3 --Average Responses to Questions About Importance of Communication Skills by Locus of High School

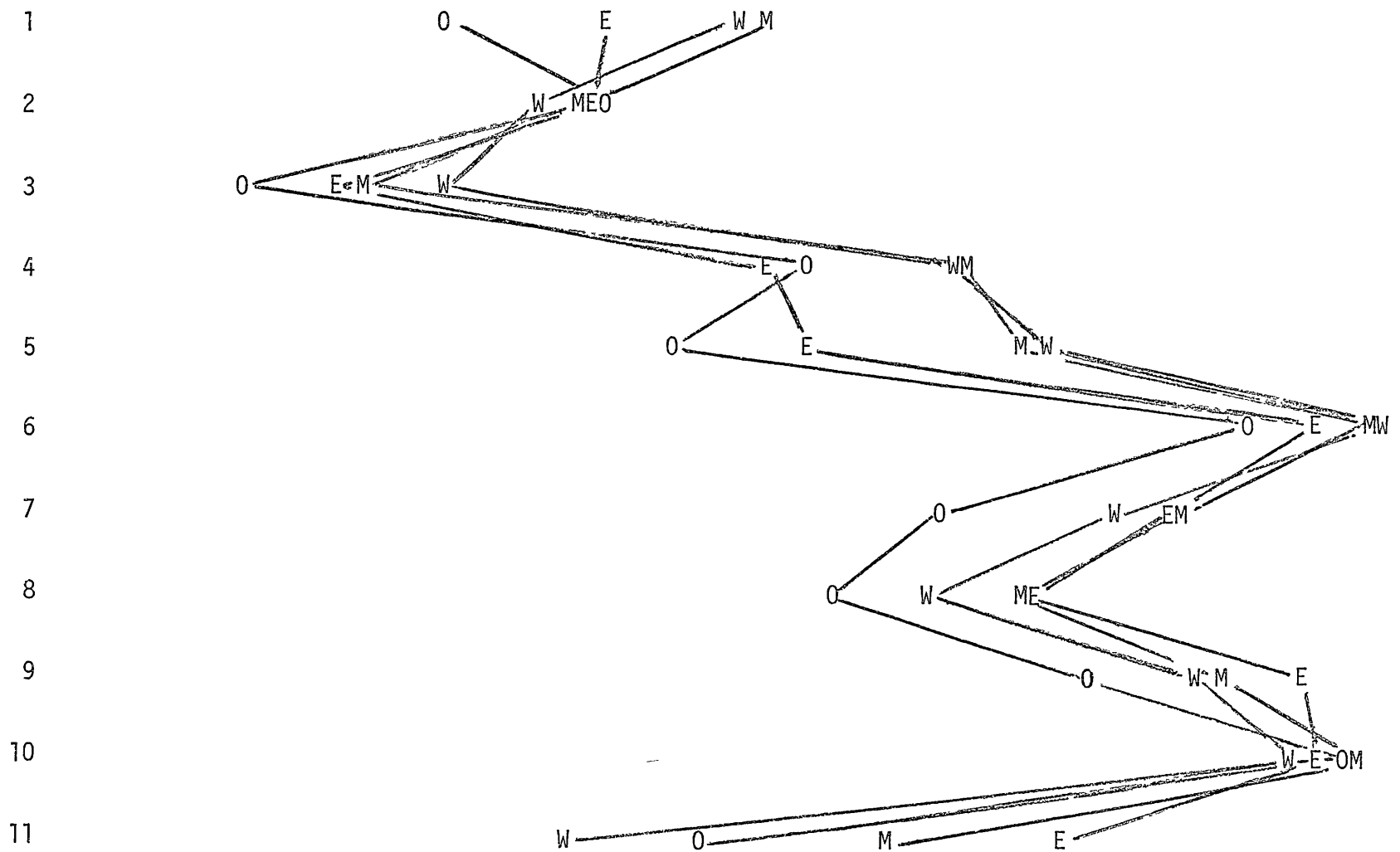

Fig. 4.--Average Responses to Questions About Importance of Communication Skills by Locus of UG School

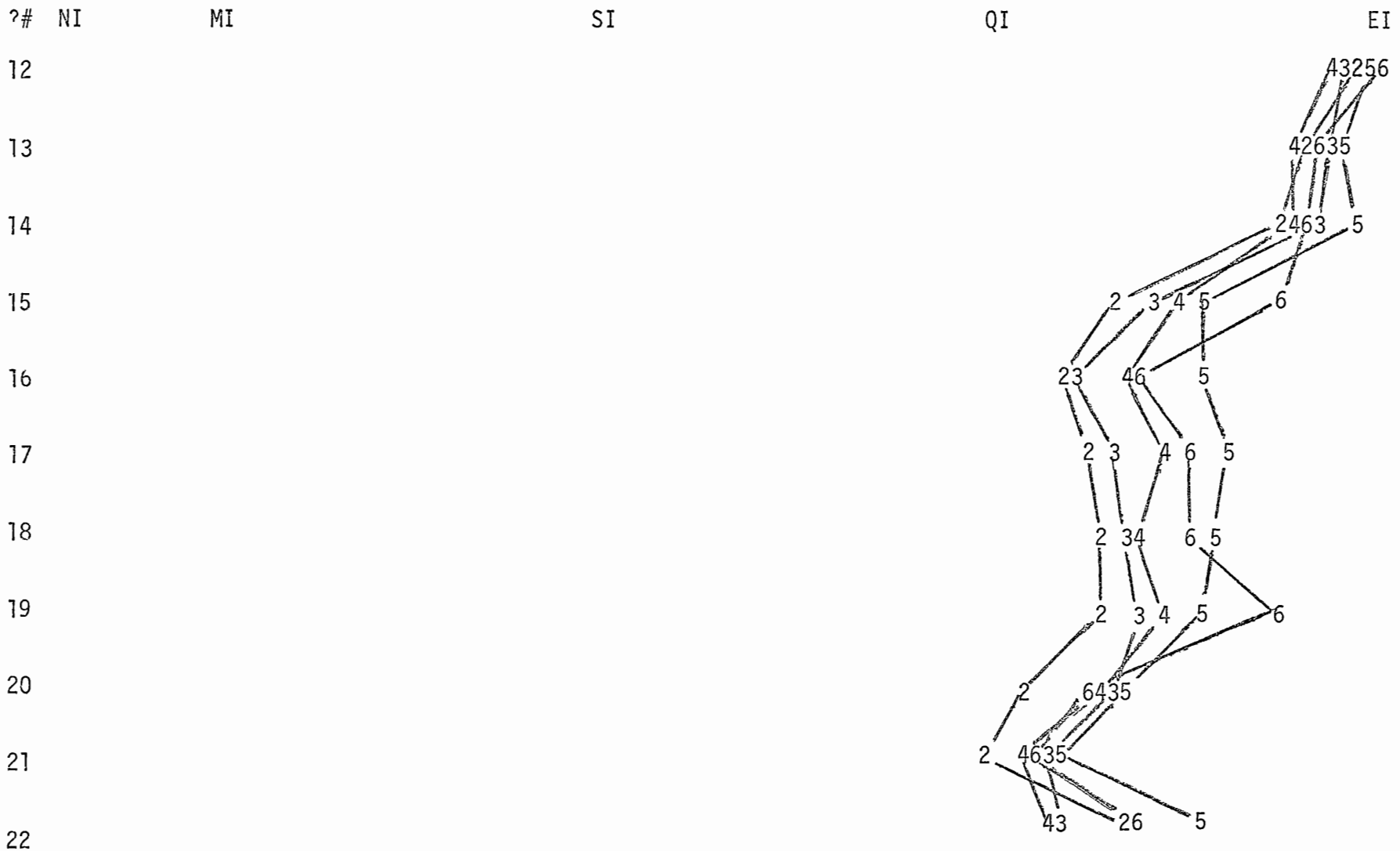

Fig. 5.--Average Responses, by Age Groups, About Communication Competence in Situational Applications

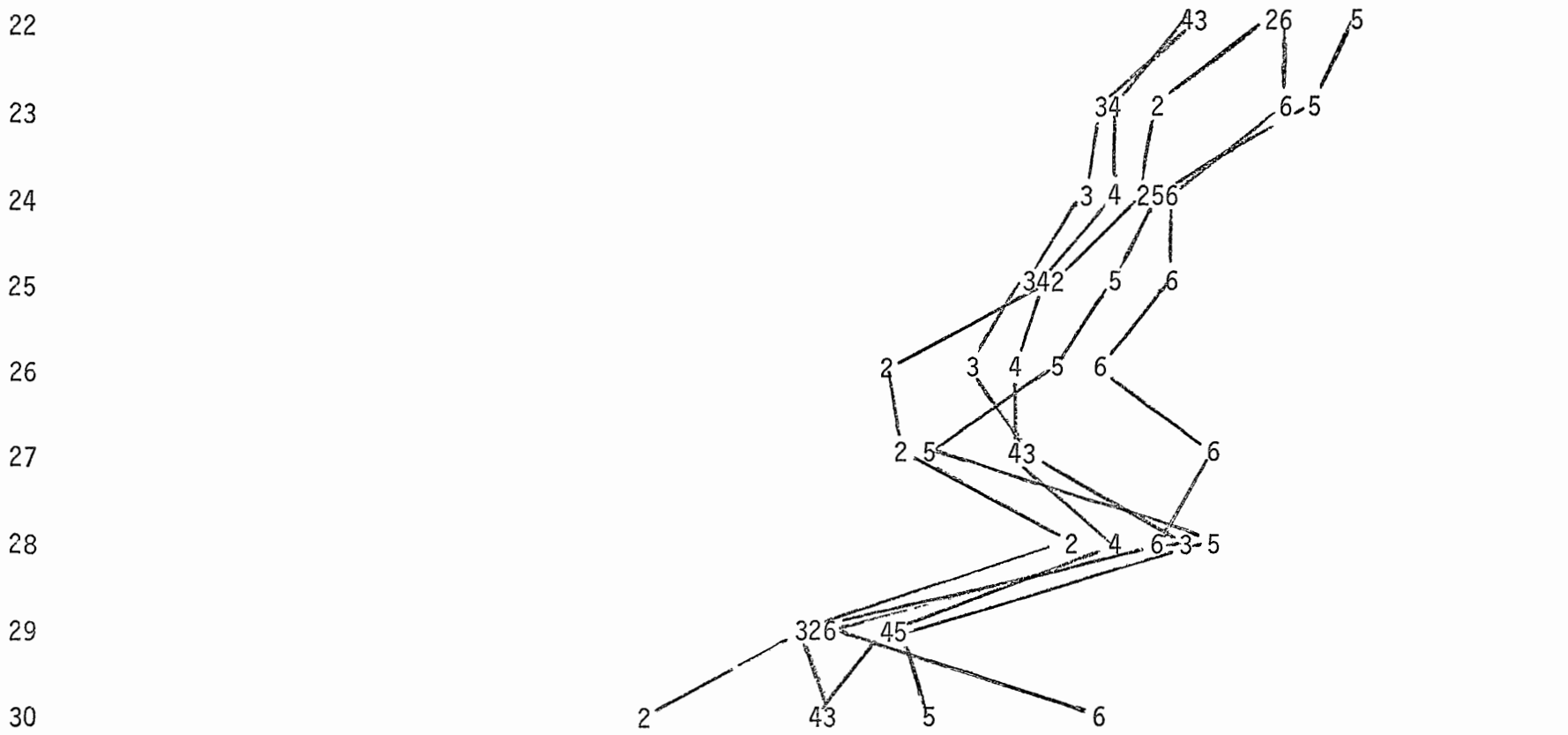

Fig. 5.--Average Responses, by Age Groups, About Communication Competence in Situational Applications [Continued from Preceding Page with Question 22 Repeated to Provide Continuity]

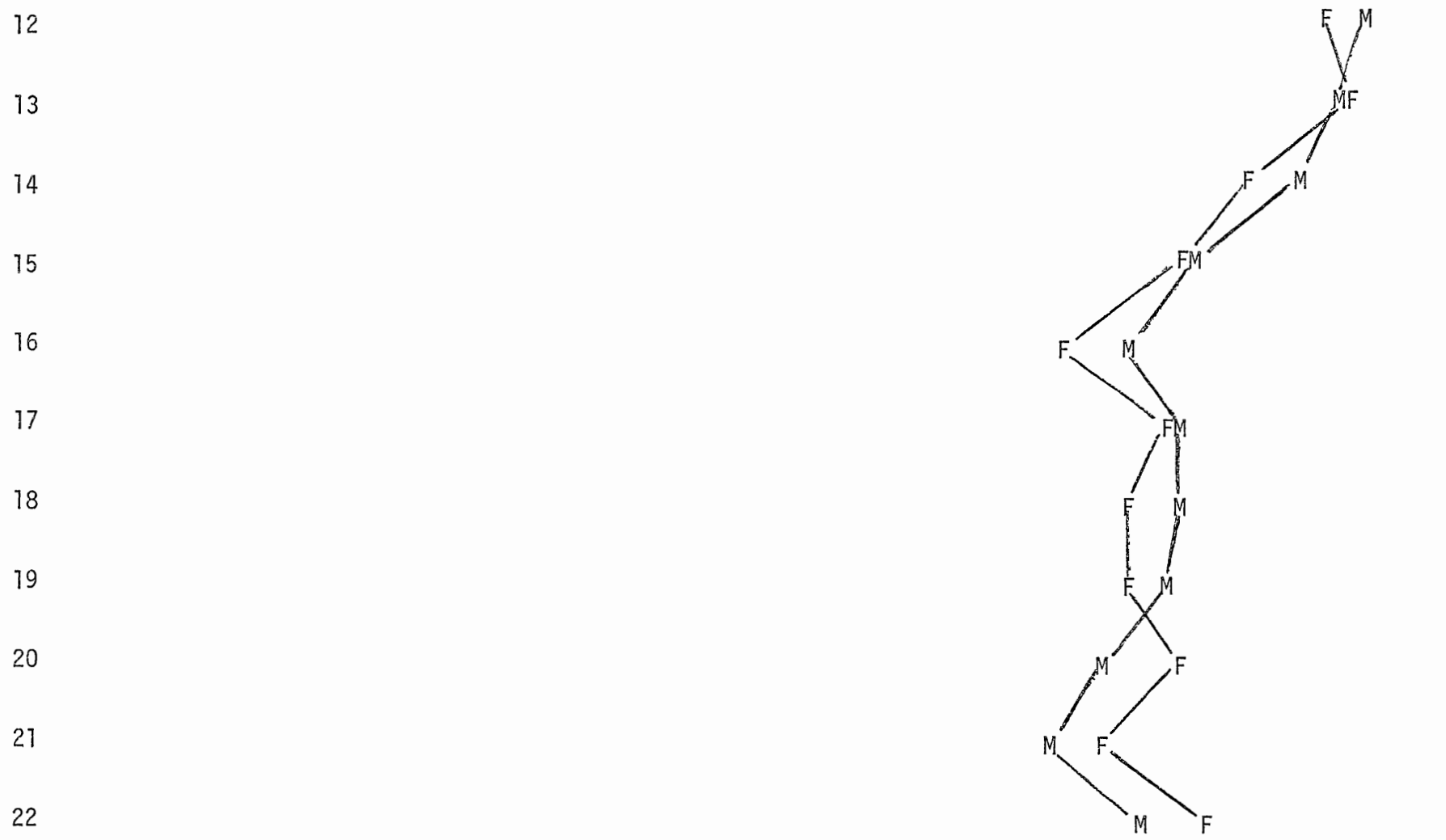

Fig. 6.--Average Responses, by Sexes, About Communication Competence in Situational Applications

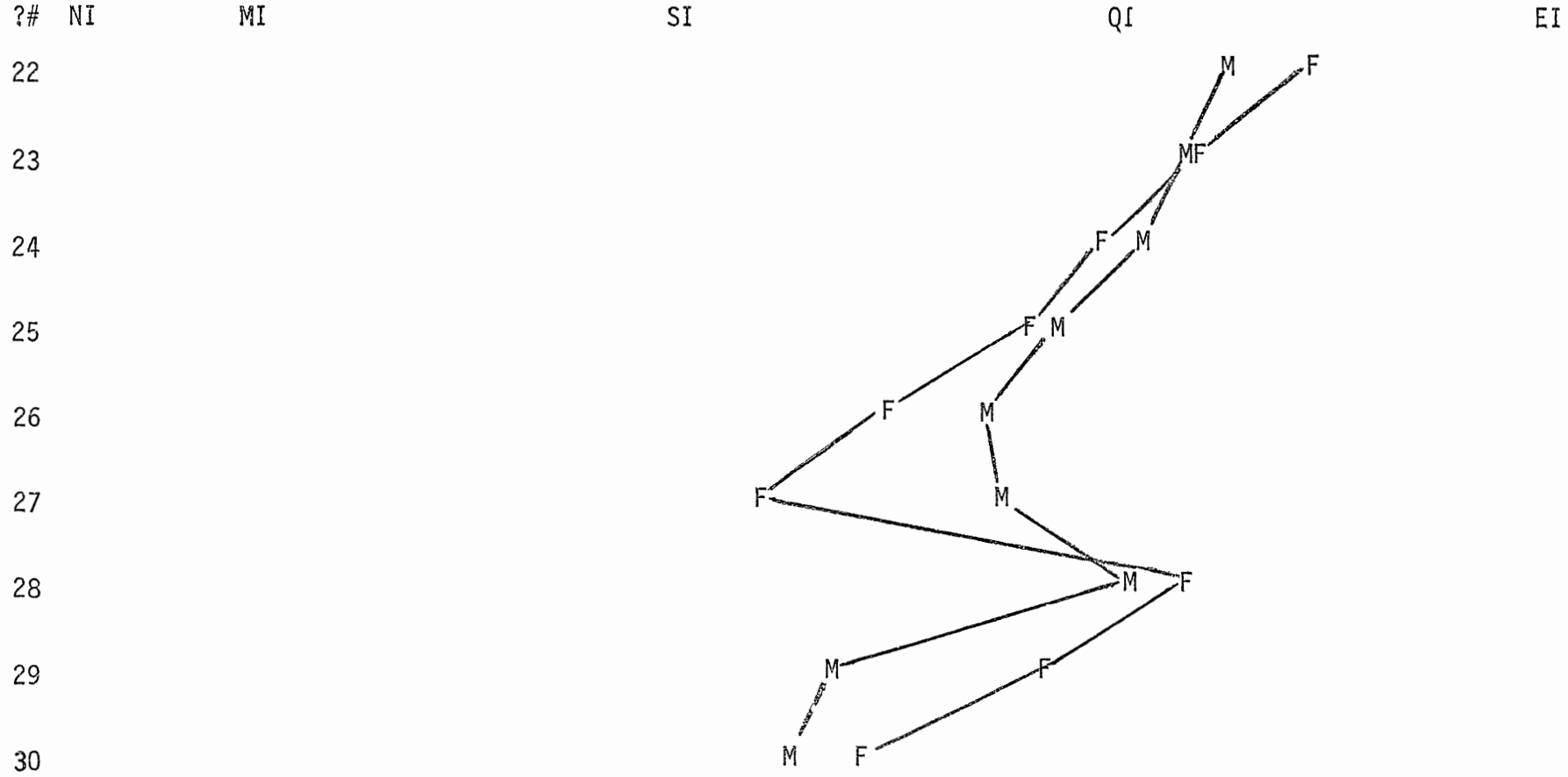

Fig. 6.--Average Responses, by Sexes, About Communication Competence in Situational Applications
[Continued from Preceding Page with Question 22 Repeated to Provide Continuity]

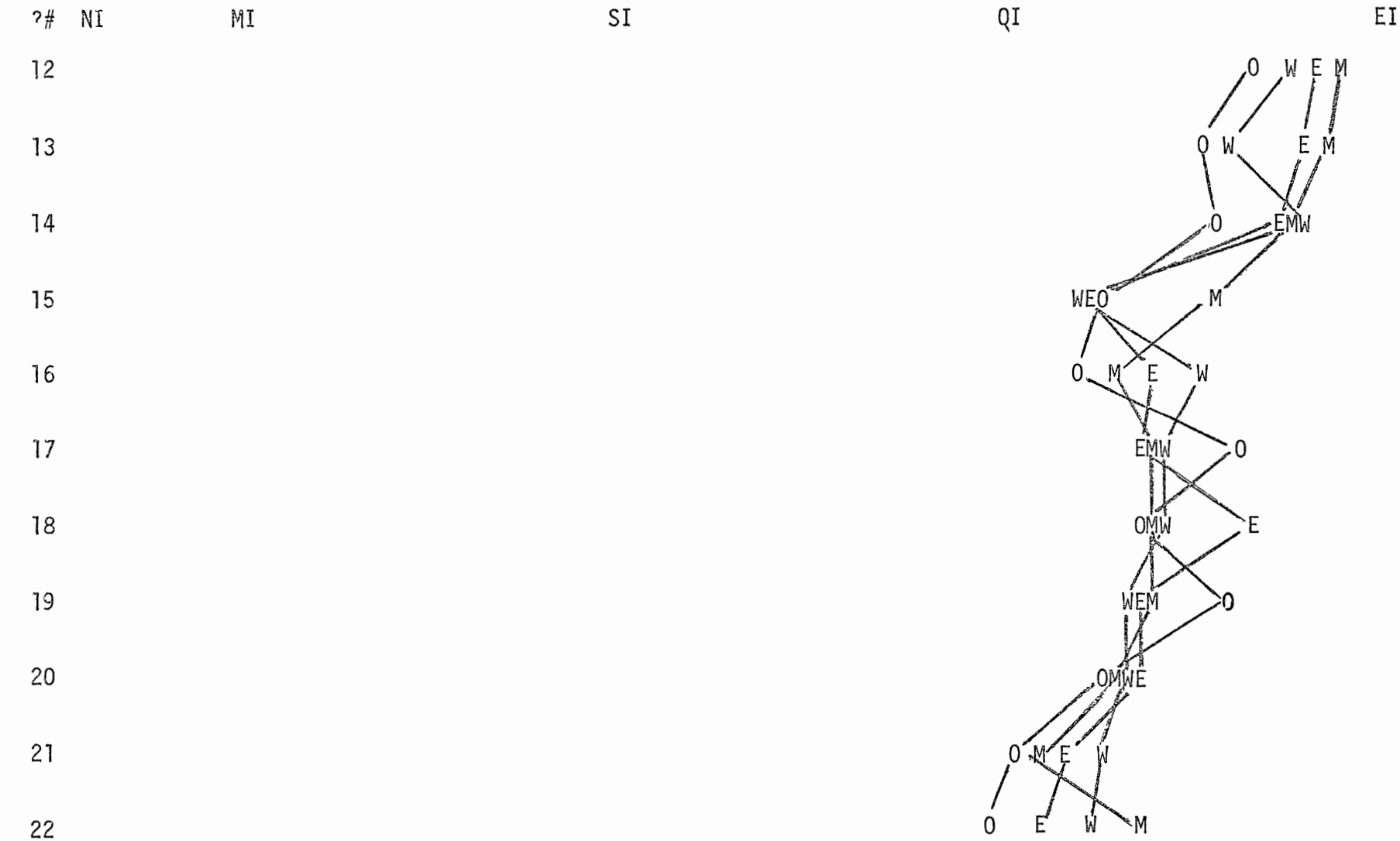

Fig. 7.--Average Responses, by Geographic Location of Secondary Schools, About Communications Competence in Medically Oriented Situational Applications

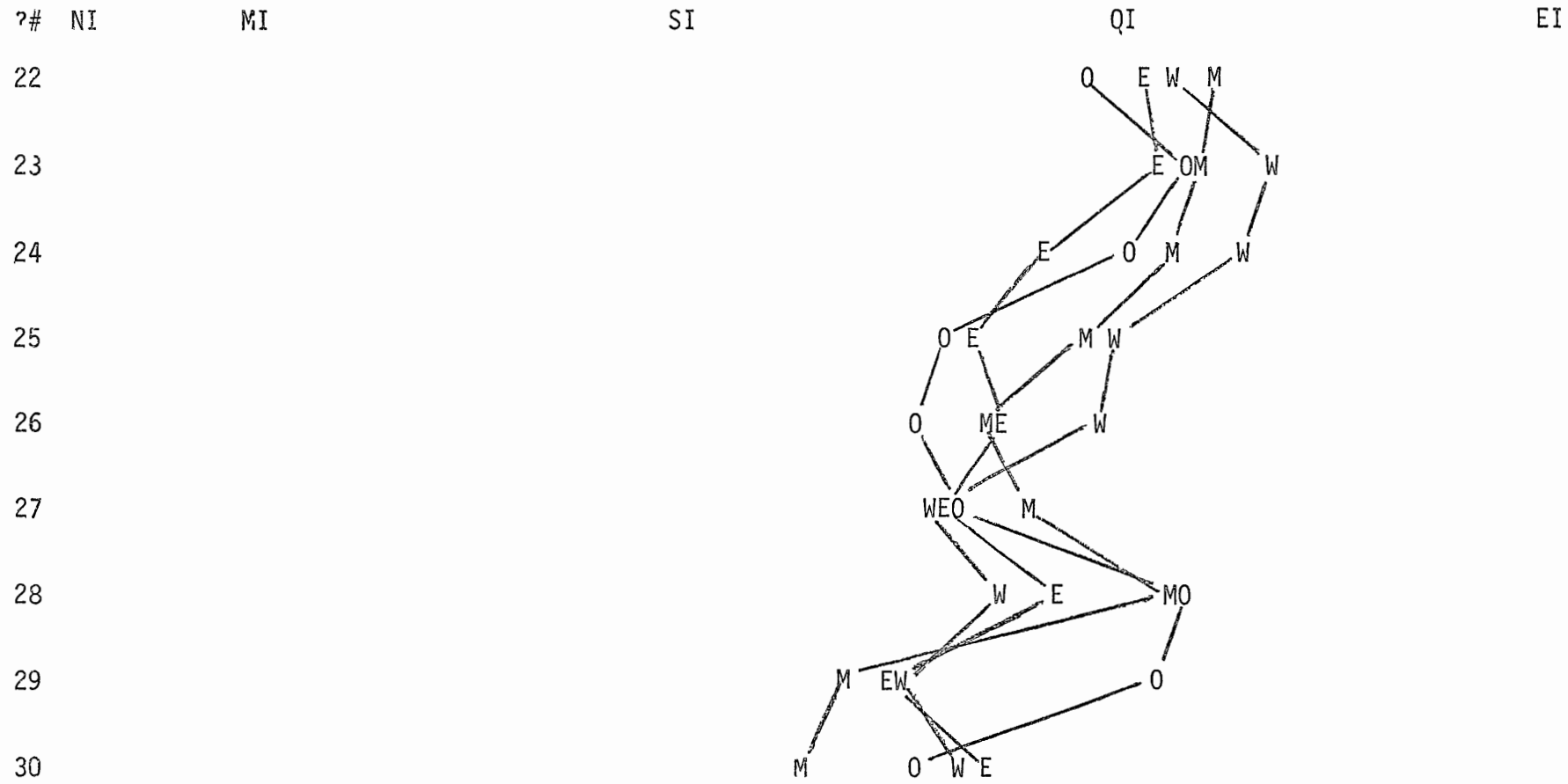

Fig. 7.--Average Responses, By Geographic Location of Secondary Schools, About Communication Competence in Medically Oriented Situational Applications [Continued from Preceding Page with Question 22 Repeated to Provide Continuity]

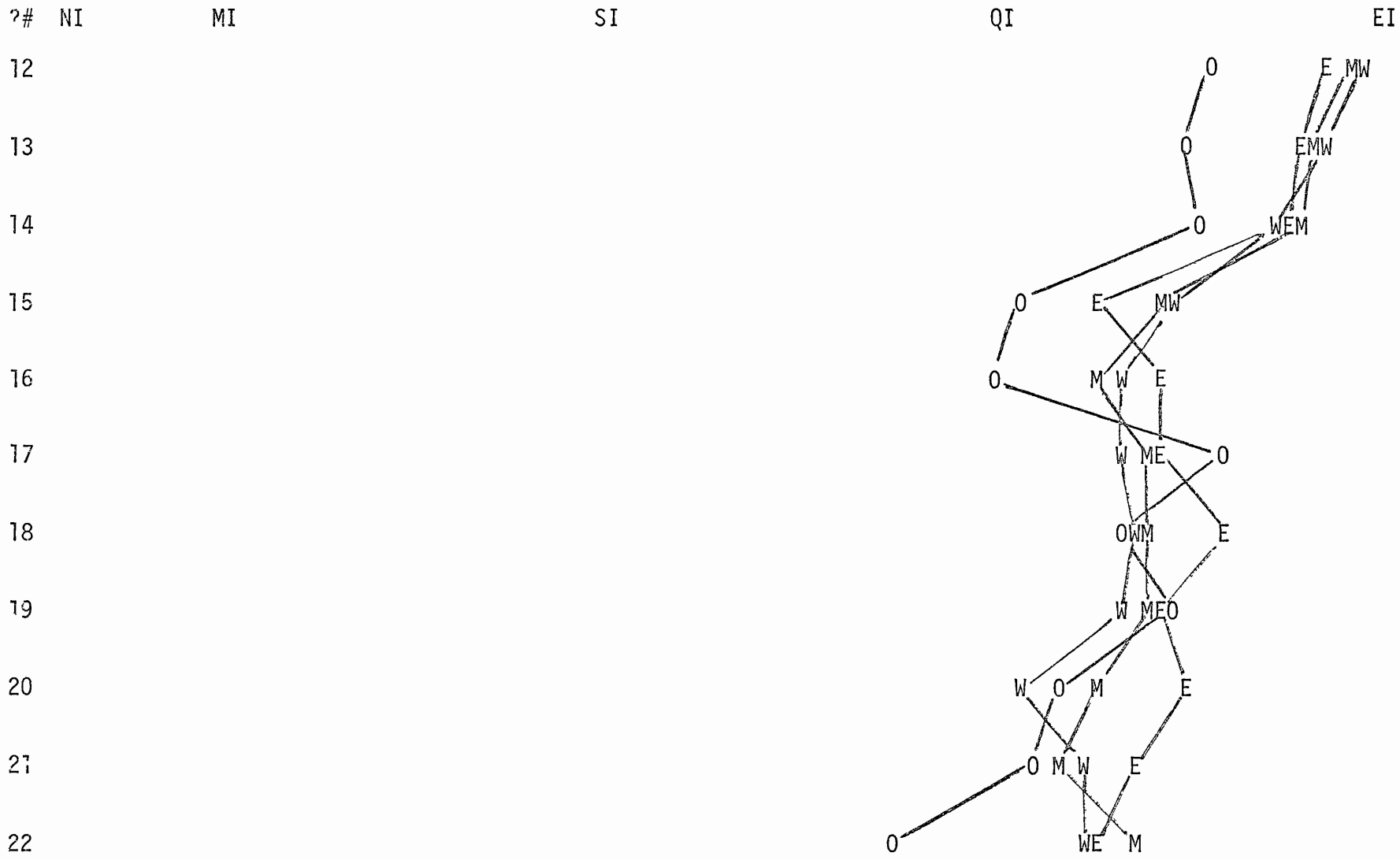

Fig. 8.--Average Responses, by Geographic Location of Undergraduate Schools, About Communication Competence in Medically Oriented Situational Applications

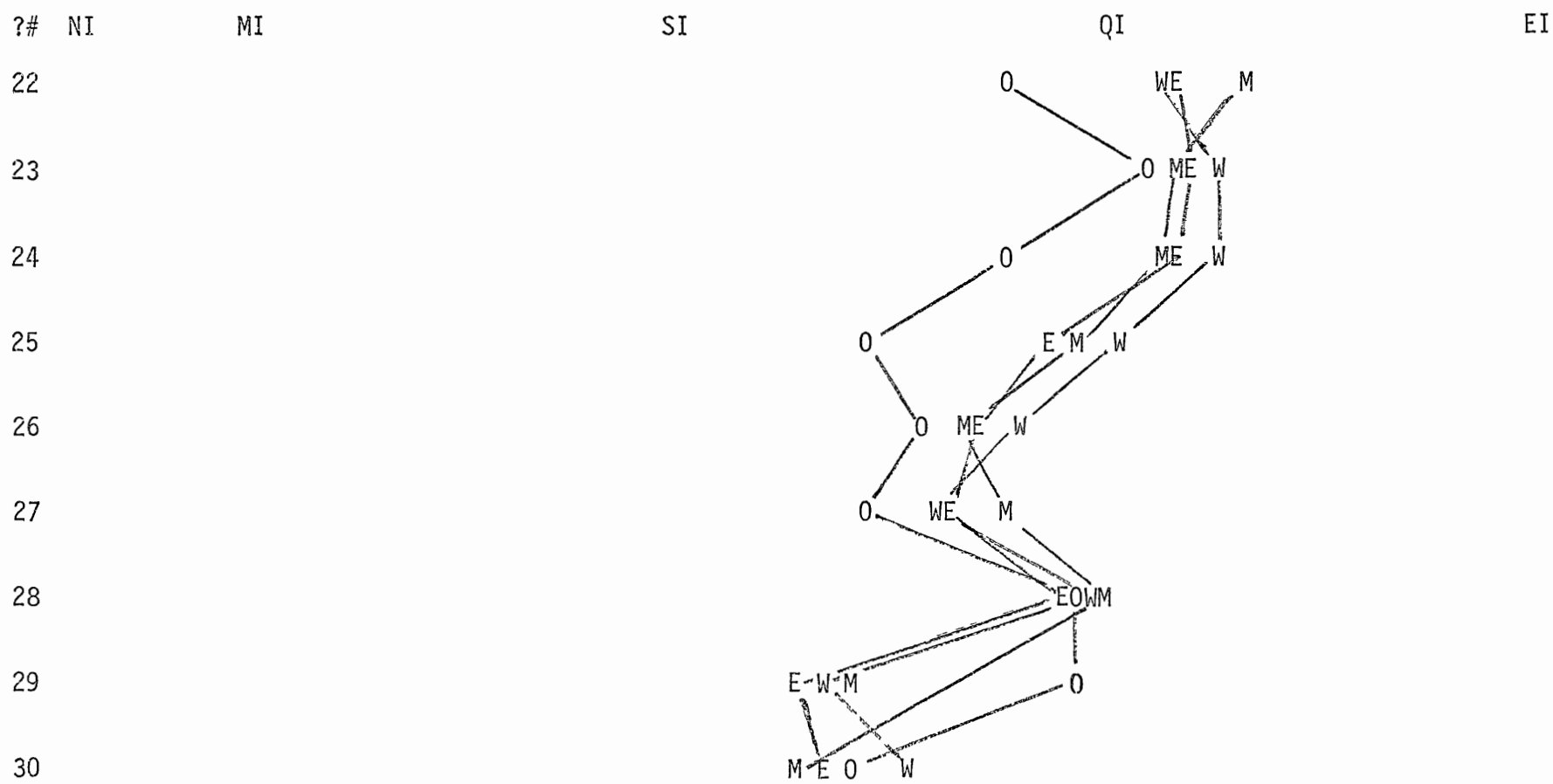

Fig. 8.--Average Responses, by Geographic Location of Undergraduate Schools, About Communication Competence in Medically Oriented Situational Applications [Continued from Preceding Page With Question 22 Repeated to Provide Continuity]

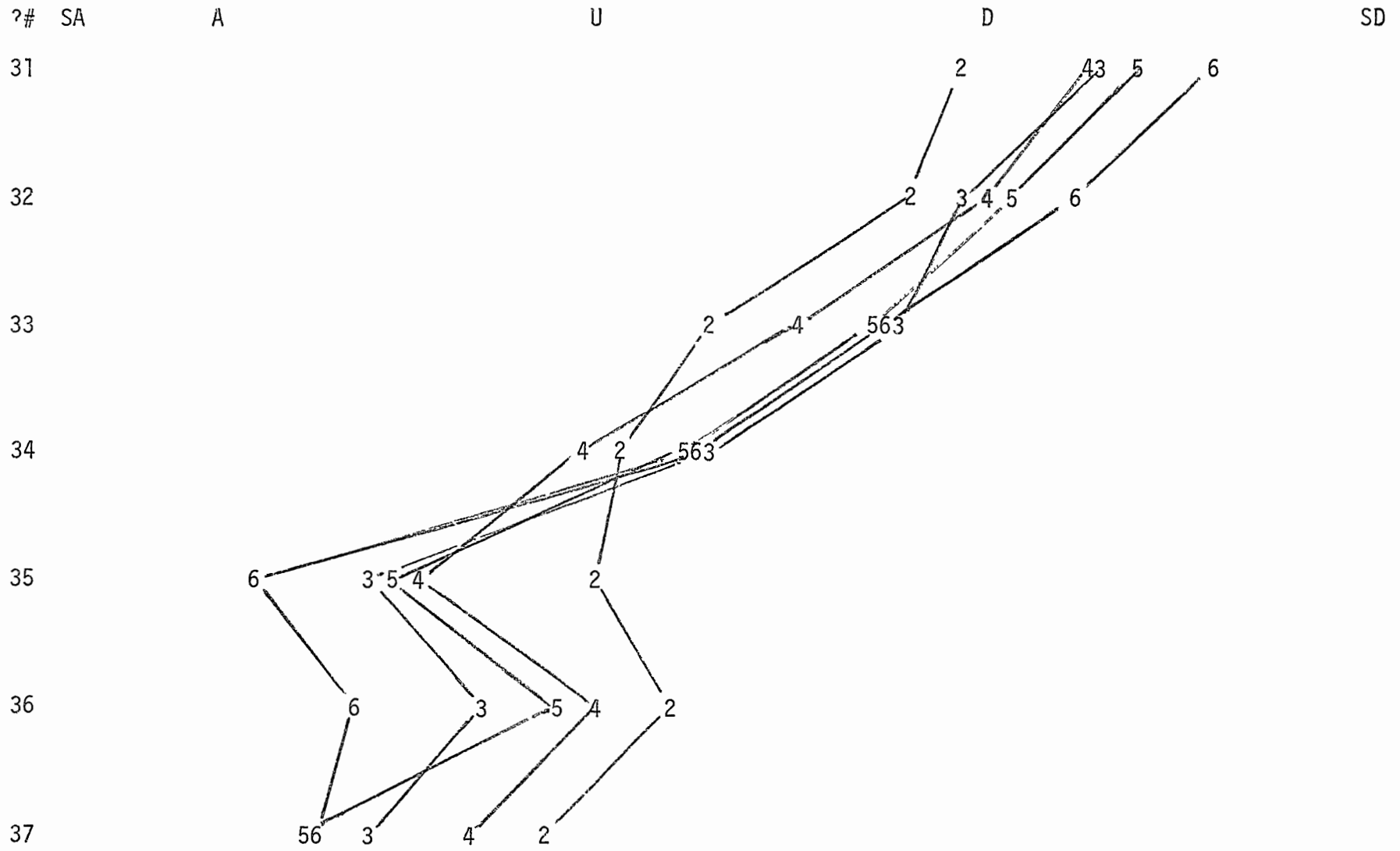

Fig. 9.--Average Responses, by Age Groups, About Formal Training Programs in Communication Skills

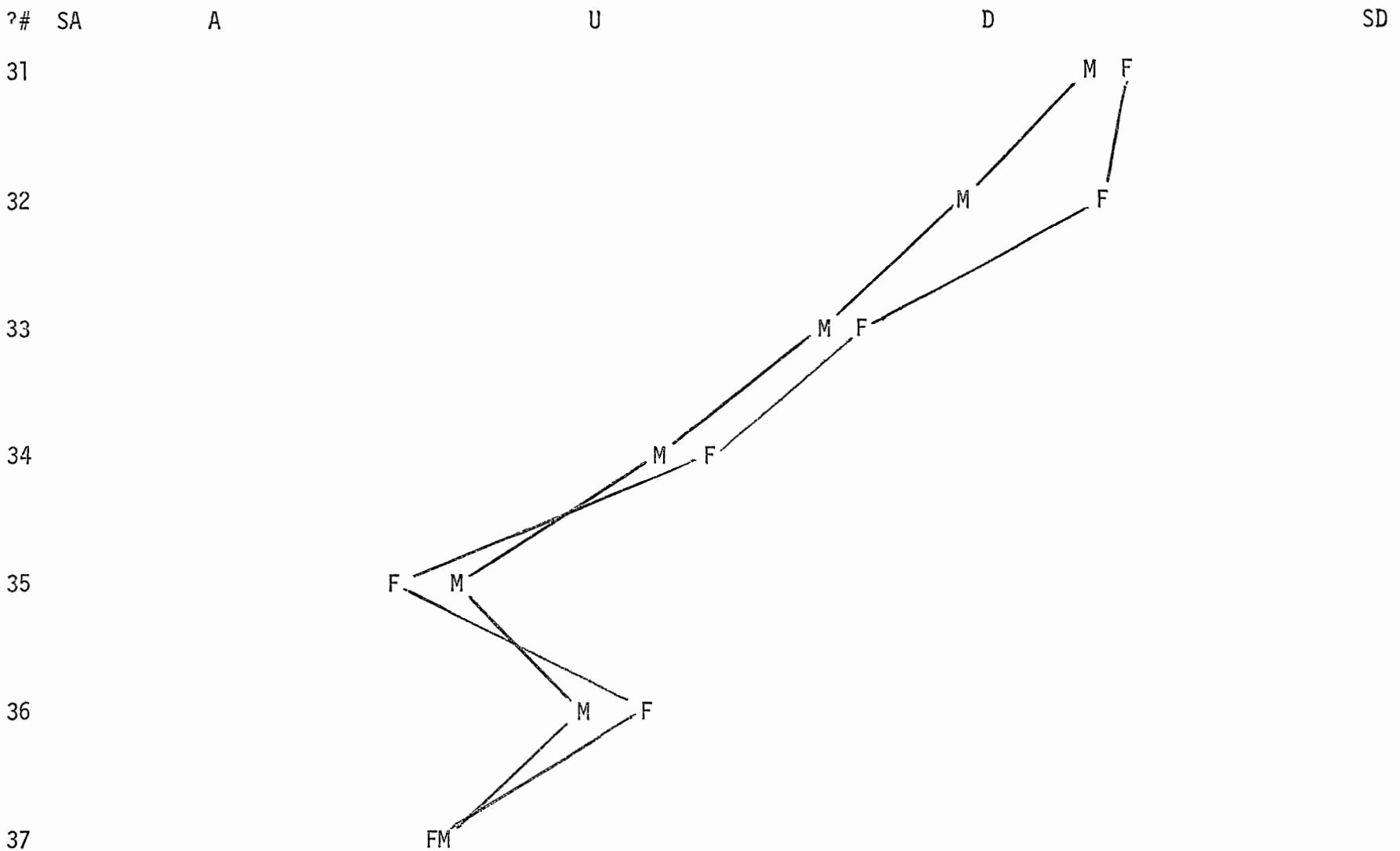

Fig. 10.--Average Responses, by Sexes, About Formal Training Programs in Communication Skills

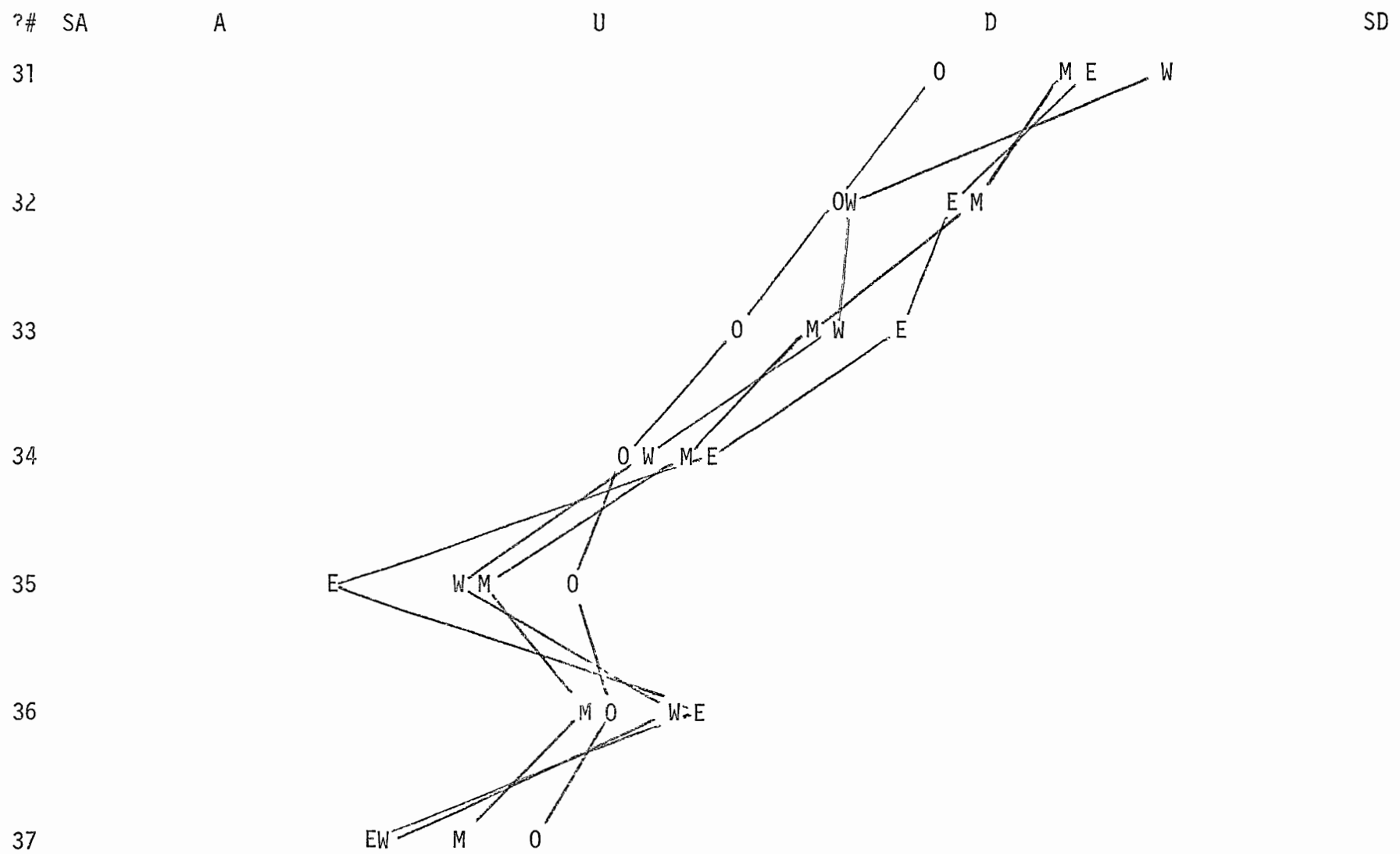

Fig. 11 --Average Responses, by Geographic Location of Secondary Schools, About Formal Training Programs in Communication Skills

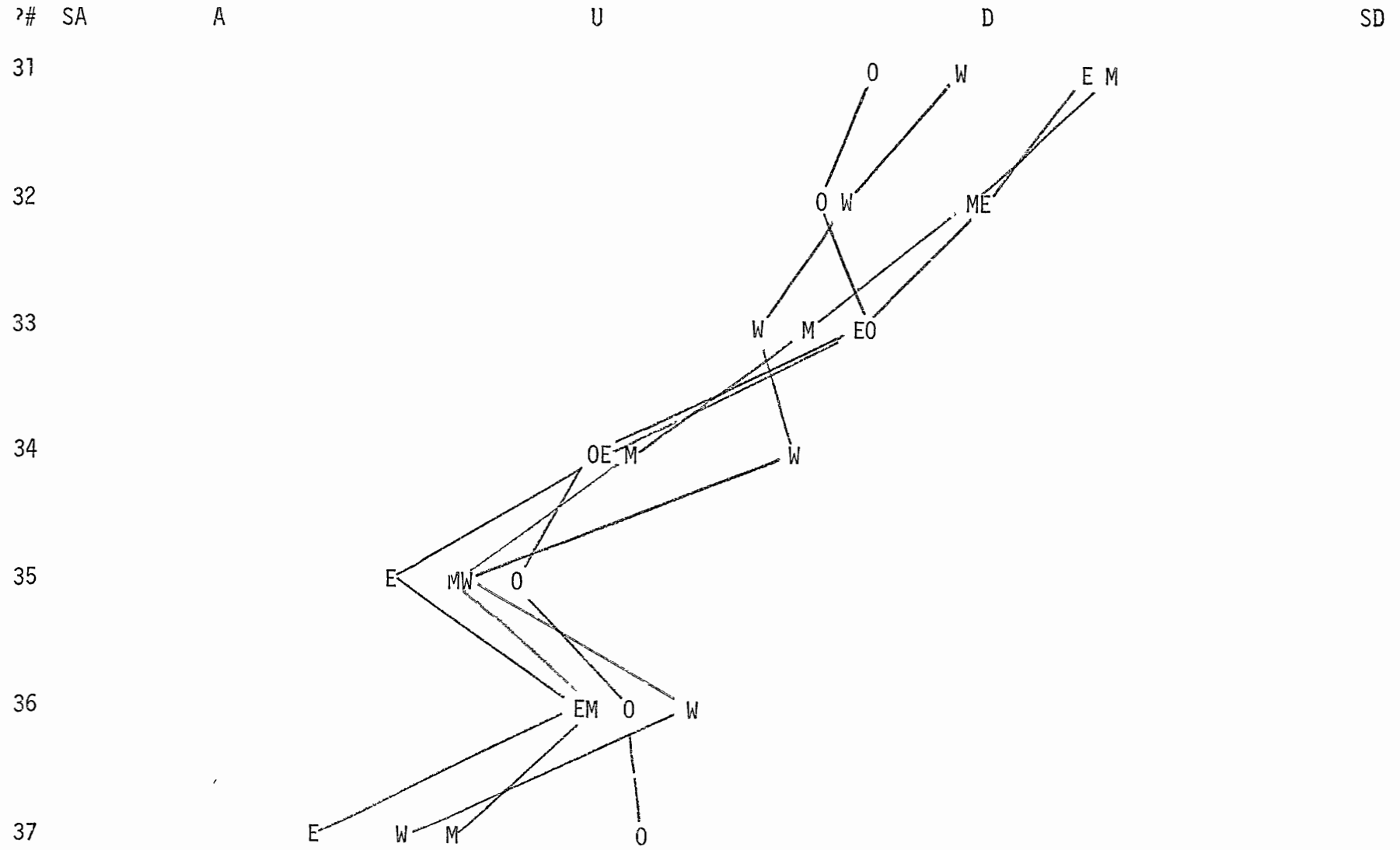

Fig. 12.--Average Responses, by Geographic Location of Undergraduate Schools, About Formal Training Programs in Communication Skills

CHAPTER VII

INTERPRETATIONS, COMMENTARIES, AND CONCLUSIONS

Data presentations in the preceding portions of this report have been made in a manner designed to minimize subjective interpretation. A conscious effort has been made to protect the prerogatives of the reader to effect individual interpretations of these data and to deduce conclusions independently It is the different and deliberate intent of this final section of the report to present interpretations, comments, and conclusions based on these data from the frame of reference of the principal researcher engaged in the development and execution of this study.[1]

Interpretation of Data

The design of this study emerged from an initial curiosity about possible differences among discrete but related segments of the medical profession in three areas (1) in their attitudes toward the importance of communication competence in modern medical practice, (2) in their opinions about the need and value of formal training in communication skills, and (3) in their recommendations relating to course content and format for communication skills training programs for physicians.

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[1]He was fifty-seven years old at the time of the data gathering phase of this study He is a speech educator with specialized academic interests in the areas of interpersonal communication and internal communication in business, professional, and industrial organizations.

The investigation of these differences among Medical Practitioner, Medical Educator, and Medical Student test populations has constituted a major thrust of this study. The interpretation of some of these differences will constitute an important part of this section of the report. At this point, however, it is important to note that these interesting and meaningful differences must be viewed against a background recognizing the marked similarities among these groups. These similarities far outweigh the differences and the initial portion of this interpretation of data will emphasize this perspective.

Composite Profile of Respondents

Combining the responses received from the three test groups from whom information was solicited provides a base for the development of a composite profile of these important segments of the medical profession. Nurses, technicians, and paraprofessional personnel, administrators, ancillary personnel, and those who failed to respond to this survey are not reflected in such a profile so it must not be thought of as typical of the entire medical profession. Acknowledging these limitations, however, such a composite does provide some insight into attitudes, opinions, and recommendations that apparently have not been explored previously in a systematic manner.

Attitudes Toward Importance of Communication Skills.--Tables 95 and 96 provide both the calculated central tendencies and the rank order of indicated importance of eleven communication skills based on the responses received in the survey. Interpersonal communication skills were ranked higher in importance than were those related to group

communication processes. Both of these areas were rated as being more important than skill in mass communication areas Face-to-Face Interpersonal Communication, followed closely by Listening, topped the ratings and approached the Extremely Important pole of this continuum. Skill in Radio and TV Performance was ranked last among these items and given a Minimally Important rating. Skill in Public Address and in the Oral Reading of Manuscripts were damned with faint praise at the Somewhat Important level. The remaining skills of Interviewing, Indirect Interpersonal Communication, Nonverbal Communication, Group Leadership, Group Participation, and Analysis of Language were all rated as being Quite Important.

Over a period of the last several years closed circuit TV has been used in the instruction of both students and participating physicians at the Kansas University Medical Center. Radio and TV Performance was included among the skills rated on the assumption that increasing use of such facilities would enhance the importance of this skill in this facet of modern medical practice. No systematic effort has been made to explore the failure of the survey to support this assumption, but it suggests an interesting and potentially important area for research.

Analysis of Language was included among the communication skills to be evaluated with some reservations The fear that it might be subject to a variety of definitions and meanings proved to be well founded. Follow-up inquiries indicated that some interpreted this to relate to the translation of technical terminology into more simple vocabulary for lay consumption, some associated it with word meaning or semantics, some with concepts that would fall more appropriately under the rubric of

General Semantics, and several seemed to lack specificity in their definition of the concept. Despite the variety of interpretations of its meaning there was a surprising uniformity of evaluation of its importance. Obviously the reservations with which this skill was included in the survey should be extended into the interpretation of its evaluations

Attitudes Toward Importance of Communication Competence in Medically Oriented Situational Applications --When evaluations were made in terms oriented more specifically toward medical situations, the average evaluation was substantially higher than was that for the more generalized communication skills. The ratings and rank order of these nineteen situational applications may be found in Tables 98 and 99.

The traditional centrality of the ethical doctor-patient relationship is supported by the ranks and ratings given by respondents to the four situations involving such forms of communicative interactions. Eliciting and receiving information from patients, Giving instructions to patients, and Securing patients' confidence and rapport were ranked first through third in importance. Each of these items was rated as Extremely Important by those responding to this survey. Dyadic communication events between physicians and other medical personnel also received generally high ratings and were ranked just below the situations involving doctor-patient interaction.

Communication events involving group processes, like Medical team participation, Medical team leadership and direction, and Medical team organization and development generally were rated lower than any

of the interpersonal types of situational applications. Communication events not viewed as falling within the scope of direct patient care were rated below those that were felt to be within such a classification. Presenting technical papers and reports to learned societies received the distinction of having the lowest rating, with Providing expert testimony in court and Administering the affairs of a medical office ranked just above it to complete the lower end of such a continuum.

Opinions About the Efficacy and Efficiency of Formal Training Programs in Oral Communication.--The items included in this section of the questionnaire were phrased in a manner designed to minimize built-in bias by the variety of orientations from which they were presented Without regard to how well this objective may, or may not, have been accomplished an unintended result of this effort was that no real base exists for their comparative analysis.

Examining Table 101 will disclose that those responding to the survey tend to disagree with the observations that "Formal instruction in communication skills is a complete waste of time" and "These skills can only be acquired in actual medical practice." They seemed to agree with the statements that "Communication skills training should be emphasized in post-graduate and continuing medical education" and "Instruction in communication skills should be integrated with existing medical school courses." Responses to other statements presented in this section of the survey tended to average out in more neutral or undecided positions

Incidence and Evaluation of Reported Course Work.--Tables 102 and 103 relate to the incidence and locus of course work in speech taken by respondents to the survey, while Tables 104 and 105 depict the evaluations and rankings of course work in speech experienced by them. The 2215 courses reported indicates an average of 6.4 speech courses per respondent. Slightly over 36 per cent of these experiences occurred in undergraduate school and more than 28 per cent in medical school.

Medical History Taking, Interviewing, and Interpersonal Communication were ranked highest in the evaluations. Debate, Public Address, Fundamentals of Speech, and Logic occupied the lower end of the same rank order of speech and speech related courses included in the inquiry. The usual variety of responses contributing to these ratings of course offerings was markedly missing in the case of Medical History Taking. This course received uniformly high ratings and contributed importantly to the notably higher average evlauations given to course work experienced in medical school compared with those taken in other academic settings

Responses to Open-ended Inquiries.--Several theses seemed to recur frequently among the responses seeking syllabus and format recommendations. Few of them, however, provided meaningful information of this nature.

One of these repeated concepts was that of a need for pragmatism versus altruism in medical education. This usually took the form of incredulity when confronted with the concept that speech education might be a useful tool and a meaningful adjunct to medical knowledge rather than an attempted academic territorial invasion.

Another comment that was expressed in a variety of ways was the resentment the medical profession feels at the resistance expressed

against improved methods and more efficient procedures by a society that so readily accepts depersonalization in so many other areas of public service.

Many respondents commented on the gap between course potential and actual benefits received. Frequent references were made, supplementing forced-choice course evaluations, to the effect that course concepts and content were potentially much greater than the indicated evaluation because of the quality of instruction and/or manner of presentation. Several commented that course titles had been misleading

Comparison of Data from Different Test Populations

The systematic and simultaneous use of identical questionnaire instruments for each of the three discrete but related test populations in this study provides a controlled method of indicating, identifying, and examining any differences and similarities that might exist with reference to any of the variables examined in it.

Attitudes Toward the Generalized Importance of Communication Competence.--A comparative analysis of the total responses to eleven questions seeking to identify attitudes toward the importance of communication competence reflects the absence of statistically significant differences among them. The limited differences that do occur on the basis of such an over-all analysis seem attributable to the slightly higher assignment of values to eight of these eleven areas by the respondents from the Medical Practitioner test sample.

The Medical Student test sample, which provided the lowest average rating for five of these areas, indicated the highest evaluation

for the remaining categories of Nonverbal Communication, Interviewing, and Listening. These combined with five bottom ratings to create an approximate tie between the Medical Student and Medical Educator respondents.

The examination of responses to individual questions in this section reveals no significant differences when the three groups are compared collectively. When compared by pairs of test samples, significant differences emerged only with respect to competence in the areas of Public Address, Oral Reading of Manuscripts, Radio and TV Performance, and Interviewing.

The differences between the Medical Practitioner test sample responses to the inquiry about the importance of competence in Public Address for physicians in modern medical practice and the responses of the other two sub-population test samples was significant at the 0 05 level in both instances The frequency and distribution patterns for the Medical Educator and Medical Student groups were quite similar with reference to this question. These differences seem attributable to the markedly higher assignment of value given to this skill by the respondents from the Medical Practitioner test sample.

The average of the responses from the Medical Student test sample assigned a markedly lower importance rating to the inquiry about competence in the Oral Reading of Manuscripts The difference between the responses of Medical Educators and Medical Practitioners was not statistically significant, although the latter rating was the higher of the two. The net result of this combination of factors indicated the highly significant difference, at the 0.01 level, between the responses of the Medical Student and Medical Practitioner test samples and a

similarly oriented difference between the Medical Student and Medical Educator groups that was significant at the 0.02 level.

Difference in responses to the inquiry about the importance of competence in Radio and TV Performance closely paralleled those described in the preceding paragraph. The same description and explanation applies to them.

The importance of competence in Interviewing was the only question to which the Medical Practitioner population provided the lowest rating among the three sub-population test samples. To maintain perspective it should be noted that this lowest score still rates about one-third of the way from Quite Important to Extremely Important. This accounted for the difference, significant at the 0.05 level, between this group and the Medical Student test sample which reflected the highest assignment of importance to this item. Differences between the medial response of the Medical Educator group and the other test samples were not statistically significant.

Attitudes Toward the Importance of Communication Competence in Medically Oriented Situational Applications.--The nineteen items designed to elicit responses assigning degrees of importance to communication competence in medically oriented situational applications produced a slightly different pattern of results. The Medical Educator test sample produced the highest composite response and the highest of the three test sample responses to fifteen of the nineteen items. Although generally reflecting a medial position on these items, the Medical Practitioner respondents were markedly higher in their evaluation of the importance of communication competence in the administration of the affairs of a medical office.

In general, however, these two groups were closer in their evaluations than either of them were to the lower assignments of importance characterizing the responses of the Medical Student test sample The notable exceptions to this observation were the markedly high importance ratings given by the Medical Student respondents to the item relating to advising patients of terminal prognoses and to questions about the importance of group participation and group leadership in medical practice.

Comparative analyses of the responses to this section of the survey reflect the absence of significant differences on an over-all basis and with reference to fifteen of these questions. Differences reflected in the analyses of responses to the other four questions in this portion of the survey are explained in the following paragraphs

Medical Student test sample responses to the inquiry about the importance of communication competence in informing and instructing nurses were notably lower than those of the other two test samples Medical Practitioner responses were medial with reference to this question and not significantly different from either of the other two groups. The difference between the low evaluation of the Medical Student group and the high importance attributed to this item by the Medical Educators was highly significant at the 0.01 level. This difference also resulted in a significant difference, at the 0 05 level, when these three test sample responses were compared compositely.

The maximum range in the responses to any of the questions in this section of the survey was between the Med . Practitioner and the Med. Student groups with reference to the question about the importance of communication competence in the administration of the affairs of a medical

office. The responses of the Medical Educator group were only slightly higher than, and thus not significantly different from, those of the Medical Student test sample The differences between the high rating assigned by the Medical Practitioner group and the responses of each of the other two test samples was highly significant at the 0 01 level. A composite analysis of the responses of the three test samples also reflects a difference that is statistically significant at the same level.

Responses to the question about the importance of communication competence in advising and consulting with families and friends of patients found the Medical Educator group assigning a higher degree of importance to this item than either of the other test samples The Medical Practitioner group, however, was but slightly lower in its assignment of importance and the difference between them was not statistically significant. The notably lower value indicated by the Medical Student test sample resulted in a significant difference, at the 0.05 level, between this test sample and the Medical Practitioner group. The difference between the Medical Educator and Medical Student test samples for this item was highly significant at the 0.01 level.

Medical Educators and Medical Practitioners both appear to place high value on the importance of communication competence in the presentation of technical papers and reports to learned societies The difference between them was not statistically significant, but Medical Educators reflected a slightly higher evaluation in this survey. This difference accounts for the fact that a comparison of the differences between the responses of the Medical Practitioner and Medical Student test samples indicates an approach to statistical significance which is not quite

attained at the 0.05 level. The difference between the Medical Educator and Medical Student test sample responses to this inquiry, however, was highly significant at the 0 01 level.

Opinions About the Need and Value of Formal Training Programs in Communication Skills.--Responses on a continuum ranging from SA = Strongly Agree to SD = Strongly Disagree were solicited to seven statements relating to formal instruction in communication skills. The use of U = Undecided as a medial point in this continuum was questioned by some of those responding to the survey As these insightful comments predicted, there appeared to be some hesitancy on the part of respondents to accept and utilize this option, and responses to this portion of the study should be viewed with this possible weakness in mind.

There were no statistically significant differences between the responses of the Medical Practitioner and Medical Educator test samples to any of these seven questions. Medical Student test sample responses that were significantly different from those of the other responding groups are identified and explained in the following paragraphs.

Medical Students demonstrated a markedly greater tendency to agree with the statement that "Formal instruction in communication skills is a complete waste of time" than did either of the other two test samples The difference between the responses of this group and those of the Medical Practitioner group was highly significant at the 0.01 level. Other differences between test sample responses to this item were not found to be statistically significant.

The responses received from Medical Practitioner and Medical Educator test samples were quite similar with reference to the degree of

agreement with the statement that "An adequate level of communication competence can only be acquired by physicians in actual medical practice." Medical Student test sample responses demonstrated significantly higher tendencies to agree with this statement than did either of the other two groups. The difference between Medical Student and Medical Practitioner responses was highly significant at the 0 01 level. Differences between the Medical Student group and the Medical Educator test sample were significant at the 0 05 level

Medical Student respondents also demonstrated a markedly higher tendency toward agreement with the statement "Instruction in communication skills should be integrated with existing medical school courses" than did respondents from the other test samples. In this instance the difference between Medical Student and Medical Practitioner responses was highly significant at the 0 01 level The difference between the responses of the Medical Student and Medical Educator test samples to this statement was quite significant at the 0.02 level.

Medical Students demonstrated the highest tendency, and Medical Practitioners the lowest, to agree with the statement that "Communication skills can best be developed, by physicians, in discrete courses specifically geared to the needs of medical practice." The difference between the responses of these groups was statistically significant at the 0.05 level.

Medical Educator respondents demonstrated a slightly greater tendency than did Medical Practitioner respondents to agree with the statement that "Communication skills training should be emphasized in postgraduate and continuing medical education programs." Medical Student respondents again demonstrated a markedly greater tendency toward

agreement than did either of these groups. The resulting differences were significant at the 0.05 level between the Medical Student and Medical Educator groups and quite significant, at the 0.02 level, between the Medical Student and Medical Practitioner test samples.

Interpretation of Communication Skills Experiences.--Twenty-one course offerings in communication and communication related skills were analyzed earlier in this report to indicate the incidence, locus, and evaluations of courses taken. These responses were analyzed to indicate significant differences between pairs of test samples in any of these experiences. The purpose of this section of the report is to indicate and explain the nature of these differences. No significantly different experiences were reported between the Medical Practitioner and Medical Educator test samples with reference to eighteen of the course offerings examined. The factor contributing most importantly to the difference between these two groups with reference to Human Relations was the larger number of Medical Educators who had not experienced this course offering. The difference in this instance was significant at the 0.05 level.

More Medical Practitioners reported having experienced Fundamentals of Speech course work than did Medical Educators. This difference between these test samples was highly significant at the 0.01 level.

The difference, highly significant at the 0.01 level, between these two test samples in their reported exposure to Medical History Taking as a course offering can be attributed to the other-than-M.D. doctoral programs of a large number of those constituting the Medical Educator sub-population.

The comparison of Medical Practitioner and Medical Student test samples reflects significant differences involving four of the twenty-one course offerings examined In two of these courses small numbers of enrollments are involved and the results should be viewed with caution. Five Medical Practitioners and thirteen Medical Students reported having taken courses titled Argumentation. Although this ratio results in a difference that is statistically significant, the small fraction of the total test samples that are involved suggests the wisdom of discounting its importance, or at least considering it as indicative of an interesting but not yet conclusive trend.

The same observations must be made with reference to the five Medical Practitioners and the nine Medical Students who indicated having taken courses called Persuasion. Eight of the Medical Students reporting having had this course indicated that its locus was in secondary or undergraduate school. Medical Practitioners reported experiencing such course offerings only in medical school and on an extra-curricular basis.

The 0 05 level of significance in the difference between the Medical Practitioner and Medical Student respondents in their reported incidence of having taken Fundamentals of Speech can be attributed specifically to two factors Medical Practitioners fell below the expectations of the null hypothesis in their reported incidence of exposure to this course in undergraduate school while Medical Student respondents reported more undergraduate level enrollments than would have been anticipated. Similarly the Medical Practitioner group reported a higher, and the Medical Student a lower, incidence of having not taken this course than would have been anticipated by the null hypothesis tested

The indicated differences between these two groups in their exposure to formal courses titled Sensitivity Training requires special notation and explanation. Although this difference was calculated to be significant statistically at the 0.01 level, it should be indicated that the differences are primarily in the locus rather than in the incidence of these courses. For example, this course was experienced by Medical Practitioners fourteen times in extracurricular settings and once in medical school. On the other hand, Medical Student respondents reported having taken such a course seven times in undergraduate school, eight times in medical school, and seven times in extracurricular settings Thus it seems reasonable to consider these indications more descriptive of changing trends and practices in academic curricula than of basic differences between these groups of respondents.

Very similar explanations can be used for the six significant differences reported in course work taken between the Medical Educator and Medical Student test samples. Differences between these groups were significant at the 0 02 level with reference to Group Discussion and at the 0 01 level with reference to Fundamentals of Speech, Sensitivity Training, Listening Improvement, and Medical History Taking. In addition the composite difference for all twenty-one of the course offerings averages out as significant at the 0.05 level for these two groups.

In all instances the differences are accounted for primarily by the greater number of Medical Students who have been enrolled in these courses. The homogeneity of this group in age, geographic location of secondary and undergraduate schools, and in M.D. and premedical curriculum orientation contrasts sharply with the characteristics of the Medical

Educator test sample. This provides the underlying explanation of these differences in the incidence of formal communication training experienced by these two test populations.

The comparison of the evaluations of Medical Practitioner and Medical Educator respondents indicated significant differences at the 0.02 level for Logic, at the 0 05 level for Nonverbal Communication, and at the 0 01 level for the Reading of Technical Papers.

The difference between these groups in their evaluation of course work taken in Logic is attributable to the unusual distribution of the evaluative responses of the Medical Educator group This group reflected a larger number of polar indications at both the CWT = Complete Waste of Time and the EVM = Extremely Valuable to Me ends of the continuum and fewer responses at the medial SVM = Somewhat Valuable to Me position than would have been anticipated by either a normal distribution or the null hypothesis as stated.

The difference between these two groups in their evaluation of course experiences in Nonverbal Communication clearly can be attributed to the markedly higher value assignments made by the Medical Educator test sample.

The difference between these two groups with reference to their evaluation of course experiences in the Reading of Technical Papers also can be attributed directly and clearly to the markedly higher value assignments made by the respondents from the Medical Educator test sample.

Statistically significant differences were indicated between the Medical Student and Medical Practitioner test sample responses for four

courses and between the Medical Student and Medical Educator groups for seven course offerings. Without exception these differences can be explained clearly and simply as the result of lower value assignments by respondents from the Medical Student test sample. With the single exception of Debate, for which the average of their value assignments occupied a medial position, the evaluations of the Medical Student test sample respondents were uniformly lower than those of the other two test samples and varied only in degree.

Commentaries

About the Study in General

Whatever other benefits may, or may not, result from this study it has already provided its principal researcher with an understanding of the basic operations of some segments of the medical profession and a deeper awareness of the milieu within which its communicative interactions take place than could have been anticipated or hoped for at its inception.

About the Subjects Selected for the Test Samples

These are truly dedicated, involved, and busy people. In general they share feelings of ambivalence about any investigation of the medical profession, regardless of its sponsorship or purpose.

About the Design of the Study

As has been indicated earlier, a better knowledge of the composition of medical school faculty personnel would have been an asset in contemplating some of the problems involved in questionnaire design.

Follow-up interviews indicated some confusion about the proper classification of some other-than-core-curriculum course work taken in medical school. There is an apparent lack of uniformity, both among medical schools and within the same school over extended periods of time, with reference to academic credit for such electives as Group Dynamics, Conference Leadership, and Human Relations. Perhaps the addition of a separate "Non-credit" classification of course work would have minimized this confusion.

Undoubtedly the authorized use of the "Dean's Office" address for the transmittal and return of questionnaires exerted an unmeasurable but helpful influence on the number of responses received. Personal interviews with non-respondents indicated, however, that this might have been a mixed blessing. There were some instances where questionnaires were executed after direct interviews and explanations by test sample subjects who had been unwilling to mail signed questionnaires to the office of the school's top administrative officer

In retrospect, the procedures for qualifying test sample subjects for the study seem unnecessarily complex and cumbersome. It would seem advisable, for similar studies, to streamline this portion of the design by minimizing its complexity and utilizing only the procedure eventually followed.

The unexpectedly large number of follow-up and call-back visits that were required to complete partially executed questionnaires indicates a need for technical improvement of these instruments. The use of pagination and of serial numbering of items might have been helpful.

It would be difficult to exaggerate the value of the assistance received from the office of the Dean, the Registrar, the medical school

Curriculum Committee, and the KU Medical Alumni Association, particularly during the design and development phase of this study.

About the Execution of the Study

Unquestionably the survey phase of this study has been its most difficult and its most interesting activity. No method has evolved from the study for replacing the laborious process of making personal calls to secure the completion of unfinished questionnaires or to attempt to secure responses. The insights gained from interviews resulting from some of these calls was more than worth the time and effort required to secure them.

About the Report of This Study

Slightly over seventy per cent of the respondents to this study executed a form requesting a copy of an abstract of this report

An effort has been made to present both the data from the survey and the analyses of these data in as complete and in as completely objective a manner as possible Observations relating to them will be restricted to a few basic conclusions in the final section of this chapter.

About Other Investigations Suggested by This Study

The inclusion of first and second year medical students in the study would have provided a slightly different and possibly an additionally meaningful body of information for examination. It might have provided a means of gaining some insights into changes in attitudes and opinions of medical students during their doctoral program in medicine.

The examination of other than Core Curriculum (M D. oriented) students, graduates and educators from the same institution might be of value. For example, an essentially duplicative companion study of test populations of Nursing Students, Nursing Educators and Nursing Practitioners from the same school would provide not only a study in itself but also an interesting comparison between the two studies.

The homogeneous nature of the Medical Student and Medical Practitioner test samples in this study suggests the possible value of replicating this study at other similar institutions in different parts of the country. This would permit more meaningful comparative analyses based on such variables as the location, type, and size of medical schools and of premedical backgrounds.

The failure of this investigation to disclose the existence of earlier studies of a similar nature precludes the possibility of answering important questions raised by this study on any bases other than sheer speculation. There is no known way, for example, of comparing the responses of the Medical Practitioner test sample to this survey with responses the same subjects might have given to similar inquiries during their years as students in the core curriculum. Thus there is no empirical base from which to seek answers to questions about whether the significant differences between these groups reflect profound and linear philosophic changes with reference to the communicative aspects of medical practice or differences that are attributable primarily to the variables of age and professional experience.

It would be a long range project, and well might be beyond the limits of feasibility, but the prospect of the possible replication of

of this study at a time when those who served as subjects in the Medical Student test sample were qualified for a similar role in Medical Practitioner and/or Medical Educator test samples of such an investigation would provide a wealth of data from which insights of this nature might be developed.

Conclusions

The following conclusions seem to emerge from an integration of the statistical and expository reports of respondents to this survey:

1) With notable and outspoken exceptions, there is general support for the positions that communication competence is becoming increasingly important for physicians in modern medical practice and that a need exists for competent formal instruction in communication skills in their academic training programs.
2) There is general support for the position that the present and probable future requirements for technical instruction in medical school preclude the possibility of effecting the curriculum expansion or the course proliferation that would be needed to accomplish such training in the medical school program.
3) Although the undergraduate level of their instruction thus emerges as the most appropriate locus of formal training in communication skills for future medical practitioners, the results of this survey raise questions about the adequacy of existing undergraduate course offerings for this purpose.

4) This combination of factors seems to suggest the possible wisdom and advisability of developing specialized pre-professional, and perhaps even premedical, communication training programs at the undergraduate level. Such programs would need to be geared to the needs of professional practice and to be developed and conducted by faculty personnel with competence in speech communication and extensive knowledge of the professional field to which their students are oriented.

5) The near unanimity with which the respondents from the three sub-populations surveyed in this study emphasized the importance of the communicative aspects of ethical doctor-patient relationships dictates the necessity of focusing the central thrust of such programs toward their consideration.

6) The relative high importance attached by Medical Student respondents to Advising patients of Terminal Prognoses contrasted sharply with the lower rating given to the same item by the more mature and experienced Medical Practitioner respondents. This circumstance suggests the inclusion of the further consideration of this aspect of the study in such a training program.

7) Conversely, the relatively low ratings given by Medical Student respondents to inquiries about Managing the Affairs of a Medical Office and about interpersonal communication events occurring between physicians and other medical personnel contrasts sharply with the higher ratings given to such events by older and more experienced respondents. Some emphasis on them thus seems to be indicated in such programs.

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APPENDICES

APPENDIX A

Questionnaire Instruments

QUESTIONNAIRE FOR MEDICAL PRACTITIONERS

For each of the following oral and orally related communication skills please circle the response that best reflects your thinking about the importance of competence in them for physicians in modern medical practice, using this code:

NI - Not Important At All
MI - Minimally Important
SI - Somewhat Important
QI - Quite Important
EI - Extremely Important

Public Address	NI	MI	SI	QI	EI
Oral Reading of Manuscripts	NI	MI	SI	QI	EI
Radio and TV Performance	NI	MI	SI	QI	EI
Group Participation	NI	MI	SI	QI	EI
Group Leadership	NI	MI	SI	QI	EI
Face-to-Face Interpersonal Communication	NI	MI	SI	QI	EI
Indirect (Telephone, e.g.)Interpersonal Comm.	NI	MI	SI	QI	EI
Nonverbal Communication	NI	MI	SI	QI	EI
Interviewing	NI	MI	SI	QI	EI
Listening	NI	MI	SI	QI	EI
Analysis of Language	NI	MI	SI	QI	EI

Please use the same system to indicate the response that best reflects your thinking about the importance of competence in communication for physicians in each of the following situations:

Eliciting and receiving information from patients	NI	MI	SI	QI	EI
Giving instructions to patients	NI	MI	SI	QI	EI
Securing patients' confidence and rapport	NI	MI	SI	QI	EI
Therapeutic and inspirational comm. with patients	NI	MI	SI	QI	EI
Receiving information from nurses	NI	MI	SI	QI	EI
Informing and instructing nurses	NI	MI	SI	QI	EI
Providing information to other doctors	NI	MI	SI	QI	EI
Securing information from other doctors	NI	MI	SI	QI	EI
Instructing paramedical and other personnel	NI	MI	SI	QI	EI
Receiving information from paramedical and other personnel	NI	MI	SI	QI	EI

Advising patients of terminal prognoses	NI	MI	SI	QI	EI
Medical team participation	NI	MI	SI	QI	EI
Medical team leadership and direction	NI	MI	SI	QI	EI
Medical team organization, development and training	NI	MI	SI	QI	EI
Evaluating medical team performance	NI	MI	SI	QI	EI
Administering the affairs of a medical office	NI	MI	SI	QI	EI
Advising and consulting with families and friends of patients	NI	MI	SI	QI	EI
Providing expert testimony in court	NI	MI	SI	QI	EI
Presenting technical papers and reports to learned societies	NI	MI	SI	QI	EI
_____	NI	MI	SI	QI	EI

Please select and circle the response that best reflects your position with reference to each of the following statements about the effectiveness of formal programs of instruction in communication skills for future medical practitioners, using this code:

SA - Strongly Agree
A - Agree
U - Undecided
D - Disagree
SD - Strongly Disagree

Formal instruction in communication skills is a complete waste of time.	SA	A	U	D	SD
These skills can only be acquired in actual medical practice.	SA	A	U	D	SD
Such training can best be accomplished in extracurricular and nonacademic programs.	SA	A	U	D	SD
Such training can best be accomplished in secondary and undergraduate schools.	SA	A	U	D	SD
Instruction in communication skills should be integrated with existing medical school courses	SA	A	U	D	SD
These skills can best be developed in discrete courses specifically geared to the needs of medical practice.	SA	A	U	D	SD
Communication skills training should be emphasized in postgraduate and continuing medical education programs.	SA	A	U	D	SD
_____	SA	A	U	D	SD

IDENTIFICATION AND EVALUATION OF COMMUNICATION TRAINING

Please indicate any course work or other training programs you may have taken and your evaluation of them, indicating both historical and evaluative information by circling appropriate responses using these codes:

Historical	Evaluative
NT - Never Taken	CWT - Complete waste of my time
SS - Secondary School	LVM - Of little value to me
UG - Undergraduate School	SVM - Of some value to me
MS - Medical School	QVM - Quite valuable to me
EX - Extracurricular	EVM - Extremely valuable to me

Public Address	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Interpersonal Comm.	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Business and Prof. Speech	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Interviewing	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Organizational Comm.	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
General Semantics	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Debate	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Group Discussion	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Logic	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Argumentation	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Human Relations	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Persuasion	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Group Dynamics	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Conference Leadership	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Nonverbal Communication	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Case Analysis	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Fundamentals of Speech	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Reading of Tech. Papers	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Sensitivity Training	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Listening Improvement	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Medical History Taking	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
_____		SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM

RECOMMENDATIONS

Please indicate in some detail, using the reverse sides of questionnaire sheets if you wish, any recommendations you have for the development or improvement of communication training programs for medical and/or pre-medical students. Your inclusion of specific suggestions for course content, format, or teaching methods will be appreciated. Please indicate any texts, films, tapes, other audio or visual aids, etc. that might contribute to useful syllabi for such programs.

PERSONAL DATA

This information is solicited only for its possible use in the analysis and interpretation of other data received from the survey. It will be reported only in composite form.

Age: ___Under 30, ___30-35, ___35-40, ___40-45, ___45-50, ___50-55, ___55-60, ___Over 60.

Sex: ___Female, ___Male.

Where did you attend high school? _____(state or country)

Baccalaureate degree(s) held_____ Issuing school(s)_____ Major area(s)_____

Other degrees, experience, or training before medical school_____

What board certifications do you hold?_____

What is the nature of your present practice?_____

Thank you again for your courtesy and cooperation. Your contribution to this study is indeed appreciated. Your anonymity will be protected, but it is necessary to ask you to identify yourself in the space provided below to insure coverage control in a rigidly structured sampling procedure. No publication or distribution of individual responses is to be made.

Sincerely yours,

Executed and returned by:

Raymond E. Carter

_____

QUESTIONNAIRE FOR MEDICAL EDUCATORS

For each of the following oral and orally related communication skills please circle the response that best reflects your thinking about the importance of competence in them for physicians in modern medical practice, using this code:

NI - Not Important At All
MI - Minimally Important
SI - Somewhat Important
QI - Quite Important
EI - Extremely Important

Public Address	NI	MI	SI	QI	EI
Oral Reading of Manuscripts	NI	MI	SI	QI	EI
Radio and TV Performance	NI	MI	SI	QI	EI
Group Participation	NI	MI	SI	QI	EI
Group Leadership	NI	MI	SI	QI	EI
Face-to-Face Interpersonal Communication	NI	MI	SI	QI	EI
Indirect (Telephone, e.g.) Interpersonal Comm.	NI	MI	SI	QI	EI
Nonverbal Communication	NI	MI	SI	QI	EI
Interviewing	NI	MI	SI	QI	EI
Listening	NI	MI	SI	QI	EI
Analysis of Language	NI	MI	SI	QI	EI

Please use the same system to indicate the response that best reflects your thinking about the importance of competence in communication for physicians in each of the following situations:

Eliciting and receiving information from patients	NI	MI	SI	QI	EI
Giving instructions to patients	NI	MI	SI	QI	EI
Securing patients' confidence and rapport	NI	MI	SI	QI	EI
Therapeutic and inspirational comm. with patients	NI	MI	SI	QI	EI
Receiving information from nurses	NI	MI	SI	QI	EI
Informing and instructing nurses	NI	MI	SI	QI	EI
Providing information to other doctors	NI	MI	SI	QI	EI
Securing information from other doctors	NI	MI	SI	QI	EI
Instructing paramedical and other personnel	NI	MI	SI	QI	EI
Receiving information from paramedical and other personnel	NI	MI	SI	QI	EI

Advising patients of terminal prognoses	NI	MI	SI	QI	EI
Medical team participation	NI	MI	SI	QI	EI
Medical team leadership and direction	NI	MI	SI	QI	EI
Medical team organization, development and training	NI	MI	SI	QI	EI
Evaluating medical team performance	NI	MI	SI	QI	EI
Administering the affairs of a medical office	NI	MI	SI	QI	EI
Advising and consulting with families and friends of patients	NI	MI	SI	QI	EI
Providing expert testimony in court	NI	MI	SI	QI	EI
Presenting technical papers and reports to learned societies	NI	MI	SI	QI	EI
_____	NI	MI	SI	QI	EI

Please select and circle the response that best reflects your position with reference to each of the following statements about the effectiveness of formal programs of instruction in communication skills for future medical practitioners, using this code:

SA - Strongly Agree
A - Agree
U - Undecided
D - Disagree
SD - Strongly Disagree

Formal instruction in communication skills is a complete waste of time.	SA	A	U	D	SD
These skills can only be acquired in actual medical practice.	SA	A	U	D	SD
Such training can best be accomplished in extracurricular and nonacademic programs.	SA	A	U	D	SD
Such training can best be accomplished in secondary and undergraduate schools.	SA	A	U	D	SD
Instruction in communication skills should be integrated with existing medical school courses.	SA	A	U	D	SD
These skills can best be developed in discrete courses specifically geared to the needs of medical practice.	SA	A	U	D	SD
Communication skills training should be emphasized in postgraduate and continuing medical education programs.	SA	A	U	D	SD
_____	SA	A	U	D	SD

IDENTIFICATION AND EVALUATION OF COMMUNICATION TRAINING

Please indicate any course work or other training programs you may have taken and your evaluation of them, indicating both historical and evaluative information by circling appropriate responses using these codes:

Historical	Evaluative
NT - Never Taken	CWT - Complete waste of my time
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Business and Prof. Speech	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Interviewing	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
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General Semantics	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Debate	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
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Listening Improvement	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Medical History Taking	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
_____		SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM

RECOMMENDATIONS

Please indicate in some detail, using the reverse sides of questionnaire sheets if you wish, any recommendations you have for the development or improvement of communication training programs for medical and/or pre-medical students. Your inclusion of specific suggestions for course content, format, or teaching methods will be appreciated. Please indicate any texts, films, tapes, other audio or visual aids, etc. that might contribute to useful syllabi for such programs.

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Age: ___Under 30, ___30-35, ___35-40, ___40-45, ___45-50, ___50-55, ___55-60, ___Over 60.

Sex: ___Female, ___Male.

Where did you attend high school?_____(state or country)

Pre-doctoral degree(s) held_____ Issuing school(s)_____ Major area(s)_____

Doctoral degree(s) held_____ Issuing school(s)_____ Year(s) received_____

What board certification(s) do you hold?_____

What is your faculty rank?_____ Department?_____

Length of time on medical school faculty_____(years)?

Thank you again for your courtesy and cooperation. Your contribution to this study is indeed appreciated. Your anonymity will be protected, but it is necessary to ask you to identify yourself in the space provided below to insure coverage control in a rigidly structured sampling procedure. No publication or distribution of individual responses is to be made.

Sincerely yours,

Executed and returned by:

Raymond E. Carter

_____

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Listening	NI	MI	SI	QI	EI
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Medical team participation	NI	MI	SI	QI	EI
Medical team leadership and direction	NI	MI	SI	QI	EI
Medical team organization, development and training	NI	MI	SI	QI	EI
Evaluating medical team performance	NI	MI	SI	QI	EI
Administering the affairs of a medical office	NI	MI	SI	QI	EI
Advising and consulting with families and friends of patients	NI	MI	SI	QI	EI
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_____	NI	MI	SI	QI	EI

Please select and circle the response that best reflects your position with reference to each of the following statements about the effectiveness of formal programs of instruction in communication skills for future medical practitioners, using this code:

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A - Agree
U - Undecided
D - Disagree
SD - Strongly Disagree

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Such training can best be accomplished in secondary and undergraduate schools.	SA	A	U	D	SD
Instruction in communication skills should be integrated with existing medical school courses.	SA	A	U	D	SD
These skills can best be developed in discrete courses specifically geared to the needs of medical practice.	SA	A	U	D	SD
Communication skills training should be empnasized in postgraduate and continuing medical education programs.	SA	A	U	D	SD
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Public Address	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Interpersonal Comm.	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Business and Prof. Speech	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Interviewing	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Organizational Comm.	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
General Semantics	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Debate	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
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Argumentation	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
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Persuasion	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Group Dynamics	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
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Nonverbal Communication	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Case Analysis	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Fundamentals of Speech	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
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Sensitivity Training	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Listening Improvement	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
Medical History Taking	NT	SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM
_____		SS	UG	MS	EX	CWT	LVM	SVM	QVM	EVM

RECOMMENDATIONS

Please indicate in some detail, using the reverse sides of questionnaire forms if you wish, any recommendations you have for the development or improvement of communication training programs for medical and/or pre-medical students. Your inclusion of specific suggestions for course content, format, or teaching methods will be appreciated. Please indicate any texts, films, tapes, other audio or visual aids, etc. that might contribute to useful syllabi for such programs.

PERSONAL DATA

This information is solicited only for its possible use in the analysis and interpretation of other data received from the survey. It will be reported only in composite form.

Age: ___Under 20, ___20-25, ___25-30, ___30-35, ___35-40, ___Over 40.

Sex: ___Female, ___Male. Attended high school in _____ (state or country).

Current medical school classification_____(year)?

Degree(s) now held_____ Issuing school(s)_____ Major(s) or area(s)_____

Other preparatory training or experience _____

In what type of medical practice do you now contemplate engaging?_____

Thank you again for your courtesy and cooperation. Your contribution to this study is indeed appreciated. Your anonymity will be protected, but it is necessary to ask you to identify yourself in the space provided below to insure coverage control in a rigidly structured sampling procedure. No publication or distribution of individual responses is to be made.

Sincerely yours,

Executed and returned by:

Raymond E. Carter

_____

APPENDIX B

Transmittal Cover Letters

MEDICAL COMMUNICATION SURVEY
GRADUATE SCHOOL
THE UNIVERSITY OF KANSAS

You are invited to participate in a survey designed to seek information about the attitudes, recommendations, and backgrounds of medical practitioners, students, and educators with reference to training in communication skills for future Doctors of Medicine.

Your completion of the enclosed questionnaire will be deeply appreciated. Your responses will be used only in composite form in a report of this study which will be a part of my doctoral program (Ph D.) in Speech Communication at The University of Kansas, Lawrence, Kansas.

The large number of individuals in each of the populations of the study dictates the necessity of using a rigidly structured and limiting sampling technique. The success of the study thus depends importantly upon the reception of responses from each of those invited to participate.

A self-addressed envelope is included for your convenience in returning the executed questionnaire. If you would like to receive a copy of an abstract of the study it will be my pleasure to send one to you In that case please include this sheet with your return transmittal.

Thank you for your courtesy and cooperation.

Sincerely yours,

Raymond E. Carter

_____Yes. I would like to have a copy of the abstract.

_____Please use above address.

_____Please change address to:

MEDICAL COMMUNICATION SURVEY
GRADUATE SCHOOL
THE UNIVERSITY OF KANSAS

You are invited to participate in a survey designed to seek information about the attitudes, recommendations, and backgrounds of medical educators, practitioners, and students with reference to training in communication skills for future Doctors of Medicine.

Your completion of the enclosed questionnaire will be deeply appreciated. Your responses will be used only in composite form in a report of this study which will be a part of my doctoral program (Ph.D.) in Speech Communication at The University of Kansas, Lawrence, Kansas.

The large number of individuals in each of the populations of the study dictates the necessity of using a rigidly structured and limiting sampling technique. The success of the study thus depends importantly upon the reception of responses from each of those invited to participate.

A self-addressed envelope is included for your convenience in returning the executed questionnaire. If you would like to receive a copy of an abstract of the study it will be my pleasure to send one to you. In that case please include this sheet with your return transmittal.

Thank you for your courtesy and cooperation.

_____Yes. I would like to have a copy of the abstract.

_____Please use above address.

_____Please change address to:

Sincerely yours,

Raymond E. Carter

MEDICAL COMMUNICATION SURVEY
GRADUATE SCHOOL
THE UNIVERSITY OF KANSAS

You are invited to participate in a survey designed to seek information about the attitudes, recommendations, and backgrounds of medical students, educators, and practitioners with reference to training in communication skills for future Doctors of Medicine.

Your completion of the enclosed questionnaire will be deeply appreciated. Your responses will be used only in composite form in a report of this study which will be a part of my doctoral program (Ph.D) in Speech Communication at The University of Kansas, Lawrence, Kansas.

The large number of individuals in each of the populations of the study dictates the necessity of using a rigidly structured and limiting sampling technique. The success of the study thus depends importantly upon the reception of responses from each of those invited to participate.

A self-addressed envelope is included for your convenience in returning the executed questionnaire. If you would like to receive a copy of an abstract of the study it will be my pleasure to send one to you. In that case please include this sheet with your return transmittal.

Thank you for your courtesy and cooperation.

_____Yes. I would like to have a copy of the abstract.

_____Please use above address.

_____Please change address to:

Sincerely yours,

Raymond E. Carter

APPENDIX C

Transmittal Envelopes

MEDICAL COMMUNICATION SURVEY, DEAN'S OFFICE
THE UNIVERSITY OF KANSAS MEDICAL CENTER
RAINBOW BOULEVARD AT 39th STREET
KANSAS CITY, KANSAS 66103

Please return via
KUMC campus mail.

MEDICAL COMMUNICATION SURVEY, DEAN'S OFFICE
THE UNIVERSITY OF KANSAS MEDICAL CENTER
RAINBOW BOULEVARD AT 39th STREET
KANSAS CITY, KANSAS 66103

MEDICAL COMMUNICATION SURVEY, DEAN'S OFFICE
THE UNIVERSITY OF KANSAS MEDICAL CENTER
RAINBOW BOULEVARD AT 39th STREET
KANSAS CITY, KANSAS 66103

APPENDIX D

Random Order Number Tables

Random Order Sequence For Groups of

A #	1	2	3	4	5	6	7	8	9	10	11	12	13
00	00	01	02	02	03	04	05	06	07	07	07	08	09
01		00	01	01	02	03	04	05	06	06	06	06	06
02			00	00	01	02	03	04	05	05	05	05	05
03				03	04	05	06	07	08	08	08	09	10
04					00	01	01	02	02	02	02	02	02
05						00	00	01	01	01	01	01	01
06							02	03	03	03	03	03	03
07								00	00	00	00	00	00
08									04	04	04	04	04
09										09	10	11	12
10											09	10	11
11												07	08
12													07

Random Order Sequence For Groups of

A #	14	15	16	17	18	19	20	21	22	23	24	25	26
00	10	11	12	13	14	15	16	17	18	19	20	21	22
01	07	07	08	09	09	10	11	12	12	13	14	15	15
02	06	06	07	08	08	08	09	10	10	11	12	13	13
03	11	12	13	14	15	16	17	18	19	20	21	22	23
04	02	02	02	03	03	03	04	05	05	06	06	07	07
05	01	01	01	01	01	01	02	03	03	04	04	04	04
06	03	03	03	04	04	04	05	06	06	07	07	08	08
07	00	00	00	00	00	00	01	01	01	02	02	02	02
08	04	04	04	05	05	05	06	07	07	08	09	10	10
09	13	14	15	16	17	18	19	20	21	22	23	24	25
10	12	13	14	15	16	17	18	19	20	21	22	23	24
11	09	10	11	12	13	14	15	16	17	18	19	20	21
12	08	08	09	10	10	11	12	13	13	14	15	16	17
13	05	05	06	07	07	07	08	09	09	10	11	12	12
14		09	10	11	11	12	13	14	15	16	17	18	19
15			05	06	06	06	07	08	08	09	10	11	11
16				02	02	02	03	04	04	05	05	06	06
17					12	13	14	15	16	17	18	19	20
18						09	10	11	11	12	13	14	14
19							00	00	00	01	01	01	01
20								02	02	03	03	03	03
21									14	15	16	17	18
22										00	00	00	00
23											08	09	09
24												05	05
25													16

Random Order Sequence For Groups of

A #	27	28	29	30	31	32	33	34	35	36	37	38	39
00	23	24	25	26	26	27	28	29	30	31	32	33	34
01	15	15	15	16	16	16	17	18	19	19	20	20	21
02	13	13	13	14	14	14	14	15	16	16	17	17	17
03	24	25	26	27	27	28	29	30	31	32	33	34	35
04	07	07	07	07	07	07	07	07	07	07	08	08	08
05	04	04	04	04	04	04	04	04	04	04	04	04	04
06	08	08	08	08	08	08	08	08	08	08	09	09	09
07	02	02	02	02	02	02	02	02	02	02	02	02	02
08	10	10	10	10	10	10	10	10	10	10	11	11	11
09	26	27	28	29	30	31	32	33	34	35	36	37	38
10	25	26	27	28	29	30	31	32	33	34	35	36	37
11	22	23	24	25	25	25	26	27	28	29	30	31	32
12	18	18	19	20	20	20	21	22	23	24	25	26	27
13	12	12	12	13	13	13	13	14	15	15	16	16	16
14	20	20	21	22	22	22	23	24	25	26	27	28	29
15	11	11	11	12	12	12	12	13	14	14	15	15	15
16	06	06	06	06	06	06	06	06	06	06	06	06	06
17	21	21	22	23	23	23	24	25	26	27	28	29	30
18	14	14	14	15	15	15	15	16	17	17	18	18	18
19	01	01	01	01	01	01	01	01	01	01	01	01	01
20	03	03	03	03	03	03	03	03	03	03	03	03	03
21	19	19	20	21	21	21	22	23	24	25	26	27	28
22	00	00	00	00	00	00	00	00	00	00	00	00	00
23	09	09	09	09	09	09	09	09	09	09	10	10	10
24	05	05	05	05	05	05	05	05	05	05	05	05	05
25	16	16	16	17	17	17	18	19	20	20	21	21	22
26	17	17	17	18	18	18	19	20	21	21	22	22	23
27		22	23	24	24	24	25	26	27	28	29	30	31
28			18	19	19	19	20	21	22	23	24	24	25
29				11	11	11	11	12	13	13	14	14	14
30					28	29	30	31	32	33	34	35	36
31						26	27	28	29	30	31	32	33
32							16	17	18	18	19	19	19
33								11	12	12	13	13	13
34									11	11	12	12	12
35										22	23	23	24
36											07	07	07
37												25	26
38													20

Random Order Sequence
Group of 60

A #	B #	A #	B #
00	54	30	56
01	32	31	53
02	27	32	30
03	55	33	21
04	11	34	18
05	05	35	35
06	12	36	10
07	03	37	39
08	16	38	31
09	59	39	45
10	58	40	24
11	49	41	50
12	42	42	00
13	26	43	37
14	44	44	40
15	25	45	23
16	09	46	41
17	47	47	52
18	28	48	46
19	02	49	15
20	04	50	08
21	43	51	20
22	01	52	06
23	14	53	38
24	07	54	51
25	33	55	19
26	34	56	57
27	48	57	13
28	36	58	17
29	22	59	29

Random Order Sequence For
Group of 82

A #	B #	A #	B #	A #	B #
00	74	30	76	60	05
01	43	31	73	61	58
02	38	32	41	62	72
03	75	33	30	63	22
04	16	34	26	64	28
05	09	35	46	65	04
06	17	36	15	66	60
07	03	37	52	67	50
08	23	38	42	68	34
09	81	39	62	69	06
10	78	40	35	70	64
11	67	41	69	71	68
12	56	42	00	72	55
13	37	43	49	73	07
14	61	44	53	74	18
15	36	45	33	75	57
16	14	46	54	76	80
17	65	47	71	77	79
18	39	48	63	78	32
19	02	49	21	79	25
20	08	50	13	80	48
21	59	51	29	81	11
22	01	52	10		
23	20	53	51		
24	12	54	70		
25	44	55	27		
26	45	56	77		
27	66	57	19		
28	47	58	24		
29	31	59	40		

Random Order Sequence For
Group of 102

A #	B #	A #	B #	A #	B #	A #	B #
000	062	030	025	060	003	090	096
001	010	031	053	061	036	091	027
002	052	032	020	062	084	092	078
003	046	033	048	063	097	093	089
004	026	034	090	064	083	094	057
005	065	035	034	065	002	095	072
006	082	036	074	066	038	096	043
007	022	037	059	067	015	097	000
008	023	038	081	068	095	098	100
009	087	039	069	069	067	099	077
010	056	040	049	070	024	100	032
011	029	041	054	071	017	101	018
012	073	042	094	072	030		
013	041	043	045	073	050		
014	042	044	085	074	007		
015	014	045	008	075	040		
016	009	046	076	076	071		
017	098	047	055	077	061		
018	075	048	047	078	060		
019	001	049	013	079	033		
020	080	050	028	080	011		
021	051	051	031	081	093		
022	063	052	039	082	070		
023	066	053	068	083	035		
024	058	054	019	084	099		
025	016	055	086	085	088		
026	091	056	021	086	005		
027	037	057	101	087	012		
028	092	058	004	088	044		
029	006	059	064	089	079		

APPENDIX E

Non-prejudicial Removals from Test Samples

NON-PREJUDICIAL REMOVALS FROM TEST SAMPLES

Omega #	ID #	Original Test	Sample	Reason
9000	0112	Prac. -	Reg.	Maid at residence advised that subject was ill, in the hospital, and not expected to be available for some time.
9001	1029	Prac. -	Res.	Found to be a full-time faculty member inadvertently duplicated on this and the Med. Educ. Test Sample.
9002	1024	Prac. -	Res.	Dispatch returned @ "not known at this address." Not listed on Building Directory at address given, nor known to Building Manager. Not listed in current city or telephone directories.
9003	0111	Prac. -	Reg.	Occupant at residence address given advised that "Dr. XXXXX has been practicing in state of Nevada for two years."
9004	0135	Prac. -	Reg.	Occupant of residence advised that subject was "In Europe for the summer."
9005	0022	Prac. -	Reg.	Sign on office door stated "Office Closed for the Summer."
9006	1021	Prac. -	Res.	No longer at hospital address given. No forwarding information available. Not in city or telephone directories.
9300	3102	Educ. -	Reg.	Secretary advised "Out of town on terminal vacation - future plans unannounced.
9301	4021	Educ. -	Res.	No longer at KUMC. Will be at another school in September, but summer plans are not known.
9302	4086	Educ. -	Res.	Returned home permanently to Mexico.
9303	4038	Educ. -	Res.	On Sabbatical leave until 4/1/72.
9304	4090	Educ. -	Res.	Subject claims "Neither involvement in nor knowledge of Medical Education."

NON-PREJUDICIAL REMOVALS FROM TEST SAMPLES
(CONTINUED)

Omega #	ID #	Original Test	Sample	Reason
9305	4011	Educ.	Res.	Has been at Roosevelt Univ. in Chicago for over a year.
9306	3113	Educ.	Reg.	On terminal vacation with future plans not announced.
9307	4022	Educ.	Res.	On Sabbatical leave.
9308	3130	Educ.	Reg.	On vacation for Summer.
9309	3140	Educ.	Reg.	Gone for the Summer.
9310	3121	Educ.	Reg.	In Costa Rica on Exchange Professorship for Module O.
9311	3005	Educ.	Reg.	On vacation for the Summer.
9312	4099	Educ.	Res.	Gone for the Summer.
9600	6160	Stud.	Reg.	Roommate advised "Gone to St. Louis on a Clerkship for the Summer."
9601	6130	Stud.	Reg.	Roommate advised "On vacation in Europe for this Module."

APPENDIX F

Effects of Non-prejudicial Deletions from Test Samples

Effects of Non-prejudicial Deletions from Test Samples

Test Sample	Initial Total	# Deleted	# Transferred In	# Transferred Out	Final Total
MED. PRAC.					
Regular	102	- 4	+ 4	0	102
Reserve	108	- 3	0	- 4	101
SUB-TOTAL	210	- 7	+ 4	- 4	203
MED. EDUC.					
Regular	102	- 6	+ 6	0	102
Reserve	102	- 7	0	- 6	89
SUB-TOTAL	204	- 13	+ 6	- 6	191
MED. STUD.					
Regular	102	- 2	+ 2	0	102
Reserve	19	0	0	- 2	17
SUB-TOTAL	121	- 2	+ 2	- 2	119
GRAND TOTAL	535	- 22	+ 12	- 12	513

APPENDIX G

Distribution of Responses by Test Samples

Test Samples	Responses Solicited	Responses Received	Responses Not Received	Percentage
MED. PRAC.				
Regular	102	79	23	77
Reserve	101	50	51	50
SUB-TOTAL	203	129	74	64
MED. EDUC.				
Regular	102	71	31	70
Reserve	89	49	40	55
SUB-TOTAL	191	120	71	63
MED. STUD.				
Regular	102	84	18	82
Reserve	17	15	2	96
SUB-TOTAL	119	99	20	83
Totals				
Regular	306	234	72	76
Reserve	207	114	93	55
GRAND TOTAL	513	348	165	68

APPENDIX H

Incidence of Medical Practitioner Responses by Year of Reception of M.D. Degree

Medical Practitioner Test Sample

	Year	Total Responses Solicited	Total Responses Received	Total Responses Not Received	Percentage of Responses Received
Regular	1951	3	3	0	100
	1952	8	6	2	75
	1953	10	6	4	60
	1954	5	5	0	100
	1955	10	10	0	100
	1956	13	11	2	85
	1957	4	4	0	100
	1958	10	6	4	60
	1959	6	6	0	100
	1960	8	8	0	100
	1961	9	3	6	33
	1962	5	4	1	80
	1963	11	7	4	64
	Total	102	79	23	77
Reserve	1951	2	1	1	50
	1952	5	3	2	60
	1953	8	2	6	25
	1954	9	7	2	78
	1955	8	4	4	50
	1956	6	2	4	33
	1957	10	5	5	50
	1958	8	3	5	38
	1959	9	7	2	78
	1960	11	4	7	37
	1961	10	5	5	50
	1962	6	4	2	67
	1963	9	3	6	33
	Total	101	50	51	50
Total	1951	5	4	1	80
	1952	13	9	4	69
	1953	18	8	10	44
	1954	14	12	2	86
	1955	18	14	4	78
	1956	19	13	6	68
	1957	14	9	5	64
	1958	18	9	9	50
	1959	15	13	2	87
	1960	19	12	7	63
	1961	19	8	11	42
	1962	11	8	3	73
	1963	20	10	10	50
	Total	203	129	74	64

APPENDIX I

Formulas and Sample Calculations of Chi Square

The formula used for the calculation of chi square in determining the probable independence of differences between expected and observed results in contingency tables was:

$$X^2 = \frac{(f_o - f_e)^2}{f_e}$$

where f_o = Frequency of observed results.

f_e = Frequency of expected results, or the Independence Value, or

$$f_e = \frac{LT \times CT}{N}$$ when LT = Line Total, CT = Column Total, N = Total Sample

The details of calculating the X^2 for the incidence of response of the three sub-populations were:

Sub-population	Responses Received	Responses Not Received	Responses Solicited
Medical Practitioners	(137.7) = f_e	(65.3) = f_e	
	129 = f_o	74 = f_o	203 = LT
Medical Educators	(129.6) = f_e	(61.4) = f_e	
	120 = f_o	71 = f_o	191 = LT
Medical Students	(80.7) = f_e	(38.3) = f_e	
	99 = f_o	20 = f_o	119 = LT
Totals	348 = CT	165 = CT	N = 513

Calculation of Independence values:

$$\frac{348 \times 203}{513} = 137.7 \qquad \frac{348 \times 191}{513} = 129.6 \qquad \frac{348 \times 119}{513} = 80.7$$

$$\frac{165 \times 203}{513} = 65.3 \qquad \frac{165 \times 191}{513} = 61.4 \qquad \frac{165 \times 119}{513} = 38.3$$

Calculation of X^2:

$$\frac{(137.7 - 129)^2}{137.7} = .550 \qquad \frac{(65.3 - 74)^2}{65.3} = 1.159$$

$$\frac{(129.6 - 120)^2}{129.6} = .711 \qquad \frac{(61.4 - 71)^2}{61.4} = 1.472$$

$$\frac{(80.7 - 99)^2}{80.7} = 4.137 \qquad \frac{(38.3 - 20)^2}{38.3} = 8.744$$

X^2 = sum of .550
.711
4.137
1.159
1.472
8.744

X^2 = 16.773

df (Degree of Freedom) = (3 - 1)(2 - 1) = 2

$$0.01 > P > 0.00$$

This would indicate that the independence hypothesis, or the null hypothesis that there is no divergence between the observed and expected incidence of response among these three sub-populations other than what could reasonably be attributed solely to sampling fluctuations must be rejected as unsupported at the highly significant 0.01 level.

The abbreviated formula used for the determination of chi-square in 2 x 2, or fourfold, tables was

$$X^2 = \frac{N(AD-BC)^2}{(A+B)(C+D)(A+C)(B+D)}$$ with the letter designations used as indicated below for the table presenting the Medical Student responses for comparison with the Medical Educators plus the Medical Practitioners.

	Responses Received	Responses Not Received	Responses Solicited
	(A)	(B)	(A+B)
Medical Students	99	20	119
	(C)	(D)	(C+D)
Medical Practitioners and Medical Educators	249	145	394
Total	(A+C) 348	(B+D) 165	(N) 513

$$X^2 = \frac{513\ (99 \times 145) - (20 \times 2490^2}{119 \times 394 \times 348 \times 165} = 17.417 \quad df = 1$$

$$0.01 > P > 0.00$$

APPENDIX J

Distribution of Responses by Cells, Test Samples, and Sub-populations

Medical Practitioner Test Samples
Subjects 0000 to 0165 and 1000 to 1107

Regular

	0	1	2	3	4	5
00	X	X	X	X	X	
*01	X	X	X	X	X	X
*02	X	X	X	X	X	X
03	X	X	X		X	X
04		X			X	X
05	X		X	X	X	
06		X	X	X		X
07	X	X	X	X		X
08	X		X	X	X	X

	0	1	2	3	4	5
*09	X	X	X	X	X	X
10	X	X	X			X
11	X	X	X	X		
12	X	X	X		X	X
13	X	X			X	X
14	X	X		X	X	
15	X			X	X	
*16	X	X	X	X	X	X

Reserve

	0	1	2	3	4	5	6	7	8	9
00	E	E	E	E		X	X		X	X
01		X	X	X		X		X	X	X
02	X	E	X		E	X	X			E
03			X			X		X		
04	X	X			X	X		X	X	
05	X	X		X	X	X	X	X	X	
06		X							X	
07		X	X			X		X	X	
08		X				X		X	X	
09	X				X		X	X	X	
10		X			X				E	E

Medical Educator Test Samples
Subjects 3000 to 3165 and 4000 to 4101

Regular

	0	1	2	3	4	5
00	X	X			X	X
01	X	X		X		X
*02	X	X	X	X	X	X
03	X		X	X	X	
*04	X	X	X	X	X	X
05	X	X				
06	X		X	X	X	X
*07	X	X	X	X	X	X
*08	X	X	X	X	X	X

	0	1	2	3	4	5
09			X	X	X	X
10		X	X	X	X	X
11	X			X		X
12		X	X	X		X
13		X			X	X
14		X	X	X		
15	X		X	X		
16	X	X			X	

Reserve

	0	1	2	3	4	5	6	7	8	9
00	E	E	E	E	E	E	X		X	X
01	X	E	X	X		X	X		X	
02		E	E	X		X	X	X	X	
03	X	X	X	X	X	X			E	X
04	X		X				X		X	
05	X		X							X
06	X		X		X	X		X		X
07		X					X	X		
08		X	X	X	X		E	X	X	
09	E	X	X		X			X	X	E
10	X		E	E	E	E	E	E	E	E

Medical Student Test Samples
Subjects 6000 to 6165 and 7000 to 7018

Regular

	0	1	2	3	4	5
00	X	X		X	X	X
*01	X	X	X	X	X	X
02	X		X	X	X	X
03	X	X	X		X	X
*04	X	X	X	X	X	X
05	X	X		X	X	X

	0	1	2	3	4	5
*09	X	X	X	X	X	X
*10	X	X	X	X	X	X
11			X	X	X	
*12	X	X	X	X	X	X
*13	X	X	X	X	X	X
14		X	X	X		X

Reserve

	0	1	2	3	4	5	6	7	8	9
00	E	E	X	X	X	X	X	X	X	
01	X	X	X	X	X	X	X	X		E

Medical Student Test Samples
Subjects 6000 to 6165 and 7000 to 7018
(continued)

	Regular						Reserve					
	0	1	2	3	4	5		0	1	2	3	4	5
*06	X	X	X	X	X	X	15	X	X	X	X		X
07	X		X	X		X	16	X				X	
08	X		X		X	X							

X = Response received.
Blank = Response not received.
E = Excluded.
* = Cell filled.

APPENDIX K

Frequency Distributions of Filled and Unfilled Cells

Medical Practitioners

NI	MI	SI	QI	EI	
FREQUENCY AND CHI-SQUARES FOLLOW					
1.	5.	18.	24.	7.	Incomplete
0.	3.	10.	9.	2.	Complete
QUESTION 1 CHI-SQUARE = 1.4386					
5.	9.	19.	18.	4.	Incomplete
2.	6.	9.	6.	1.	Complete
QUESTION 2 CHI-SQUARE= 1.2914					
8.	17.	21.	8.	1.	Incomplete
4.	9.	7.	4.	0.	Complete
QUESTION 3 CHI-SQUARE= 1.1390					
1.	1.	13.	27.	13.	Incomplete
0.	0.	9.	11.	4.	Complete
QUESTION 4 CHI-SQUARE= 2.4400					
0.	0.	12.	24.	19.	Incomplete
0.	1.	7.	10.	6.	Complete
QUESTION 5 CHI-SQUARE= 3.1630					
0.	0.	0.	5.	50.	Incomplete
0.	0.	0.	5.	19.	Complete
QUESTION 6 CHI-SQUARE= 2.0839					
0.	0.	2.	22.	31.	Incomplete
0.	0.	3.	11.	10.	Complete
QUESTION 7 CHI-SQUARE= 2.2056					

1.	4.	8.	24.	18.	Incomplete
1.	1.	6.	9.	7.	Complete
QUESTION	8	CHI-SQUARE=	1.8668		
2.	2.	4.	9.	38.	Incomplete
0.	1.	6.	6.	11.	Complete
QUESTION	9	CHI-SQUARE=	7.1468		
0.	0.	0.	6.	49.	Incomplete
0.	0.	0.	7.	17.	Complete
QUESTION	10	CHI-SQUARE=	4.0514		
3.	4.	17.	18.	13.	Incomplete
1.	1.	6.	9.	7.	Complete
QUESTION	11	CHI-SQUARE=	0.8230		
0.	0.	0.	2.	53.	Incomplete
0.	0.	1.	4.	19.	Complete
QUESTION	12	CHI-SQUARE=	6.5692		
0.	0.	0.	7.	48.	Incomplete
0.	0.	0.	7.	17.	Complete
QUESTION	13	CHI-SQUARE=	3.0969		
0.	0.	1.	7.	47.	Incomplete
0.	0.	1.	5.	18.	Complete
QUESTION	14	CHI-SQUARE=	1.3088		
0.	0.	3.	21.	31.	Incomplete
0.	0.	2.	12.	10.	Complete
QUESTION	15	CHI-SQUARE=	1.4729		

0.	0.	6.	24.	25.	Incomplete
0.	0.	4.	11.	9.	Complete
QUESTION	16	CHI-SQUARE=	0.7014		
0.	1.	4.	17.	33.	Incomplete
0.	0.	1.	12.	11.	Complete
QUESTION	17	CHI-SQUARE=	2.9521		
0.	0.	2.	19.	34.	Incomplete
0.	0.	1.	9.	14.	Complete
QUESTION	18	CHI-SQUARE=	0.0869		
0.	1.	2.	19.	33.	Incomplete
0.	0.	3.	11.	10.	Complete
QUESTION	19	CHI-SQUARE=	4.1029		
0.	0.	10.	19.	26.	Incomplete
0.	0.	2.	13.	9.	Complete
QUESTION	20	CHI-SQUARE=	3.0152		
0.	0.	13.	23.	19.	Incomplete
0.	0.	6.	11.	7.	Complete
QUESTION	21	CHI-SQUARE=	0.2224		
0.	0.	7.	18.	30.	Incomplete
0.	2.	2.	10.	10.	Complete
QUESTION	22	CHI-SQUARE=	5.7906		
0.	0.	7.	28.	20.	Incomplete
0.	0.	8.	11.	5.	Complete
QUESTION	23	CHI-SQUARE=	5.0972		

0.	0.	11.	25.	19.	Incomplete
0.	0.	8.	10.	6.	Complete
QUESTION	24	CHI-SQUARE=	1.7703		
0.	1.	16.	21.	17.	Incomplete
0.	0.	9.	11.	4.	Complete
QUESTION	25	CHI-SQUARE=	2.3263		
0.	3.	15.	22.	15.	Incomplete
0.	1.	9.	11.	3.	Complete
QUESTION	26	CHI-SQUARE=	2.3665		
0.	2.	7.	24.	22.	Incomplete
0.	3.	4.	13.	4.	Complete
QUESTION	27	CHI-SQUARE=	5.4200		
0.	1.	6.	30.	18.	Incomplete
0.	0.	5.	12.	7.	Complete
QUESTION	28	CHI-SQUARE=	1.7501		
2.	5.	20.	18.	10.	Incomplete
1.	4.	8.	7.	4.	Complete
QUESTION	29	CHI-SQUARE=	0.9860		
2.	9.	19.	19.	6.	Incomplete
1.	3.	9.	10.	1.	Complete
QUESTION	30	CHI-SQUARE=	1.3058		
SA	A	U	D	SD	
1.	2.	2.	27.	23.	Incomplete
0.	1.	3.	11.	9.	Complete
QUESTION	31	CHI-SQUARE=	2.6366		

2.	8.	5.	30.	10.	Incomplete
0.	4.	1.	15.	4.	Complete
QUESTION	32	CHI-SQUARE=	1.6629		
3.	10.	10.	24.	8.	Incomplete
0.	6.	8.	10.	0.	Complete
QUESTION	33	CHI-SQUARE=	6.8821		
6.	16.	17.	14.	2.	Incomplete
0.	10.	8.	6.	0.	Complete
QUESTION	34	CHI-SQUARE=	4.3262		
10.	31.	8.	3.	3.	Incomplete
4.	16.	0.	4.	0.	Complete
QUESTION	35	CHI-SQUARE=	7.4903		
5.	23.	15.	11.	1.	Incomplete
1.	10.	9.	4.	0.	Complete
QUESTION	36	CHI-SQUARE=	1.6430		
9.	34.	5.	6.	1.	Incomplete
4.	15.	4.	1.	0.	Complete
QUESTION	37	CHI-SQUARE=	2.1375		

Age.

Test Sample	-30	30-34	35-39	40-44	45-49	50-54	Total
Complete	1	1	9	7	5	1	24
Incomplete	0	5	16	16	12	6	55
Total	1	6	25	23	17	7	79

Chi-Square = 3.126

Sex.

Test Sample	Female	Male	Total
Complete	0	24	24
Incomplete	1	54	55
Total	1	78	79

Chi-Square = 0.258

Geographic Location of High School.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Total
Complete	0	24	0	24
Incomplete	1	51	3	55
Total	1	75	3	79

Chi-Square = 1.806

Geographic Location of Undergraduate School.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Total
Complete	0	24	0	24
Incomplete	1	48	2	51
Total	1	72	2	75

Chi-Square = 1.568

Medical Educators

NI	MI	SI	QI	EI	
FREQUENCY AND CHI-SQUARES FOLLOW					
1.	6.	6.	11.	0.	Complete
4.	9.	16.	12.	6.	Incomplete
QUESTION	1	CHI-SQUARE=	6.1875		
1.	7.	10.	4.	2.	Complete
7.	17.	12.	6.	5.	Incomplete
QUESTION	2	CHI-SQUARE=	3.4450		
3.	11.	8.	1.	1.	Complete
12.	18.	12.	5.	0.	Incomplete
QUESTION	3	CHI-SQUARE=	4.5870		
0.	4.	5.	14.	1.	Complete
1.	1.	11.	29.	5.	Incomplete
QUESTION	4	CHI-SQUARE=	6.1432		
0.	4.	4.	12.	4.	Complete
3.	2.	15.	21.	6.	Incomplete
QUESTION	5	CHI-SQUARE=	6.0766		
0.	1.	1.	8.	14.	Complete
0.	0.	0.	9.	38.	Incomplete
QUESTION	6	CHI-SQUARE=	6.3516		
1.	2.	4.	13.	4.	Complete
0.	0.	5.	15.	27.	Incomplete
QUESTION	7	CHI-SQUARE=	14.3764		

3.	3.	7.	7.	4.	Complete
1.	2.	4.	25.	15.	Incomplete
QUESTION	8	CHI-SQUARE=	12.3577		
0.	1.	5.	7.	11.	Complete
0.	0.	4.	14.	29.	Incomplete
QUESTION	9	CHI-SQUARE=	4.5737		
0.	0.	1.	7.	16.	Complete
1.	0.	0.	9.	37.	Incomplete
QUESTION	10	CHI-SQUARE=	3.4858		
1.	5.	9.	4.	5.	Complete
3.	2.	12.	17.	13.	Incomplete
QUESTION	11	CHI-SQUARE=	7.6718		
0.	1.	0.	4.	19.	Complete
0.	0.	0.	6.	41.	Incomplete
QUESTION	12	CHI-SQUARE=	2.2523		
0.	1.	0.	6.	17.	Complete
0.	0.	0.	9.	38.	Incomplete
QUESTION	13	CHI-SQUARE=	2.4216		
0.	1.	3.	3.	17.	Complete
0.	0.	0.	6.	41.	Incomplete
QUESTION	14	CHI-SQUARE=	8.3573		
0.	2.	3.	11.	8.	Complete
1.	0.	5.	10.	31.	Incomplete
QUESTION	15	CHI-SQUARE=	10.7937		

0.	1.	3.	13.	7.	Complete
1.	0.	3.	20.	23.	Incomplete
QUESTION	16	CHI-SQUARE=	5.1030		
0.	2.	2.	11.	9.	Complete
1.	0.	1.	14.	31.	Incomplete
QUESTION	17	CHI-SQUARE=	9.3207		
0.	1.	4.	8.	11.	Complete
0.	0.	1.	19.	27.	Incomplete
QUESTION	18	CHI-SQUARE=	7.3376		
0.	1.	4.	9.	10.	Complete
1.	0.	2.	19.	25.	Incomplete
QUESTION	19	CHI-SQUARE=	5.8275		
0.	1.	5.	12.	6.	Complete
0.	1.	1.	17.	28.	Incomplete
QUFSTION	20	CHI-SQUARE=	11.5225		
0.	2.	3.	14.	5.	Complete
0.	1.	2.	22.	22.	Incomplete
QUESTION	21	CHI-SQUARE=	6.2165		
0.	3.	3.	9.	9.	Complete
1.	2.	4.	12.	28.	Incomplete
QUESTION	22	CHI-SQUARE=	4.555		
0.	2.	2.	12.	8.	Complete
2.	0.	3.	20.	22.	Incomplete
QUESTION	23	CHI-SQUARE=	5 9020		

0.	2.	4.	13.	5.	Complete
4.	0.	3.	17.	23.	Incomplete
QUESTION	24	CHI-SQUARE=	12.0628		
0.	4.	6.	11.	3.	Complete
3.	0.	7.	23.	14.	Incomplete
QUESTION	25	CHI-SQUARE=	12.2664		
1.	5.	5.	9.	4.	Complete
2.	1.	11.	21.	12.	Incomplete
QUESTION	26	CHI-SQUARE=	7.3730		
0.	5.	7.	9.	3.	Complete
2.	5.	15.	17.	8.	Incomplete
QUESTION	27	CHI-SQUARE=	2.4497		
0.	3.	3.	10.	8.	Complete
1.	1.	5.	25.	15.	Incomplete
QUESTION	28	CHI-SQUARE=	4.0313		
1.	6.	9.	5.	3.	Complete
2.	4.	21.	10.	10.	Incomplete
QUESTION	29	CHI-SQUARE=	3.9310		
1.	5.	6.	8.	4.	Complete
2.	5.	19.	12.	9.	Incomplete
QUESTION	30	CHI-SQUARE=	2.6431		
SA	A	U	D	SD	
1.	1.	5.	13.	4.	Complete
0.	3.	6.	22.	16.	Incomplete
QUESTION	31	CHI-SQUARE=	4.6416		

0.	3.	4.	14.	3.	Complete
1.	3.	5.	30.	8.	Incomplete
QUESTION	32	CHI-SQUARE=	1.9566		
0.	6.	8.	9.	1.	Complete
1.	4.	13.	27.	2.	Incomplete
QUESTION	33	CHI-SQUARE=	4.9975		
2.	8.	6.	8.	0.	Complete
2.	14.	16.	15.	0.	Incomplete
QUESTION	34	CHI-SQUARE=	0.9626		
3.	12.	4.	4.	1.	Complete
15.	20.	5.	6.	1.	Incomplete
QUESTION	35	CHI-SQUARE=	3.4192		
2.	7.	6.	7.	2.	Complete
5.	13.	22.	7.	0.	Incomplete
QUESTION	36	CHI-SQUARE=	7.5725		
2.	15.	1.	5.	1.	Complete
12.	22.	8.	5.	0.	Incomplete
QUESTION	37	CHI-SQUARE=	8.3357		

Age.

Test Sample	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 and Over	Total
Complete	3	4	4	7	2	3	1	24
Incomplete	5	12	7	10	7	3	3	47
Total	8	16	11	17	9	6	4	71

Chi-Square = 3.286

Sex.

Test Sample	Female	Male	Total
Complete	2	22	24
Incomplete	5	42	47
Total	7	64	71

Chi-Square = 0.095

Geographic Location of High School.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Outside of U.S.	Total
Complete	6	11	2	5	24
Incomplete	7	30	5	3	45
Total	13	41	7	8	69

Chi-Square = 4.674

Geographic Location of Pre-doctoral Schools.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Outside of U.S.	Total
Complete	6	15	5	4	30
Incomplete	10	38	6	3	57
Total	16	53	11	7	87

Chi-Square = 3.079

Geographic Location of School Awarding Doctorate.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Outside of U.S.	Total
Complete	3	17	2	5	27
Incomplete	16	28	4	1	49
Total	19	45	6	6	76

Chi-Square = 8.808

Type of Pre-doctoral Degree Earned.

Test Sample	None	B.S.	B.A.	B.EE.	M.S.	M.A.	B.A.+ 2 MAs	B.S.+ MSs	Total
Complete	2	10	11	1	3	4	3	3	37
Incomplete	0	21	25	0	11	6	0	0	63
Total	2	31	36	1	14	10	3	3	100

Chi-Square = 0.172

Type of Doctoral Degree.

Test Sample	M.D.	Ph.D.	2 Ph.D.s	M.D.+ Ph.D.	2 M.D.s	D.Ed.	Total
Complete	17	10	2	2	2	0	33
Incomplete	29	20	0	3	0	1	53
Total	46	30	2	5	2	1	86

Chi-Square = 0.104

	Anatomy	Anesthesiology	Biochemistry	Biometry	Hearing & Speech	Human Ecology	Medicine	Microbiology	Obstetrics & Gynecology	Otorhinolaryngology	Pathology & Oncology	Pediatrics	Pharmacology	Physical Medicine	Physiology	Psychiatry	Radiology	Surgery	Total
Complete	1	0	1	0	1	0	4	1	0	1	5	2	1	1	1	1	2	2	24
Incomplete	0	2	4	1	1	1	9	3	2	0	3	3	3	0	1	5	3	6	47
Total	1	2	5	1	2	1	13	4	2	1	8	5	4	1	2	6	5	8	71

Chi-Square = 15.050

Departmental Assignments

Year of Reception of Initial Doctorate.

Test Sample	1930 to 1934	1935 to 1939	1940 to 1944	1945 to 1949	1950 to 1954	1955 to 1959	1960 to 1964	1965 to 1969	Total
Complete	1	2	0	2	8	5	4	2	24
Incomplete	2	2	5	6	6	9	11	5	56
Total	3	4	5	8	14	14	15	7	70

Chi-Square = 15.148

Academic Rank.

Test Sample	Full Professor	Associate Professor	Assistant Professor	Instructor and Other	Total
Complete	11	6	7	0	24
Incomplete	19	17	11	0	47
Total	30	23	18	0	71

Chi-Square = 0.950

Years in Medical Education.

Test Sample	1-5	6-10	11-15	16-20	21-25	26+	Total
Complete	6	7	7	2	1	1	24
Incomplete	19	9	7	6	5	2	48
Total	25	16	14	8	6	3	72

Chi-Square = 4.603

Medical Students

NI	MI	SI	QI	EI	
FREQUENCY AND CHI-SQUARES FOLLOW					
1.	7.	17.	14.	3.	Complete
1.	6.	23.	8.	4.	Incomplete
QUESTION	1	CHI-SQUARE=	2.7561		
8.	21.	10.	1.	2.	Complete
4.	16.	13.	6.	3.	Incomplete
QUESTION	2	CHI-SQUARE=	6.1717		
11.	21.	7.	2.	1.	Complete
11.	22.	6.	1.	2.	Incomplete
QUESTION	3	CHI-SQUARE=	0.7668		
1.	4.	14.	18.	5.	Complete
0.	2.	12.	18.	10.	Incomplete
QUESTION	4	CHI-SQUARE=	3.4872		
0.	0.	16.	17.	9.	Complete
0.	3.	8.	19.	12.	Incomplete
QUESTION	5	CHI-SQUARE=	6.2063		
0.	0.	1.	5.	36.	Complete
0.	0.	0.	5.	37.	Incomplete
QUESTION	6	CHI-SQUARE=	1.0137		
0.	2.	5.	18.	17.	Complete
0.	0.	7.	16.	19.	Incomplete
QUESTION	7	CHI-SQUARE=	2.5621		

0.	3.	8.	16.	15.	Complete
0.	1.	6.	17.	18.	Incomplete
QUESTION	8	CHI-SQUARE=	1.5887		
0.	0.	1.	15.	26.	Complete
0.	1.	1.	4.	36.	Incomplete
QUESTION	9	CHI-SQUARE=	8.9813		
0.	0.	1.	9.	32.	Complete
0.	0.	0.	4.	38.	Incomplete
QUESTION	10	CHI-SQUARE=	3.4374		
4.	4.	14.	11.	9.	Complete
1.	5.	10.	12.	14.	Incomplete
QUESTION	11	CHI-SQUARE=	3.7082		
0.	0.	0.	5.	37.	Complete
0.	0.	0.	5.	37.	Incomplete
QUESTION	12	CHI-SQUARE=	0.0		
0.	0.	1.	10.	31.	Complete
0.	0.	0.	8.	34.	Incomplete
QUESTION	13	CHI-SQUARE=	1.3607		
0.	0.	2.	10.	30.	Complete
0.	0.	0.	10.	32.	Incomplete
QUESTION	14	CHI-SQUARE=	2.0645		
0.	1.	7.	17.	17.	Complete
0.	0.	3.	18.	21.	Incomplete
QUESTION	15	CHI-SQUARE=	3.0496		

0.	1.	6.	20.	15.	Complete
0.	0.	6.	20.	16.	Incomplete
QUESTION	16	CHI-SQUARE=	1.0323		
0.	0.	9.	15.	18.	Complete
0.	0.	4.	21.	17.	Incomplete
QUESTION	17	CHI-SQUARE=	2.9516		
0.	0.	6.	23.	13.	Complete
0.	0.	2.	22.	18.	Incomplete
QUESTION	18	CHI-SQUARE=	2.8287		
0.	1.	3.	26.	12.	Complete
1.	0.	2.	22.	17.	Incomplete
QUESTION	19	CHI-SQUARE=	3.3954		
0.	0.	8.	24.	10.	Complete
0.	0.	8.	20.	14.	Incomplete
QUESTION	20	CHI-SQUARE=	1.0303		
0.	1.	12.	19.	10.	Complete
0.	1.	8.	21.	12.	Incomplete
QUESTION	21	CHI-SQUARE=	1.0818		
0.	0.	6.	13.	23.	Complete
0.	1.	4.	14.	23.	Incomplete
QUESTION	22	CHI-SQUARE=	1.4370		
1.	1.	5.	21.	14.	Complete
0.	0.	5.	21.	16.	Incomplete
QUESTION	23	CHI-SQUARE=	2.1333		

0.	2.	7.	17.	16.	Complete
0.	0.	6.	24.	12.	Incomplete
QUESTION	24	CHI-SQUARE=	3.8435		
0.	4.	13.	12.	13.	Complete
0.	2.	9.	19.	12.	Incomplete
QUESTION	25	CHI-SQUARE=	3.0146		
0.	6.	15.	14.	7.	Complete
0.	2.	18.	15.	7.	Incomplete
QUESTION	26	CHI-SQUARE=	2.3072		
1.	3.	19.	11.	8.	Complete
0.	3.	18.	14.	7.	Incomplete
QUESTION	27	CHI-SQUARE=	1.4537		
0.	1.	15.	16.	10.	Complete
0.	0.	11.	18.	13.	Incomplete
QUESTION	28	CHI-SQUARE=	2.1243		
0.	6.	21.	9.	6.	Complete
1.	8.	13.	14.	6.	Incomplete
QUESTION	29	CHI-SQUARE=	4.2550		
4.	10.	11.	15.	2.	Complete
3.	13.	20.	4.	4.	Incomplete
QUESTION	30	CHI-SQUARE=	9.8385		
SA	A	U	D	SD	
0.	9.	6.	23.	4.	Complete
2.	1.	7.	22.	10.	Incomplete
QUESTION	31	CHI-SQUARE=	11.0706		

2.	7.	10.	19.	4. Complete
0.	5.	8.	24.	5. Incomplete
QUESTION	32	CHI-SQUARE=	3.2481	
4.	9.	10.	16.	3. Complete
1.	14.	13.	13.	1. Incomplete
QUESTION	33	CHI-SQUARE=	4.5886	
2.	18.	14.	7.	1. Complete
2.	14.	12.	13.	1. Incomplete
QUESTION	34	CHI-SQUARE=	2.4538	
2.	19.	7.	8.	6. Complete
6.	19.	9.	6.	2. Incomplete
QUESTION	35	CHI-SQUARE=	4.5357	
2.	10.	12.	14.	4. Complete
2.	19.	8.	11.	2. Incomplete
QUESTION	36	CHI-SQUARE=	4.6198	
1.	20.	10.	9.	2. Complete
7.	21.	7.	5.	2. Incomplete
QUESTION	37	CHI-SQUARE=	6.1967	

Age.

Test Sample	20 to 25	26 to 30	31 to 35	Over 35	Total
Complete	35	7	0	0	42
Incomplete	30	10	1	1	42
Total	65	17	1	1	84

Chi-Square = 1.914

Sex.

Test Sample	Female	Male	Total
Complete	2	40	42
Incomplete	3	39	42
Total	5	79	84

Chi-Square = 0.212

Geographic Location of High School.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Total
Complete	1	37	2	40
Incomplete	1	40	0	41
Total	2	77	2	81

Chi-Square = 2.052

Geographic Location of Undergraduate School.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Total
Complete	1	38	6	45
Incomplete	0	40	3	43
Total	1	78	9	88

Chi-Square = 2.334

Class in Medical School.

Test Sample	C.C. II	CC. III	C.C. IV	Total
Complete	0	20	22	42
Incomplete	1	16	25	42
Total	1	36	47	84

Chi-Square = 1.636

Type of Pre-doctoral Degree.

Test Sample	B.S.	B.A.	D.V.M.	M.S.	M.Ed.	Total
Complete	17	27	0	1	0	45
Incomplete	17	25	1	0	1	44
Total	34	52	1	1	1	89

Chi-Square = 3.007

APPENDIX L

Frequency Distribution of Regular and Reserve Test Sample Responses

Medical Practitioners

NI	MI	SI	QI	EI	
FREQUENCY AND CHI-SQUARES FOLLOW					
1.	8.	28.	33.	9.	Regular
0.	12.	13.	17.	8.	Extra
QUESTION	1	CHI-SQUARE=	6.2638		
7.	15.	28.	24.	5.	Regular
5.	15.	11.	10.	9.	Extra
QUESTION	2	CHI-SQUARE=	8.5646		
12.	26.	28.	12.	1.	Regular
10.	21.	12.	5.	2.	Extra
QUESTION	3	CHI-SQUARE=	4.0128		
1.	1.	22.	38.	17.	Regular
1.	2.	12.	25.	10.	Extra
QUESTION	4	CHI-SQUARE=	1.3191		
0.	1.	19.	34.	25.	Regular
1.	4.	11.	23.	11.	Extra
QUESTION	5	CHI-SQUARE=	6.2996		
0.	0.	0.	10.	69.	Regular
0.	0.	0.	6.	44.	Extra
QUESTION	6	CHI-SQUARE=	0.0122		
0.	0.	5.	33.	41.	Regular
0.	5.	3.	13.	29.	Extra
QUESTION	7	CHI-SQUARE=	10.2515		

2.	5.	14.	33.	25.	Regular
1.	3.	11.	22.	13.	Extra
QUESTION	8	CHI-SQUARE=	0.6987		
2.	3.	10.	15.	49.	Regular
1.	2.	6.	16.	25.	Extra
QUESTION	9	CHI-SQUARE=	2.9806		
0.	0.	0.	13.	66.	Regular
0.	0.	2.	10.	38.	Extra
QUESTION	10	CHI-SQUARE=	3.5919		
4.	5.	23.	27.	20.	Regular
2.	9.	15.	9.	15.	Extra
QUESTION	11	CHI-SQUARE=	7.0447		
0.	0.	1.	6.	72.	Regular
0.	0.	0.	9.	41.	Extra
QUESTION	12	CHI-SQUARE=	3.7759		
0.	0.	0.	14.	65.	Regular
0.	1.	1.	10.	38.	Extra
QUESTION	13	CHI-SQUARE=	3.3966		
0.	0.	2.	12.	65.	Regular
0.	0.	2.	12.	36.	Extra
QUESTION	14	CHI-SQUARE=	1.9036		
0.	0.	5.	33.	41.	Regular
0.	0.	1.	21.	28.	Extra
QUESTION	15	CHI-SQUARE=	1.3305		

0.	0.	10.	35.	34.	Regular
0.	0.	3.	29.	18.	Extra
QUESTION	16	CHI-SQUARE=	2.8810		
0.	1.	5.	29.	44.	Regular
0.	0.	3.	28.	19.	Extra
QUESTION	17	CHI-SQUARE=	5.1806		
0.	0.	3.	28.	48.	Regular
1.	0.	7.	20.	22.	Extra
QUESTION	18	CHI-SQUARE=	7.4475		
0.	1.	5.	30.	43.	Regular
0.	0.	7.	26.	17.	Extra
QUESTION	19	CHI-SQUARE=	6.7052		
0.	0.	12.	32.	35.	Regular
0.	0.	7.	26.	17.	Extra
QUESTION	20	CHI-SQUARE=	1.7356		
0.	0.	19.	34.	26.	Regular
0.	1.	10.	24.	15.	Extra
QUESTION	21	CHI-SQUARE=	2.0528		
0.	2.	9.	28.	40.	Regular
3.	0.	7.	21.	19.	Extra
QUESTION	22	CHI-SQUARE=	7.5887		
0.	0.	15.	39.	25.	Regular
2.	1.	4.	34.	9.	Extra
QUESTION	23	CHI-SQUARE=	11.2916		

0.	0.	19.	35.	25.	Regular
2.	3.	7.	28.	10.	Extra
QUESTION	24	CHI-SQUARE=	11.8229		
0.	1.	25.	32.	21.	Regular
2.	3.	9.	26.	10.	Extra
QUESTION	25	CHI-SQUARE=	8.9882		
0.	4.	24.	33.	18.	Regular
2.	3.	14.	23.	8.	Extra
QUESTION	26	CHI-SQUARE=	4.0938		
0.	5.	11.	37.	26.	Regular
0.	1.	14.	21.	14.	Extra
QUESTION	27	CHI-SQUARE=	4.7617		
0.	1.	11.	42.	25.	Regular
0.	3.	7.	27.	13.	Extra
QUESTION	28	CHI-SQUARE=	2.5487		
3.	9.	28.	25.	14.	Regular
3.	12.	10.	14.	11.	Extra
QUESTION	29	CHI-SQUARE=	6.2120		
3.	12.	28.	29.	7.	Regular
4.	8.	16.	14.	8.	Extra
QUESTION	30	CHI-SQUARE=	3.1549		
SA	A	U	D	SD	
1.	3.	5.	38.	32.	Regular
2.	2.	5.	23.	18.	Extra
QUESTION	31	CHI-SQUARE=	1.7088		

2.	12.	6.	45.	14.	Regular
2.	6.	0.	30.	12.	Extra
QUESTION	32	CHI-SQUARE=	4.8811		
3.	16.	18.	34.	8.	Regular
3.	10.	14.	16.	7.	Extra
QUESTION	33	CHI-SQUARE=	2.0137		
6.	26.	25.	20.	2.	Regular
2.	18.	15.	13.	2.	Extra
QUESTION	34	CHI-SQUARE=	0.9690		
14.	47.	8.	7.	3.	Regular
9.	32.	5.	3.	1.	Extra
QUESTION	35	CHI-SQUARE=	0.7457		
6.	33.	24.	15.	1.	Regular
5.	23.	13.	9.	0.	Extra
QUESTION	36	CHI-SQUARE=	1.1875		
13.	49.	9.	7.	1.	Regular
9.	26.	4.	10.	1.	Extra
QUESTION	37	CHI-SQUARE=	3.9114		

Age.

Test Sample	-30	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55+	Total
Regular	1	6	25	25	15	7		79
Reserve	0	6	16	21	4	3		50
Total	1	12	41	46	19	10		129

Chi-Square = 5.038

Sex.

	Female	Male	Total
Regular	1	78	79
Reserve	2	48	50
Total	3	126	129

Chi-Square = 0.229

Geographic Location of High School

	Eastern U.S.	Middle U.S.	Western U.S.	Outside of U.S.	Total
Regular	1	75	3	0	79
Reserve	3	46	0	1	50
Total	4	121	3	1	129

Chi-Square = 5.571

Geographic Location of Undergraduate School

	Eastern U.S.	Middle U.S.	Western U.S.	Total
Regular	1	72	2	75
Reserve	1	49	0	50
Total	2	121	2	125

Chi-Square = 2.283

Medical Educators

NI	MI	SI	QI	EI	
FREQUENCY AND CHI-SQUARES FOLLOW					
5.	15.	22.	23.	6.	Regular
4.	6.	22.	12.	5.	Extra
QUESTION	1	CHI-SQUARE=	3.6041		
8.	24.	22.	10.	7.	Regular
4.	9.	18.	13.	5.	Extra
QUESTION	2	CHI-SQUARE=	5.4252		
15.	29.	20.	6.	1.	Regular
7.	21.	17.	4.	0.	Extra
QUESTION	3	CHI-SQUARE=	1.8616		
1.	5.	16.	43.	6.	Regular
0.	3.	7.	29.	10.	Extra
QUESTION	4	CHI-SQUARE=	4.8745		
3.	6.	19.	33.	10.	Regular
1.	0.	18.	16.	14.	Extra
QUESTION	5	CHI-SQUARE=	9.8908		
0.	1.	1.	17.	52.	Regular
0.	0.	1.	9.	39.	Extra
QUESTION	6	CHI-SQUARE=	1.3301		
1.	2.	9.	28.	31.	Regular
0.	0.	5.	22.	22.	Extra
QUESTION	7	CHI-SQUARE=	2.4398		

4.	5.	11.	32.	19.	Regular
5.	2.	11.	17.	14.	Extra
QUESTION	8	CHI-SQUARE=	2.8073		
0.	1.	9.	21.	40.	Regular
0.	1.	6.	13.	29.	Extra
QUESTION	9	CHI-SQUARE=	0.2097		
1.	0.	1.	16.	53.	Regular
0.	0.	0.	12.	37.	Extra
QUESTION	10	CHI-SQUARE=	1.4306		
4.	7.	21.	21.	18.	Regular
3.	10.	14.	14.	8.	Extra
QUESTION	11	CHI-SQUARE=	3.3993		
0.	1.	0.	10.	60.	Regular
0.	0.	0.	2.	47.	Extra
QUESTION	12	CHI-SQUARE=	4.0144		
0.	1.	0.	15.	55.	Regular
0.	0.	0.	7.	42.	Extra
QUESTION	13	CHI-SQUARE=	1.6743		
0.	1.	3.	9.	48.	Regular
0.	0.	0.	9.	40.	Extra
QUESTION	14	CHI-SQUARE=	3.3866		
1.	2.	8.	21.	39.	Regular
1.	0.	2.	14.	32.	Extra
QUESTION	15	CHI-SQUARE=	3.7840		

1.	1.	6.	33.	30.	Regular
0.	0.	1.	26.	22.	Extra
QUESTION	16	CHI-SQUARE=	3.7246		
1.	2.	3.	25.	40.	Regular
0.	0.	0.	21.	28.	Extra
QUESTION	17	CHI-SQUARE=	4.5863		
0.	1.	5.	27.	38.	Regular
0.	0.	4.	19.	26.	Extra
QUESTION	18	CHI-SQUARE=	0.7441		
1.	1.	6.	28.	35.	Regular
0.	0.	1.	19.	29.	Extra
QUESTION	19	CHI-SQUARE=	3.9570		
0.	2.	6.	29.	34.	Regular
0.	0.	7.	23.	19.	Extra
QUESTION	20	CHI-SQUARE=	3.0849		
0.	3.	5.	36.	27.	Regular
0.	0.	8.	25.	16.	Extra
QUESTION	21	CHI-SQUARE=	4.6115		
1.	5.	7.	21.	37.	Regular
0.	0.	5.	19.	25.	Extra
QUESTION	22	CHI-SQUARE=	4.8868		
2.	2.	5.	32.	30.	Regular
0.	0.	8.	22.	19.	Extra
QUESTION	23	CHI-SQUARE=	5.1534		

4.	2.	7.	30.	28.	Regular
0.	0.	6.	26.	17.	Extra
QUESTION	24	CHI-SQUARE=	5.1927		
3.	4.	13.	34.	17.	Regular
0.	0.	11.	27.	11.	Extra
QUESTION	25	CHI-SQUARE=	5.4040		
3.	6.	16.	30.	16.	Regular
0.	2.	13.	23.	11.	Extra
QUESTION	26	CHI-SQUARE=	3.2362		
2.	10.	22.	26.	11.	Regular
1.	2.	16.	23.	7.	Extra
QUESTION	27	CHI-SQUARE=	3.7803		
1.	4.	8.	35.	23.	Regular
0.	1.	6.	24.	18.	Extra
QUESTION	28	CHI-SQUARE=	1.7726		
3.	10.	30.	15.	13.	Regular
1.	5.	19.	11.	13.	Extra
QUESTION	29	CHI-SQUARE=	1.7779		
3.	10.	25.	20.	13.	Regular
1.	4.	16.	19.	9.	Extra
QUESTION	30	CHI-SQUARE=	2.3454		
SA	A	U	D	SD	
1.	4.	11.	35.	20.	Regular
1.	2.	3.	29.	14.	Extra
QUESTION	31	CHI-SQUARE=	2.9244		

1.	6.	9.	44.	11.	Regular
4.	3.	5.	29.	8.	Extra
QUESTION	32	CHI-SQUARE=	3.5859		
1.	10.	21.	36.	3.	Regular
2.	7.	13.	22.	5.	Extra
QUESTION	33	CHI-SQUARE=	2.6812		
4.	22.	22.	23.	0.	Regular
3.	15.	14.	16.	1.	Extra
QUESTION	34	CHI-SQUARE=	1.5191		
18.	32.	9.	10.	2.	Regular
8.	25.	10.	5.	1.	Extra
QUESTION	35	CHI-SQUARE=	2.8199		
7.	20.	28.	14.	2.	Regular
4.	22.	11.	11.	1.	Extra
QUESTION	36	CHI-SQUARE=	5.1570		
14.	37.	9.	10.	1.	Regular
9.	28.	5.	3.	4.	Extra
QUESTION	37	CHI-SQUARE=	5.1862		

Age.

Test Sample	-30	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60+	Total
Regular	0	8	16	12	16	9	6	4	71
Reserve	3	6	4	12	7	9	4	4	49
Total	3	14	20	24	23	18	10	8	120

Chi-Square = 8.133

Sex.

	Female	Male	Total
Regular	7	64	71
Reserve	4	45	49
Total	11	109	120

Chi-Square = 0.078

Geographic Location of High School

	Eastern U.S.	Middle U.S.	Western U.S.	Outside of U.S.	Total
Regular	15	38	8	7	68
Reserve	4	38	3	4	49
Total	19	76	11	11	117

Chi-Square = 6.657

Type of Pre-doctoral Degree.

	B.S.	B.A.	M.S.	M.A.	Total
Regular	31	31	14	8	84
Reserve	11	35	9	6	61
Total	42	66	23	14	145

Chi-Square = 7.698

Geographic Location of Undergraduate School.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Outside of U.S.	Total
Regular	13	49	5	3	70
Reserve	3	46	4	1	54
Total	16	95	9	4	124

Chi-Square = 5.454

Geographic Location of School Awarding Doctoral Degree.

	Eastern U.S.	Middle U.S.	Western U.S.	Outside of U.S.	Total
Regular	17	46	5	4	72
Reserve	6	37	2	4	49
Total	23	83	7	8	121

Chi-Square = 3.259

Year of Reception of Initial Earned Doctoral Degree.

	1933 to 1939	1940 to 1944	1945 to 1949	1950 to 1954	1955 to 1959	1960 to 1964	1965 and after	Total
Regular	7	5	8	14	15	15	7	71
Reserve	7	5	6	11	5	7	7	48
Total	14	10	14	25	20	22	14	119

Chi-Square = 4.218

Academic Rank.

	Full Professor	Associate Professor	Assistant Professor	Instructor and Other	Total
Regular	30	23	18	0	71
Reserve	22	10	16	1	49
Total	52	33	34	1	120

Chi-Square = 4.500

Type of Doctoral Degree.

	M.D.	Other than M.D. (Ph. D. + Misc.)	Total
Regular	48	29	77
Reserve	31	18	49
Total	79	46	126

Chi-Square = 0.015

Number of Years in Medical Education.

Test Sample	1 - 5	6 - 10	11 - 15	16 - 20	21 - 25	26 & Over	Total
Regular	26	15	15	7	6	2	71
Reserve	15	11	9	4	5	5	49
Total	41	26	24	11	11	7	120

Chi-Square = 1.996

Departmental Assignment.

Test Sample	Anatomy	Anesthesiology	Biochemistry	Biometry	Medicine	Microbiology	Obstetrics Gynecology	Ophthalmology	Otolaryngology	Pathology & Oncology	Pediatrics	Pharmacology	Physical Medicine	Physiology	Psychiatry	Radiology	Surgery	Library	Total
Regular	1	2	5	1	13	4	2	0	3	8	5	4	2	2	6	5	8	0	71
Reserve	1	1	2	0	11	3	4	1	3	3	2	2	0	1	6	3	5	1	49
Total	2	3	7	1	24	7	6	1	6	11	7	6	2	3	12	8	13	1	120

Chi-Square = 9.045

Medical Students

NI	MI	SI	QI	EI	
FREQUENCY AND CHI-SQUARES FOLLOW					
2.	13.	40.	22.	7.	Regular
1.	6.	5.	3.	0.	Extra
QUESTION	1	CHI-SQUARE=	6.7743		
12.	37.	23.	7.	5.	Regular
3.	7.	3.	1.	1.	Extra
QUESTION	2	CHI-SQUARE=	0.6124		
22.	43.	13.	3.	3.	Regular
5.	7.	3.	0.	0.	Extra
QUESTION	3	CHI-SQUARE=	1.5223		
1.	6.	26.	36.	15.	Regular
0.	1.	4.	9.	1.	Extra
QUESTION	4	CHI-SQUARE=	2.0688		
0.	3.	24.	36.	21.	Regular
0.	2.	3.	8.	2.	Extra
QUESTION	5	CHI-SQUARE=	3.8042		
0.	0.	1.	10.	73.	Regular
0.	0.	1.	5.	9.	Extra
QUESTION	6	CHI-SQUARE=	6.8587		
0.	2.	12.	34.	36.	Regular
1.	1.	1.	8.	4.	Extra

0.	4.	14.	33.	33.	Regular
1.	0.	5.	4.	5.	Extra
QUESTION	8	CHI-SQUARE=	8.8161		
0.	1.	2.	19.	62.	Regular
1.	1.	1.	3.	9.	Extra
QUESTION	9	CHI-SQUARE=	8.6384		
0.	0.	1.	13.	70.	Regular
0.	0.	0.	4.	11.	Extra
QUESTION	10	CHI-SQUARE=	1.2623		
5.	9.	24.	23.	23.	Regular
3.	5.	3.	2.	2.	Extra
QUESTION	11	CHI-SQUARE=	10.0446		
0.	0.	0.	10.	74.	Regular
0.	0.	0.	2.	13.	Extra
QUESTION	12	CHI-SQUARE=	0.0244		
0.	0.	1.	18.	65.	Regular
0.	0.	0.	4.	11.	Extra
QUESTION	13	CHI-SQUARE=	0.3629		
0.	0.	2.	20.	62.	Regular
0.	0.	1.	6.	8.	Extra
QUESTION	14	CHI-SQUARE=	2.7964		
0.	1.	10.	35.	38.	Regular
0.	1.	0.	7.	7.	Extra

0.	1.	12.	40.	31.	Regular
0.	1.	0.	10.	4.	Extra
QUESTION	16	CHI-SQUARE=	5.3238		
0.	0.	13.	36.	35.	Regular
0.	0.	2.	9.	4.	Extra
QUESTION	17	CHI-SQUARE=	1.5884		
0.	0.	8.	45.	31.	Regular
0.	0.	0.	9.	6.	Extra
QUESTION	18	CHI-SQUARE=	1.5576		
1.	1.	5.	48.	29.	Regular
0.	0.	2.	7.	6.	Extra
QUESTION	19	CHI-SQUARE=	1.6971		
0.	0.	16.	44.	24.	Regular
0.	1.	2.	6.	6.	Extra
QUESTION	20	CHI-SQUARE=	6.7634		
0.	2.	20.	40.	22.	Regular
0.	1.	1.	7.	6.	Extra
QUESTION	21	CHI-SQUARE=	3.3953		
0.	1.	10.	27.	46.	Regular
0.	1.	2.	8.	4.	Extra
QUESTION	22	CHI-SQUARE=	5.5164		
1.	1.	10.	42.	30.	Regular
0.	0.	4.	6.	5.	Extra

0.	2.	13.	41.	28.	Regular
0.	0.	2.	7.	6.	Extra
QUESTION	24	CHI-SQUARE=	0.5725		
0.	6.	22.	31.	25.	Regular
0.	1.	4.	6.	4.	Extra
QUESTION	25	CHI-SQUARE=	0.0794		
0.	8.	33.	29.	14.	Regular
1.	3.	5.	6.	0.	Extra
QUESTION	26	CHI-SQUARE=	9.5826		
1.	6.	37.	25.	15.	Regular
1.	3.	5.	6.	0.	Extra
QUESTION	27	CHI-SQUARE=	7.6526		
0.	1.	26.	34.	23.	Regular
0.	0.	5.	9.	1.	Extra
QUESTION	28	CHI-SQUARE=	3.5712		
1.	14.	34.	23.	12.	Regular
2.	3.	4.	5.	1.	Extra
QUESTION	29	CHI-SQUARE=	7.6296		
7.	21.	31.	19.	6.	Regular
3.	2.	7.	2.	1.	Extra
QUESTION	30	CHI-SQUARE	3.2981		
SA	A	U	D	SD	
2.	10.	13.	45.	14.	Regular
1.	1.	2.	9.	2.	Extra
QUESTION	31	CHI-SQUARE	1.3082		

2.	12.	18.	43.	9.	Regular
1.	6.	0.	8.	0.	Extra
QUESTION	32	CHI-SQUARE=	10.2328		
5.	23.	23.	29.	4.	Regular
1.	3.	3.	8.	0.	Extra
QUESTION	33	CHI-SQUARE=	2.4578		
4.	32.	26.	20.	2.	Regular
0.	6.	4.	5.	0.	Extra
QUESTION	34	CHI-SQUARE=	1.6177		
8.	38.	16.	14.	8.	Regular
0.	6.	2.	7.	0.	Extra
QUESTION	35	CHI-SQUARE=	8.5643		
4.	29.	20.	25.	6.	Regular
2.	5.	4.	3.	1.	Extra
QUESTION	36	CHI-SQUARE=	2.0239		
8.	41.	17.	14.	4.	Regular
1.	4.	4.	6.	0.	Extra
QUESTION	37	CHI-SQUARE=	5.8794		

Age.

Test Sample	-20	20 to 24	25 to 29	30 & +	Total
Regular	14	51	18	1	84
Reserve	12	0	2	1	15
Total	26	51	20	2	99

Chi-Square = 31.171

Sex.

Test Sample	Female	Male	Total
Regular	5	79	84
Reserve	0	15	15
Total	5	94	99

Chi-Square = 1.005

Geographic Location of High School.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Total
Regular	2	78	2	82
Reserve	0	15	0	15
Total	2	93	2	97

Chi-Square = 0.736

Geographic Location of Undergraduate School.

Test Sample	Eastern U.S.	Middle U.S.	Western U.S.	Total
Regular	1	79	8	88
Reserve	1	13	0	14
Total	2	92	8	102

Chi-Square = 3.211

Class in Medical School.

Test Sample	C.C. II	C.C. III	C.C. IV	Total
Regular	1	36	47	84
Reserve	1	5	9	15
Total	2	41	56	99

Chi-Square = 2.228

Appendix M

Frequency and Distribution of Responses To Questions About Attitudes and Opinions

Medical Practitioners

? #	NI	MI	SI	QI	EI
1	1	20	41	50	17
2	12	30	39	34	14
3	22	47	40	17	3
4	2	3	34	63	27
5	1	5	30	57	36
6	0	0	0	16	113
7	0	5	8	46	70
8	3	8	25	55	38
9	3	5	16	31	74
10	0	0	2	23	104
11	6	14	38	36	35
12	0	0	1	15	113
13	0	1	1	24	103
14	0	0	4	24	101
15	0	0	6	54	69
16	0	0	13	64	52
17	0	1	8	57	63
18	1	0	10	48	70
19	0	1	12	56	60
20	0	0	19	58	52
21	0	1	29	58	41
22	3	2	16	49	59
23	2	1	19	73	34
24	2	3	26	63	35

25	2	4	34	58	31
26	2	7	38	56	26
27	0	6	25	58	40
28	0	4	18	69	38
29	6	21	38	39	25
30	7	20	44	43	15
	SA	A	U	D	SD
31	3	5	10	61	50
32	4	18	6	75	26
33	6	26	32	50	15
34	8	44	40	33	4
35	23	79	13	10	4
36	11	56	37	24	1
37	22	75	13	17	2

Medical Educators

? #	NI	MI	SI	QI	EI
1	9	21	44	35	11
2	12	33	40	23	12
3	22	50	37	10	1
4	1	8	23	72	16
5	4	6	37	49	24
6	0	1	2	26	91
7	1	2	14	50	53
8	9	7	22	49	33
9	0	2	15	34	69
10	1	0	1	28	90
11	7	17	35	35	26
12	0	1	0	12	107
13	0	1	0	22	97
14	0	1	3	18	98
15	2	2	10	35	71
16	1	1	7	59	52
17	1	2	3	46	68
18	0	1	9	46	64
19	1	1	7	47	64
20	0	2	13	52	53
21	0	3	13	61	43
22	1	5	12	40	62
23	2	2	13	54	49
24	4	2	13	56	45

25	3	4	24	61	28
26	3	8	29	53	27
27	3	12	38	49	18
28	1	5	14	59	41
29	4	15	49	26	26
30	4	14	41	39	22
	SA	A	U	D	SD
31	2	6	14	64	34
32	5	9	14	73	19
33	3	17	34	58	8
34	7	37	36	39	1
35	26	57	19	15	3
36	11	42	39	25	3
37	23	65	14	13	5

Medical Students

? #	NI	MI	SI	QI	EI
1	3	19	45	25	7
2	15	44	26	8	6
3	27	50	16	3	3
4	1	7	30	45	16
5	0	5	27	44	23
6	0	0	2	15	82
7	1	3	13	42	40
8	1	4	19	37	38
9	1	2	3	22	71
10	0	0	1	17	81
11	8	14	27	25	25
12	0	0	0	12	87
13	0	0	1	22	76
14	0	0	3	26	70
15	0	2	10	42	45
16	0	2	12	50	35
17	0	0	15	45	39
18	0	0	8	54	37
19	1	1	7	55	35
20	0	1	18	50	30
21	0	3	21	47	28
22	0	2	12	35	50
23	1	1	14	48	35
24	0	2	15	48	34

25	0	7	26	37	29
26	1	11	38	35	14
27	2	9	42	31	15
28	0	1	31	43	24
29	3	17	38	28	13
30	10	23	38	21	7
	SA	A	U	D	SD
31	3	11	15	54	16
32	3	18	18	51	9
33	6	26	26	37	4
34	4	38	30	25	2
35	8	44	18	21	8
36	6	34	24	28	7
37	9	45	21	20	4

Total Study

? #	NI	MI	SI	QI	EI
1	13	60	130	110	35
2	39	107	105	65	32
3	71	147	93	30	7
4	4	18	87	180	59
5	5	16	94	150	83
6	0	1	4	57	286
7	2	10	35	138	163
8	13	19	66	141	109
9	4	9	34	87	214
10	1	0	4	68	275
11	21	45	100	96	86
12	0	1	1	39	307
13	0	2	2	68	276
14	0	1	10	68	269
15	2	4	26	131	185
16	1	3	32	173	139
17	1	3	26	148	170
18	1	1	27	148	171
19	2	3	26	158	159
20	0	3	50	160	135
21	0	7	63	166	112
22	4	9	40	124	171
23	5	4	46	175	118
24	6	7	54	167	114

25	5	15	84	156	88
26	6	26	105	144	67
27	5	27	105	138	73
28	1	10	63	171	103
29	13	53	125	93	64
30	21	57	123	103	44
	SA	A	U	D	SD
31	8	22	39	179	100
32	12	45	38	199	54
33	15	69	92	145	27
34	19	119	106	97	7
35	57	180	50	46	15
36	28	132	100	77	11
37	54	185	48	50	11

Appendix N

Distribution of Course Evaluations by Test Samples

Medical Educator Evaluations

Course #		CWT	LVM	SVM	QVM	EVM	Point Total	N =
40	Public Address	0	8	28	33	17		86
41	Interpers. Comm.	0	0	5	14	13		32
42	Bus. & Pro. Spch	0	3	8	11	3		25
43	Interviewing	0	0	4	21	22		47
44	Org. Comm.	0	0	1	6	3		10
45	Gen. Semantics	0	0	7	15	4		26
46	Debate	0	4	11	17	10		42
47	Grp. Disc.	0	2	7	23	20		52
48	Logic	4	8	13	16	12		53
49	Argumentation	0	0	3	7	1		11
50	Human Rel.	0	1	3	10	12		26
51	Persuasion	0	0	1	2	1		4
52	Grp Dynamics	0	1	4	9	12		26
53	Conf. Lead.	0	0	5	6	8		19
54	Nonverbal Comm.	0	0	7	11	18		36
55	Case Analysis	0	0	3	12	16		31
56	Fund. of Spch	0	1	14	31	4		50
57	Read. of Tech. Pap.	1	0	6	14	19		40
58	Sensitivity Tr.	0	0	3	6	6		15
59	Listening Imp.	0	0	1	4	3		8
60	Med. Hist. Taking	0	0	6	30	39		75
Total		5	28	140	298	243		714
		x1	x2	x3	x4	x5		
		5	56	420	1192	1225	2898	/ 714
					Composite			4.06

Medical Practitioner Evaluations

Course #	Title	CWT	LVM	SVM	QVM	EVM	Pt. Total	N=
40	See Medical Educator Sheet	1	4	39	39	13		96
41		0	0	5	8	13		26
42		0	0	8	12	8		28
43		0	0	4	25	20		49
44		0	0	2	1	4		7
45		0	0	4	13	12		29
46		1	6	17	8	8		40
47		0	0	15	20	16		51
48		1	3	24	21	4		53
49		0	0	1	4	0		5
50		0	0	17	17	11		45
51		0	0	1	3	1		5
52		0	0	6	9	7		22
53		0	0	5	7	2		14
54		0	0	12	10	6		28
55		0	1	8	19	8		36
56		0	6	42	42	7		97
57		0	1	10	13	2		26
58		1	1	2	6	5		15
59		0	0	3	7	2		12
60		0	1	6	47	56		110
Total		4	23	231	331	205		794
		x1	x2	x3	x4	x5		
		4	46	693	1324	1025	3092 /	794
					Composite		=	3.89

Medical Student Evaluations

Course #	Title	CWT	LVM	SVM	QVM	EVM	Pt. Total	Total
40	See Medical Educator Sheet	3	13	37	26	11		90
41		0	3	5	5	6		19
42		1	3	5	2	1		12
43		0	2	7	12	11		32
44		0	2	1	6	2		11
45		0	0	9	4	3		16
46		1	4	15	15	8		43
47		0	1	17	32	10		60
48		2	6	23	10	2		43
49		0	0	5	4	4		13
50		1	4	8	7	7		27
51		0	2	1	5	1		9
52		0	1	7	7	3		18
53		0	3	11	3	2		19
54		0	0	6	10	7		23
55		0	1	6	11	3		21
56		9	19	40	25	4		97
57		0	2	9	12	4		27
58		2	2	7	5	6		22
59		0	0	2	2	3		7
60		0	4	15	37	31		87
		19	72	236	240	129		696
		x1	x2	x3	x4	x5		
		19	144	708	960	645	2476 /	696
					Composite		=	3.56
	Total Study				Med. Prac.		3092	794
					Med. Educ.		2898	714
					Med. Stud.		2476	696
					Composite =		8466 /	2204
						=		3.84

APPENDIX O

Incidence of Responses by Personal Characteristics

?#		Age Groups					Sex		High School				UG School			
		20s	30s	40s	50s	60s	F	M	E	M	W	O	E	M	W	O
1	NI	4	2	3	2	0	2	9	1	7	0	3	1	5	2	3
	MI	19	15	22	5	2	2	61	5	54	2	2	6	52	3	2
	SI	45	30	37	17	3	9	123	12	111	3	6	10	109	8	5
	QI	24	33	37	10	3	4	103	5	93	7	2	4	97	4	2
	EI	8	11	12	4	0	2	33	1	28	5	1	1	30	4	0
2	NI	13	10	9	4	0	4	32	1	32	0	3	1	31	1	3
	MI	43	26	27	9	2	5	102	8	95	3	1	7	91	8	1
	SI	31	24	36	14	2	7	100	9	84	9	5	9	87	8	3
	QI	7	21	26	9	2	3	62	3	54	4	4	3	55	3	4
	EI	6	10	13	2	2	0	33	3	28	1	1	2	29	1	1
3	NI	27	18	19	5	0	8	61	2	63	0	4	3	59	3	4
	MI	49	38	45	10	6	5	143	12	122	8	6	12	121	10	5
	SI	18	23	39	16	1	4	93	8	79	8	2	6	84	5	2
	QI	3	10	7	6	1	2	25	1	23	1	2	1	24	1	1
	EI	3	2	1	1	0	0	7	1	6	0	0	0	5	2	0
4	NI	0	1	0	0	0	0	1	0	1	0	0	0	1	0	0
	MI	8	5	6	1	0	2	18	4	14	0	2	6	12	0	2
	SI	30	21	28	8	1	4	84	5	77	3	3	4	74	7	3
	QI	45	47	55	25	6	9	169	13	147	10	8	11	149	11	7
	EI	17	17	22	4	1	4	57	2	54	4	1	1	57	3	0
5	NI	0	1	1	1	0	1	2	1	1	0	1	0	1	1	1
	MI	5	4	6	2	0	1	16	2	13	0	2	3	12	0	2
	SI	29	26	26	11	2	5	89	7	80	3	4	8	77	5	4
	QI	43	37	51	14	6	7	144	11	125	9	6	10	129	7	5
	EI	23	23	27	10	0	5	78	3	74	5	1	1	74	8	0
6	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1
	SI	2	1	0	0	1	0	4	1	3	0	0	1	3	0	0
	QI	15	11	19	9	2	2	54	7	41	4	4	5	45	3	3
	EI	83	79	91	29	5	17	270	16	249	13	9	16	245	18	8
7	NI	0	1	1	0	0	0	2	0	1	0	1	0	1	0	1
	MI	3	2	4	1	0	1	9	1	8	0	1	1	7	1	1
	SI	14	6	9	1	2	1	31	2	25	2	3	1	26	3	2
	QI	42	35	36	23	3	9	130	12	113	9	5	10	117	8	4
	EI	41	47	61	13	3	8	157	9	146	6	4	10	142	9	4
8	NI	1	2	5	1	0	0	9	0	8	0	1	0	8	0	1
	MI	4	9	5	2	0	0	20	2	13	3	2	2	12	4	2
	SI	20	15	22	10	2	3	66	5	60	3	1	4	60	4	1
	QI	37	39	43	17	5	13	128	11	117	5	8	9	119	7	6
	EI	38	26	36	8	1	3	106	6	95	6	2	7	94	6	2

?#		Age Groups					Sex		High School				UG School			
		20s	30s	40s	50s	60s	F	M	E	M	W	O	E	M	W	O
9	NI	0	2	0	0	0	0	2	0	2	0	0	0	1	1	0
	MI	2	2	3	2	0	2	7	0	8	0	1	0	8	0	1
	SI	4	8	19	4	1	1	35	3	29	2	2	1	31	2	2
	QI	21	26	28	11	2	7	81	6	70	7	5	6	73	5	4
	EI	73	53	61	21	5	9	204	15	184	8	6	15	180	13	5
10	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0
	SI	1	0	2	0	0	0	3	0	3	0	0	0	2	1	0
	QI	14	19	24	9	2	2	66	6	52	6	4	4	55	6	3
	EI	85	72	85	28	6	17	259	17	238	11	10	17	236	14	9
11	NI	7	2	3	1	1	1	13	1	12	1	0	0	14	0	0
	MI	16	13	11	6	2	4	44	1	43	1	3	1	41	3	3
	SI	26	33	33	10	1	5	98	7	84	5	7	5	85	8	5
	QI	25	23	30	11	4	6	87	8	72	10	3	7	75	8	3
	EI	26	20	34	10	0	3	87	7	82	0	1	9	78	2	1
12	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0
	SI	0	0	1	0	0	0	1	0	1	0	0	0	1	0	0
	QI	12	11	13	2	0	4	34	4	28	4	2	4	30	2	2
	EI	88	80	96	36	8	15	293	20	264	13	11	18	262	19	19
13	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	0	0	2	0	0	0	2	0	1	0	1	0	1	0	1
	SI	1	1	1	0	0	0	3	0	3	0	0	0	3	0	0
	QI	23	15	22	3	2	4	61	5	49	7	4	5	52	5	3
	EI	76	75	86	35	6	15	263	19	240	10	9	17	237	16	8
14	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1
	SI	3	4	3	0	0	0	10	2	8	0	0	2	7	1	0
	QI	26	14	23	3	2	8	60	3	57	4	4	2	59	4	3
	EI	71	73	84	35	6	11	258	19	228	13	9	18	227	16	8
15	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	2	1	2	0	0	0	5	2	2	0	1	2	2	0	1
	SI	10	8	6	2	0	2	24	2	20	3	1	2	21	2	1
	QI	42	34	40	14	2	7	125	8	111	8	5	6	113	7	6
	EI	46	48	63	22	6	10	175	12	160	6	7	12	157	12	4
16	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	2	1	2	0	0	0	5	1	3	0	1	1	3	0	1
	SI	12	8	10	2	0	2	30	1	28	1	2	2	27	1	2
	QI	51	53	47	16	5	12	160	10	150	7	5	6	148	13	5
	EI	35	29	52	20	3	5	134	12	112	9	6	13	115	7	4

?#		Age Group					Sex		High School				UG School			
		20s	30s	40s	50s	60s	F	M	E	M	W	O	E	M	W	O
17	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	0	2	1	0	0	0	3	2	1	0	0	2	1	0	0
	SI	15	6	5	2	0	0	28	0	25	2	1	0	24	3	1
	QI	46	43	43	12	4	12	136	10	128	6	4	7	130	8	3
	EI	39	40	62	24	4	7	162	12	139	9	9	13	138	10	8
18	NI	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0
	MI	0	2	1	0	0	0	1	0	0	0	1	0	0	0	1
	SI	15	6	5	2	0	1	26	1	24	1	1	2	23	1	1
	QI	46	43	43	12	4	12	137	7	130	8	4	5	133	8	3
	EI	39	40	62	24	4	6	164	16	138	8	8	15	137	11	7
19	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	1	2	1	0	0	0	4	1	1	1	1	1	1	1	1
	SI	7	5	11	2	0	1	24	2	22	1	0	2	21	2	0
	QI	57	44	42	16	2	12	149	9	140	7	5	6	143	8	4
	EI	35	40	57	20	6	6	152	12	130	8	8	13	128	10	7
20	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	1	0	2	0	0	0	3	0	1	0	2	0	1	0	2
	SI	19	13	15	3	0	1	49	2	45	3	0	3	41	6	0
	QI	51	39	46	19	6	9	152	13	136	7	5	6	143	8	4
	EI	29	39	48	16	2	9	125	9	111	7	7	13	108	7	6
21	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	3	0	4	0	0	0	7	0	5	0	2	0	5	0	2
	SI	21	18	21	5	1	2	64	3	59	2	2	4	57	4	1
	QI	49	42	47	20	5	11	152	14	136	9	4	7	142	10	4
	EI	27	31	39	13	2	6	106	7	93	6	6	11	89	7	5
22	NI	0	1	0	0	0	0	1	0	1	0	0	0	1	0	0
	MI	2	1	5	1	0	1	8	1	5	0	3	1	4	1	3
	SI	11	12	19	1	0	1	42	2	36	3	2	2	34	5	2
	QI	35	39	36	14	5	5	124	15	104	8	2	11	111	5	2
	EI	52	37	51	22	3	12	154	6	147	6	7	8	143	10	5
23	NI	0	1	0	0	0	0	1	0	1	0	0	0	1	0	0
	MI	1	3	1	0	0	0	5	2	2	0	1	2	1	1	1
	SI	15	11	20	1	1	1	47	1	45	1	1	2	44	1	1
	QI	48	49	57	19	3	13	163	14	146	9	7	8	152	10	6
	EI	36	27	33	18	4	5	113	7	99	7	5	10	95	9	4
24	NI	0	1	0	1	0	1	1	1	1	0	0	0	1	0	1
	MI	2	3	2	0	0	1	6	2	5	0	0	2	4	1	0
	SI	14	18	20	4	1	1	56	2	49	2	4	2	49	3	3
	QI	49	43	55	18	4	10	159	14	141	8	6	9	148	7	5
	EI	35	26	34	15	3	6	107	5	97	7	4	9	91	10	3

?#		Age Group					Sex		High School				UG School			
		20s	30s	40s	50s	60s	F	M	E	M	W	O	E	M	W	O
24	NI	0	1	0	1	0	1	1	1	1	0	0	0	1	0	1
	MI	2	3	2	0	0	1	6	2	5	0	0	2	4	1	0
	SI	14	18	20	4	1	1	56	2	49	2	4	2	49	3	3
	QI	49	43	55	18	4	10	159	14	141	8	6	9	148	7	5
	EI	35	26	34	15	3	6	107	5	97	7	4	9	91	10	3
25	NI	0	1	0	1	0	1	1	1	1	0	0	0	2	0	0
	MI	7	5	3	1	0	0	16	3	12	0	1	3	10	2	1
	SI	25	22	32	5	1	3	82	4	73	3	5	4	74	3	4
	QI	39	42	52	19	4	12	144	11	127	11	7	8	133	9	6
	EI	29	21	24	12	3	3	86	5	80	3	1	7	74	7	1
26	NI	0	2	1	0	0	0	3	0	3	0	0	0	3	0	0
	MI	12	8	5	3	0	4	24	3	22	1	2	4	20	2	2
	SI	40	26	30	9	1	5	101	6	94	1	5	5	93	5	3
	QI	34	36	54	15	6	7	138	10	117	13	5	6	125	9	5
	EI	14	19	21	11	1	3	63	5	57	2	2	7	52	5	2
27	NI	1	1	0	1	0	0	3	0	2	1	0	0	2	1	0
	MI	9	5	9	5	0	3	25	3	18	3	4	4	17	3	4
	SI	42	26	27	8	1	10	94	7	93	2	2	4	94	4	2
	QI	32	36	50	16	4	5	133	12	114	8	4	10	117	8	3
	EI	16	23	25	8	3	1	74	2	66	3	4	4	63	5	3
28	NI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MI	1	1	7	1	0	0	10	2	6	1	1	2	6	1	1
	SI	31	10	19	2	1	2	61	4	51	5	3	3	52	5	3
	QI	43	52	46	22	5	11	157	14	142	9	3	11	147	7	3
	EI	25	28	39	13	2	6	101	4	94	2	7	6	88	8	5
29	NI	2	5	4	0	0	0	11	1	10	0	0	2	8	1	0
	MI	17	11	17	5	2	0	52	2	48	1	1	2	44	5	1
	SI	40	36	36	15	3	9	121	10	109	8	3	9	113	5	3
	QI	28	29	25	11	1	4	90	7	76	7	4	6	79	6	3
	EI	13	10	29	7	2	6	55	4	50	1	6	3	49	4	5
30	NI	9	4	5	0	0	0	18	0	17	0	1	1	15	1	1
	MI	23	14	17	4	0	4	54	3	52	1	2	4	49	3	2
	SI	39	29	40	15	1	6	118	7	107	7	3	7	108	6	3
	QI	22	31	34	11	6	6	98	10	82	7	5	7	88	6	3
	EI	7	13	15	8	1	3	41	4	35	2	3	3	33	5	3

?#		Age Group 20s	30s	40s	50s	60s	Sex F	M	High School E	M	W	O	UG School E	M	W	O
31	SA	3	3	1	1	0	0	8	0	7	0	1	0	5	2	1
	A	11	3	7	1	0	0	22	2	19	0	1	2	17	2	1
	U	15	10	11	4	0	3	37	4	32	1	3	4	32	1	3
	D	54	44	59	16	5	11	167	9	152	11	6	9	152	12	5
	SD	17	31	33	16	3	5	95	9	83	5	3	7	87	4	2
32	SA	3	4	4	0	0	0	11	1	8	1	1	0	8	2	1
	A	17	11	14	4	0	1	45	3	39	2	2	4	38	2	2
	U	16	7	9	6	1	0	39	4	29	3	3	3	29	5	2
	D	53	56	63	20	6	15	183	11	169	11	7	10	173	9	6
	SD	11	13	21	8	1	3	51	5	48	0	1	5	45	3	1
33	SA	6	0	3	1	0	1	9	0	10	0	0	0	9	1	0
	A	27	14	21	6	1	3	66	3	57	4	5	3	58	5	3
	U	27	25	33	10	2	4	93	8	81	4	4	9	79	6	3
	D	35	43	50	17	5	9	141	11	127	8	4	8	130	8	4
	SD	5	9	4	4	0	2	20	2	18	1	1	2	17	1	2
34	SA	4	2	8	1	1	0	16	0	14	1	1	1	14	0	1
	A	37	26	43	13	2	6	115	9	101	6	5	8	106	3	4
	U	32	31	33	10	1	7	100	8	90	5	4	8	86	9	4
	D	25	30	24	14	4	6	91	7	81	5	4	5	80	9	3
	SD	2	2	3	0	0	0	7	0	7	0	0	0	7	0	0
35	SA	9	19	19	5	4	2	54	2	49	3	2	2	49	3	2
	A	44	48	61	24	2	13	166	17	148	8	6	15	148	11	5
	U	17	18	11	5	1	2	50	3	44	3	2	3	45	2	2
	D	22	3	17	3	1	2	44	2	38	3	3	2	37	5	2
	SD	8	3	3	1	0	0	15	0	14	0	1	0	14	0	1
36	SA	4	13	6	3	2	1	27	0	27	1	0	2	25	1	0
	A	36	34	41	17	4	6	126	8	112	5	7	6	112	8	6
	U	25	30	39	7	1	6	96	8	83	7	4	11	83	5	3
	D	28	14	21	11	1	6	69	8	63	2	2	3	65	5	2
	SD	7	0	4	0	0	0	11	0	8	2	1	0	8	2	1
37	SA	10	21	14	8	1	4	50	3	44	4	3	4	45	3	2
	A	44	47	63	26	6	8	178	17	157	9	3	14	156	13	3
	U	22	14	11	2	1	4	46	2	43	2	3	4	40	3	3
	D	20	7	19	1	0	3	44	2	40	1	4	0	43	1	3
	SD	4	2	4	1	0	0	11	0	9	1	1	0	9	1	1