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ABSTRACT

The unique factor in the Medical Information Project is that working from ground zero, it undertook to design and put into operation a communication system for general medical practitioners using an individualized, programmed, audiovisual medium. The development of this system involved three general phases. Phase I, consisted of: (1) obtaining and reviewing literature pertaining to medical communication problems; (2) designing a means of sampling, drawing the sample, obtaining the physicians' participation; (3) laying out the general design for research and development; (4) developing and validating the instruments to be used to assess the physicians' cognitive and affective reactions; (5) testing and selecting the hardware to be used as the communication device; (6) developing the programming concepts; (7) developing the production process and (8) selecting the content areas and the medical consultants for the program topics. Phase II, consisted of (1) distributing the hardware to the participating physicians, (2) producing and distributing the training program on equipment utilization, (3) pre-and post-program questionnaires and interviews and (4) producing and distributing the fifteen content programs. Phase III consisted of: (1) collecting and processing raw data, (2) analyzing the data and (3) writing the final report. (Author/NH)

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F I N A L R E P O R T

MEDICAL INFORMATION PROJECT

A Study of an Audiovisual Device as a Technique for
Continuing Education for General Practitioners

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F O R E W O R D

The Medical Information Project was conceived and created by James D. Finn, Professor of Education and Chairman, Department of Instructional Technology, University of Southern California. From its inception, the Project was guided through many difficult and sometimes frustrating days by his experienced and dynamic leadership. The death of Dr. Finn in April, 1969, was a severe blow to the Project and to those who worked with him. We cannot help believing that some of the delays in completion and other problems encountered would have been obviated by the mere presence and leadership of Dr. Finn. That the Project has been completed is mute testimony to the expertness and vision in design of the study provided by Dr. Finn.

The Final Report of the Medical Information Project is presented with the knowledge and regret that it lacks the personal touch and brilliant style for which Jim Finn was so well known.

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INTRODUCTION

INTRODUCTION

The problem of the so-called explosion of knowledge has become the subject of much concern and study in recent years. As Hoban (1967) pointed out, there is a communications gap between scholars and practicing members of professions who are consumers but not producers of scholarship and research. This problem has long been particularly acute in the medical profession. New information, concepts, theories, even whole new fields of operation continue to invade the field of medicine with increasing force. A case in point is the practicing physician who faces the difficult and complex problem of attempting to keep abreast of the advancement of medical knowledge. The importance of continuing education for the physician was discussed by Abelson (1965):

One consequence of the large-scale activity in research is the obsolescence, at least to some degree, of all scientists, engineers and physicians. The problem is not new, but the rate of obsolescence has increased, while the traditional means of meeting it have become less effective.

Dryer (1962), proposing lifetime learning for physicians, cited the Report of the President's Conference on Heart Disease and Cancer:

...the best medical education and training can become obsolete in 5 years unless the physician makes a very determined effort to continue his education....[p. 676]

Efforts embracing many techniques of bringing information to segments of the medical profession have been and are being attempted. Medical schools now have departments of "continuing education"; seminars, lectures, journals, television, and many other information channels are used in an effort to deal with the information flow. Yet the gap between theory and application of medical knowledge remains. As Clute (1963) said:

Suppose that this vital link were broken when a physician passed from his postgraduate training into practice, i.e., that there were no continuing education. In times past, it would have made little practical difference, because major advances were infrequent; but the breaking of this vital link in recent years would have meant that physicians who are at present over fifty years of age would be practicing the medicine of more than twenty-five years ago, when there were no sulphonamides, no antibiotics, no antihistamines, no ACTh, or cortisone, and no antihypertensive drugs [p. 448].

The explosion of knowledge becomes more evident when one views a traditional method of acquiring professional information--the medical journal.

Roney (1962) described it thus:

The problem of quantity is well documented. . . In the field of medicine, the world literature includes 4,000 to 5,000 journals which publish 220,000 to 250,000 articles per year. It has been estimated that for a physiologist to read all the physiological literature published in 1960, it would require approximately three and one-half years, providing he read a page every two minutes during eight hours of each day [p. 564].

This multitude of literature is of questionable value to the busy practitioner who has little time to even pick out the materials that are valuable to his field, much less to read them. This has encouraged the development of digests and abstract services. It has been estimated (Roney, 1962) that even the number of digests and abstracts has increased by a factor of ten every fifty years, and that for every 300 journals there is one abstract journal.

The rapid expansion of medical knowledge and the inefficiency of traditional methods of keeping abreast of such knowledge is compounded by the fact that most doctors are busier than ever before. Cahal (1962) stated that the general practitioner sees an average of 190 patients in a typical five and one-half day week, during which he works about 60 hours per week. It is obvious that the time the physicians can devote to postgraduate education is

limited. As Abelson (1965) stated:

The bottleneck in utilization of knowledge is not a shortage of publications or inadequate information retrieval. The lag occurs in the step between the pile of books on a man's desk and the transfer of that information to his mind. We need to devote much more energy to determining what is significant and then conveying it in concentrated form.

Attempts have been made to partially digest available information and to bring the physician closer to the information he needs by applying technology to medical education. Closed-circuit television, two-way radio, and tapes such as those produced by Audio-Digest are evidence that the medical establishment has recognized that there is a technology of instruction. One of the specific areas in which the technology is being developed is individualized instruction, presented via "teaching machines" ranging in sophistication from simple cardboard frames to computers. Individualized audiovisual instruction, particularly for training in procedural skills, is regarded by many educators to be more effective than standard classroom instruction because it allows the student to repeat a lesson as often as necessary and to choose the time and perhaps the place of instruction. This form of instruction is now being used successfully in hospital orientation, in-service training programs, and student resident training in specialist areas.

In addition, there was a firm basis for suggesting an audiovisual approach to communication. Many studies have indicated that authoritative commentary, careful programming, and color, where color is an important factor in the communication (e.g., in diagnosis) are significant in the teaching-learning process, assuming a good content design.

The Medical Information Project devised a system, based on instructional

technology, to attempt to solve the twin problems of growth of information and lack of time. It was assumed that (1) the general practitioner is overwhelmed by the mass of printed materials which he probably should read, (2) he is too busy to participate in other types of continuing education (such as postgraduate courses), and (3) he may be deterred by other factors such as time involved, inconvenience of scheduling, travel and cost from many other types of postgraduate education.

It was concluded (1) that the system must be conceived as serving a busy man, the individual physician. (The device, which could be placed in the physician's office or home, should be capable of interruption and easy resumption if necessary); (2) that the content must be relevant to his individual practice needs; (3) that the key to better communication of such content was the design of the materials themselves (every effort would have to be made to use all possible knowledge and experience in designing the materials so that they would communicate efficiently and lead to further learning); (4) that the system must be as easy to operate as possible, requiring a minimum of effort on the part of the physician. The individual device must be rugged; the materials must arrive on time and in good condition; and the reporting of information necessary for the purposes of the study should require a minimum of the doctor's time.

What is reported here, then, is a study of the effectiveness of one approach which was developed under the restraints of the above limitations.

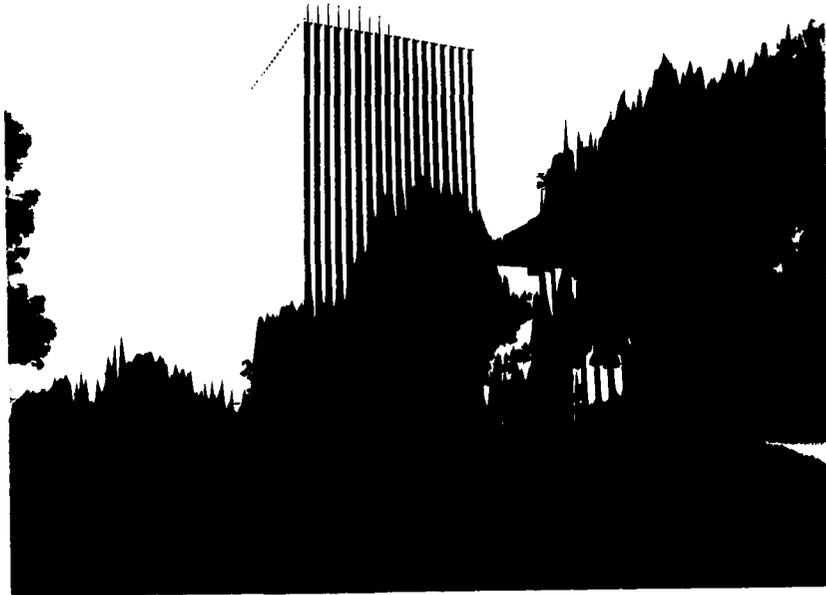


Figure 1
School of Education University of Southern California



Figure 2
School of Medicine University of Southern California



Figure 3
Los Angeles County - University of Southern California
Medical Center

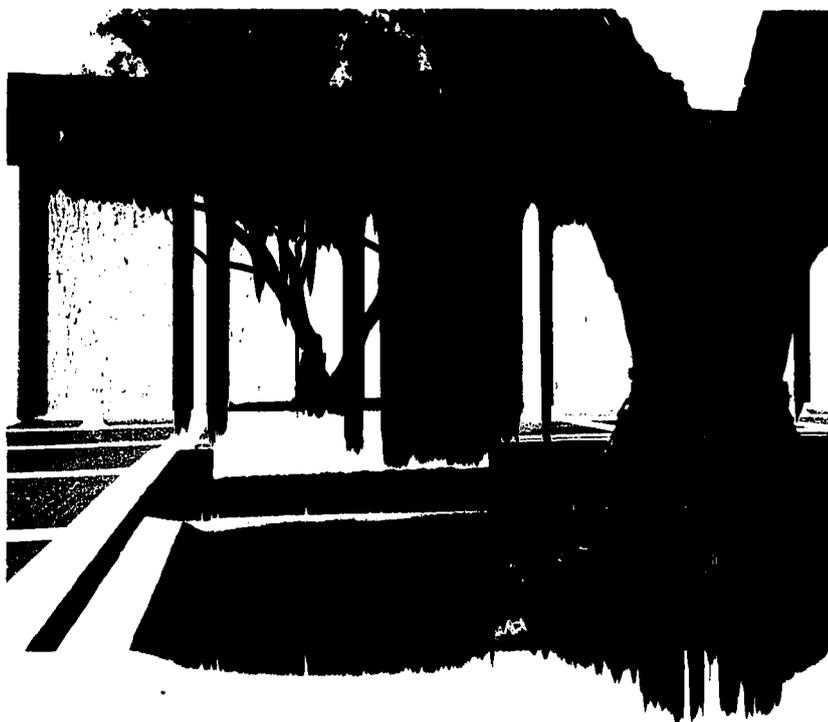


Figure 4
Norris Library U.S.C. School of Medicine

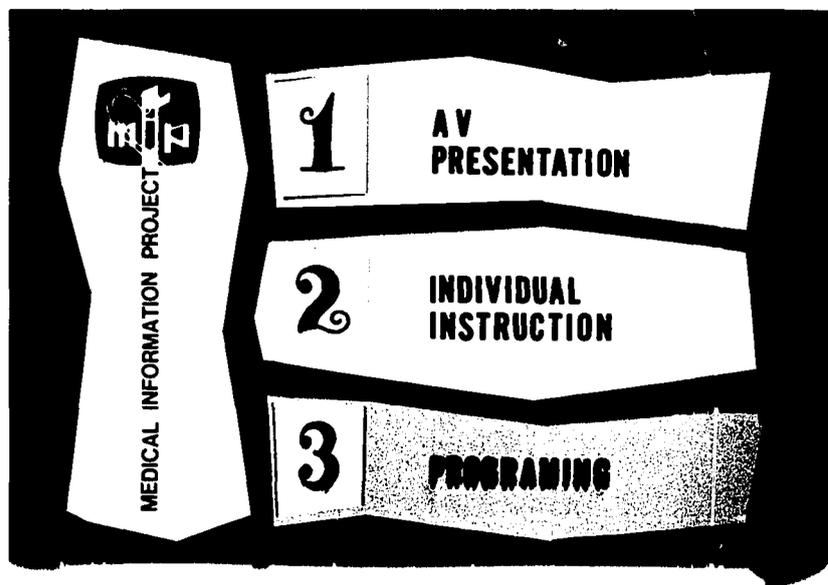
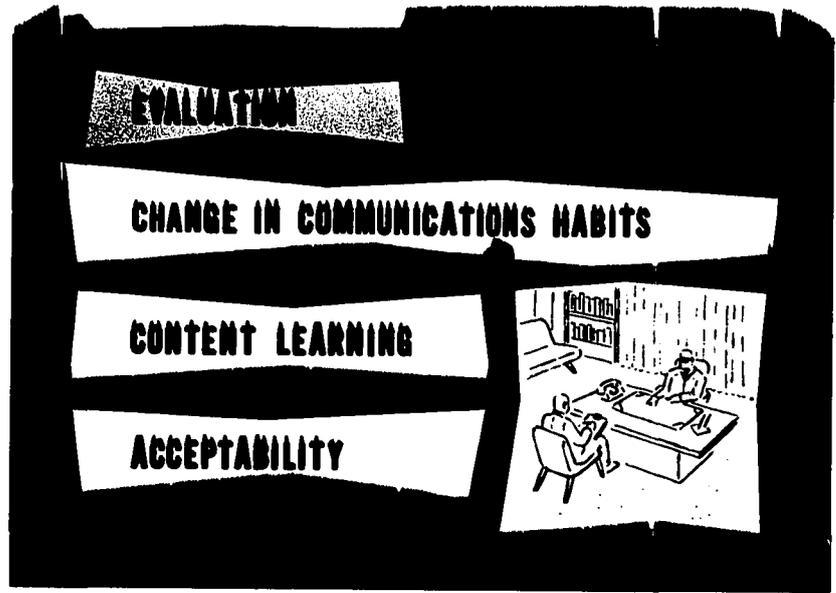


Figure 5
Principles Involved in the Medical Information Project

CONDUCT OF THE STUDY

The Study

The Medical Information Project, a joint research and development project by the School of Medicine and the School of Education of the University of Southern California, was an attempt to design and test an audiovisual communication system for 100 general practitioners in eleven western states. In the three-and-one-half-year contract period, MIP explored the communication potential of individualized audiovisual programs on fifteen medical topics presented by a device synchronizing projected still pictures and a recorded narration.

The unique factor in the Medical Information Project is that working from ground zero, it undertook to design and put into operation a communication system for general medical practitioners using an individualized, programmed, audiovisual medium. The development of this system involved three general phases: the Preliminary or Initial Planning Phase, the Production and Program Delivery Phase, and the Evaluation Phase. In this connection, Brickell (1964) has stated,

...it is one thing to design or invent a new way of teaching, it is another to find out whether the invention is any good, and it is still another to demonstrate it for the purpose of persuading others to adopt it. That is to say, the design, evaluation, and dissemination of the innovations are three distinctly different, irreconcilable processes [p. 493].

This project recognized this same distinction, but does not hold that the three processes have no interrelationships. Rather, a distinction is made between evaluation and feasibility on the one hand and rigorous, controlled

measurement on the other. Because the system was designed with no precedents upon which to rely, the project emphasis was on development and field testing.

The Objectives

The first objective was to develop, and test the feasibility of, a technology of individualized communication for the general practitioner. Emphasis was placed on the design of materials and their relationship to the communication needs and behavior of the general practitioner.

"Feasibility" in this context actually constituted a second objective. The technology utilized during the course of the project was selected with an eye to accomplishing the objectives with as low a cost as compatible with the defined objectives of the communication.

A third general objective related to the development and study of the process of individual communication as a system. In other words, an important objective was to develop a system of communication that was operable and generalizable to other situations within medicine, and to define and describe the system in sufficient detail so that it might be used by other medical communicators.

Finally, an effort was made to develop new ways in which such a technological approach could be improved and also to open the way for highly controlled studies in the field of medical communication as related to communication technology.

Personnel

The Medical Information Project was directed by Dr. James D. Finn of the School of Education from October, 1966 until his death in April, 1969.

Dr. Stephen Abrahamson of the School of Medicine was the Associate Director and became Director upon Dr. Finn's death. Mrs. Diana Caput, however, was instrumental in coordinating the completion of the study. The staff consisted of four segments: (1) the programming/production staff, (2) the research staff, (3) the medical staff, and (4) the administrative staff.

The production/programming staff consisted of a producer/writer, an artist, and a photographer. Writer/researchers were used on a program-by-program basis. The research staff consisted of the research director, who also worked on programming, and a research assistant. The medical staff consisted of a consultant selected from the School of Medicine faculty for each program by Associate Dean Phil Manning. The administrative staff consisted of an administrative assistant, a secretary, and some part-time clerical help.

Advisory Committee

Dean Manning established the overall monitor of the project--the Medical Information Project Advisory Committee. This committee, provided for in the contract, (1) prescribed the areas of medicine to be covered in each program, (2) suggested possible consultants, (3) gave final approval on programs before they were mailed, and (4) monitored the general conduct of the project through staff reports and discussion.

The original Advisory Committee consisted of

Phil R. Manning, M.D.
Associate Dean, Postgraduate Medicine
USC School of Medicine

Ralph Bennett, M.D.
Past President
California Academy of General Practice

Norman Shrifter, M.D.
Associate Clinical Professor of Medicine
USC School of Medicine

J. Samuel Denson, M.D.
Professor of Surgery
Chairman of Anesthesiology
USC School of Medicine

Donald W. Petit, M.D.
Associate Professor of Medicine
USC School of Medicine

Leonard H. Schwartz, M.D.
Assistant Medical Director and Director,
Out-Patient Department
LAC-USC Medical Center

Due to illness and a change of assignment, Drs. Bennett and Petit were replaced by:

Dudley M. Cobb, M.D.
President
California Academy of General Practice

Richard W. Opfell, M.D.
Continuing Medical Education Program
California Medical Association.

Time Schedule

The overall time of the project was from October 1, 1966 to March 31, 1970--a period of three and one-half years. The timing was phased approximately as follows:

Phase I Initial Preparation

Phase I covered the period from October 1, 1966, to April 15, 1967. The original plan of six months for these activities was delayed nine months because of difficulties in obtaining clearance from the Bureau of the Budget for the research instruments. The preliminary phase consisted of (1) obtaining

and reviewing literature pertaining to medical communication problems; (2) designing a means of sampling, drawing the sample, obtaining the physicians' participation; (3) laying out the general design for research and development; (4) developing and validating the instruments to be used to assess the physicians' cognitive and affective reactions; (5) testing and selecting the hardware to be used as the communication device for the project; (6) developing the programming concepts; (7) developing the production process, including studies of formats, etc.; and (8) selecting the content areas and the medical consultants for the program topics.

Phase II Production/Program Delivery

While production began in April, 1967, the experimental period itself ran from April, 1968 through August, 1969. The major activities involved in this phase were (1) distributing the hardware to the participating physicians; (2) producing and distributing the introductory training program on equipment utilization; (3) administering pre- and post-program questionnaires and interviews; and (4) producing and distributing the fifteen content programs.

Phase III Evaluation and Report Writing

The evaluation activities occupied the final eight months of the project from August, 1969 through March, 1970. These consisted of (1) collecting and processing raw data, (2) analyzing the data, and (3) writing the final report.

Obviously there was some overlap in these phases. For example, although the major emphasis on evaluation was during the last several months of the project, data were being collected and tabulated from the onset of the production/

program delivery phase with the mailing of the first questionnaires. Figure 6
PERT Chart developed at the beginning of the project, shows some of these
interrelationships of activities during various phases of the project.

UNIVERSITY OF SOUTHERN CALIFORNIA
 SCHOOL OF MEDICINE SCHOOL OF EDUCATION
 MEDICAL INFORMATION PROJECT
 PRELIMINARY PERT NETWORK
 JAN. 1967

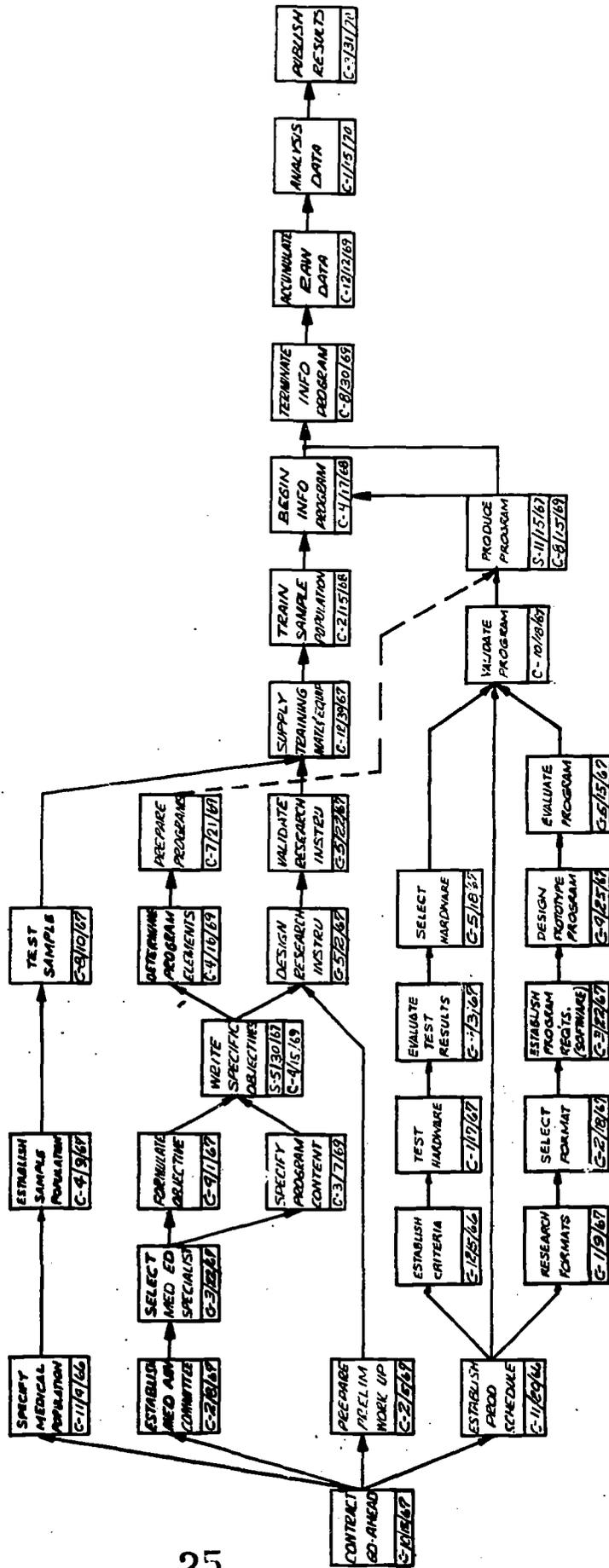


FIGURE 6

PHASE I: INITIAL PREPARATION

PHASE I: INITIAL PREPARATION

Review of the Literature

During the initial planning period and continuing through most of the production phase, an extensive literature search was undertaken. This provided information relating to the communications behavior of physicians, factors that influence this behavior, the nature of the target audience, and their needs and problems in acquiring professional information. Other attempts to use media in medical education were also examined. This preliminary examination provided a basis for drawing general guidelines for the design of the materials to be produced during the production phase. A report on this literature search was published by the Project as Research Memorandum Number 1: Interim Report on the Search Bibliography and Document Collection, October 1967.

Communication of important research information is often not available in the literature due to time lag or, as several students of information flow have noted, is of the type not ordinarily reported in the formal literature. Therefore, personal contact was made with three groups of people who were knowledgeable in this area: (1) those with an academic interest in the problems of medical communication, (2) representatives of associations, such as the American Medical Association and the American Academy of General Practice, who have communication know-how and an interest in communications, and (3) communication experts in the pharmaceutical industry.

Testing and Selection of Hardware

A general concept of the system design was an audiovisual device which could be placed in the physician's office and which would tolerate interruption. At the outset of the project, an extensive evaluation and testing of existing hardware was conducted to select a machine that would most nearly meet the ideal requirements of programming and use specifications of the Project, and which could be purchased in a lot of 100 at a reasonable price.

The display devices available combined 2"x2" slides with cartridge-loaded tapes; conventional filmstrips with disc recordings; cartridge-loaded 8mm or Super 8mm sound-on-film with stop-frame capability; or a combination similar to these. These all have certain common characteristics, the most significant being the use of rear projection through a relatively small ground-glass or Fresnel type screen.

Based on the programming concepts selected, on a thorough review of the literature pertaining to the target audience, and on discussions with experts in medical communication, a set of criteria was established to evaluate these machines. Other requirements were added when the operational and economic factors became apparent as the project developed. These were (1) reliability, (2) safety, (3) ease of operation, (4) low cost production of software, (5) availability and cost of manufacturing, distribution, and servicing. A set of specifications was drawn up, the search was instituted, and twenty-seven (27) machines were obtained and evaluated. A report on the testing and selection of these machines appears as Research Memorandum Number 2: An Analysis of Audiovisual Machines for Individual Program Presentation, May, 1967.

The display device adopted for use by the Project was the Hoffman Mark IV Audiovisual Projector, slightly modified in its programming function. This particular device has a screen approximately 5'x 8" and combines the visual of a filmstrip encapsulated in a sprocketed plastic holder (fourteen 35mm frames per strip) which is inserted into the unit and automatically engages the transport mechanism, and with audio provided by a seven inch record which is inserted into the unit and is automatically positioned on the turn-table. Each side of the record provides up to 6-1/2 minutes of playing time at 33-1/3 rpm. The Projector has two modes of operation: Automatic Advance and Automatic Stop. The device allows for a rudimentary form of programming in that the program can be automatically interrupted at any time to request an overt response to a question. The program is then resumed when the re-start button is pushed.

Production Planning

After the physical set-up for the production unit had been developed to the point where it was operable, a work-training program was begun. Various samples of medical and audiovisual materials were obtained and reviewed by the production staff. Medical illustration books and samples of current medical illustration were provided for study. Tests were run on the equipment.

Following this, a training assignment was made to produce a slide-tape presentation on the Medical Information Project. In the production of this program, format studies were conducted and tested for labeling, shape, size, and composition. Cost analyses of record production, filmstrip printing, etc., were conducted to develop the most economical procedure for producing and distributing the programs.

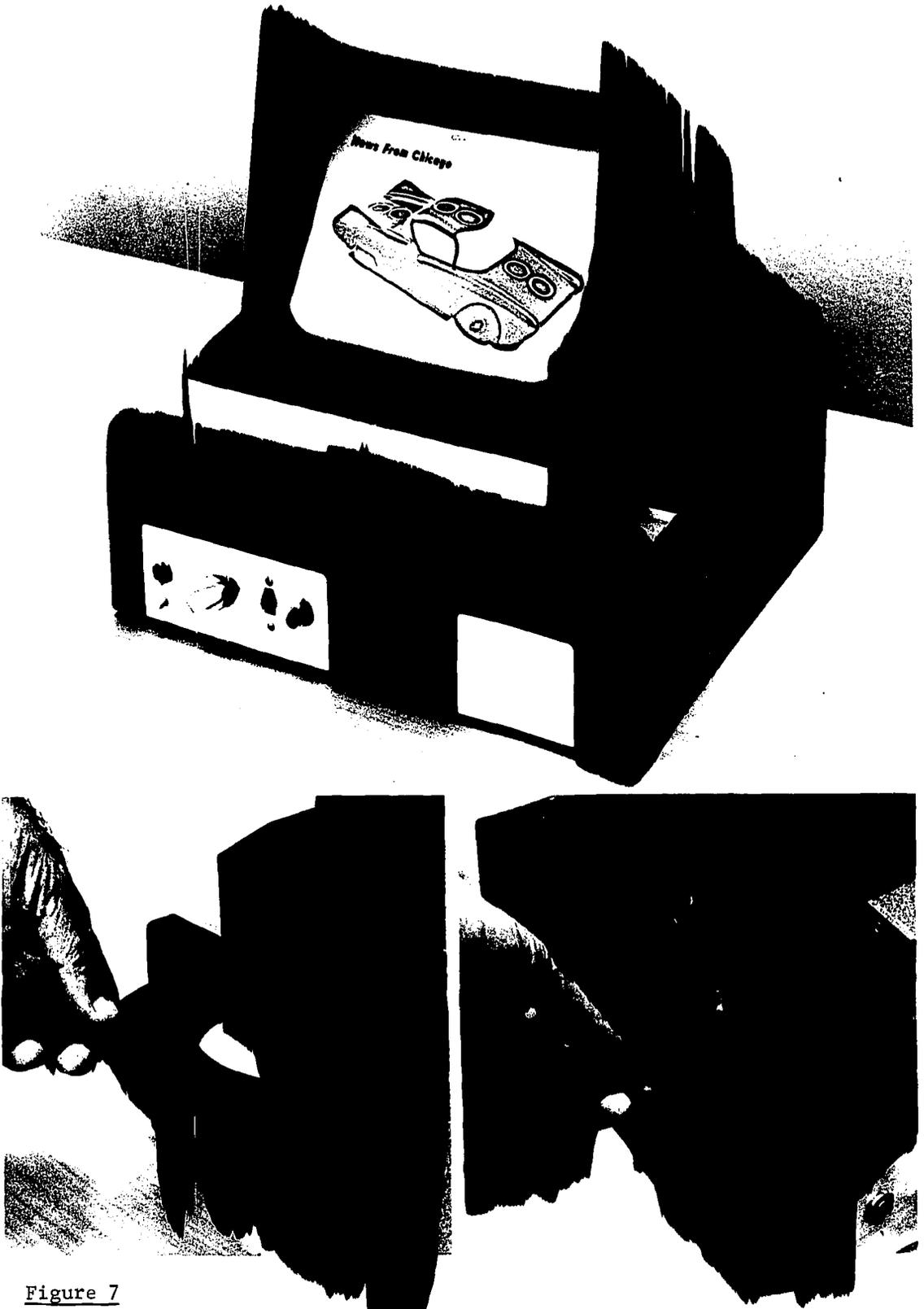


Figure 7
Hoffman Mark IV Audio-Visual Projector

Operationally, a multitude of details, techniques, and processes, had to be developed in order to design, produce, and deliver the programs. One example is illustrative. Albums were developed to include the encapsulated filmstrips, the recordings, the program booklet, and other printed materials. The album cover was designed; a mock-up tried out revised, and then reproduced in large quantities sufficient to meet the needs of the project.

The programming/production process also had to have a feedback loop of physician-reactions in order to continuously monitor and improve the process. This necessitated setting up a somewhat elaborate system of compiling program evaluation information and feeding it to the production group and the Advisory Committee.

Programming Concepts

The programming concepts were developed at the outset of the Project. A few years ago, programmed instruction, according to most of its proponents, had to be developed according to one of several defined and opposing theories. The two most often suggested as opposites were (1) the small-step behavior-shaping, successive-approximation, constructed-response, no-mistake approach of B. F. Skinner and (2) the larger-step, branching if a mistake is made, multiple-choice response then associated with Norman Crowder. Sometimes Skinner and Pressey were set in opposition with (and this is highly oversimplified) multiple-choice versus constructed-response, mistakes allowed versus always correct, etc.

Recently, however, the entire programmed instruction movement seems to have broadened its base and become more eclectic in its approach. Study

of one authoritative publication (Lange, 1967) reveals that rather than viewing programming as related to a particular psychology theory, it is now thought of as an engineering process involving (1) a clear statement of objectives, preferably in behavioral form, (2) the design of a program built to achieve these objectives, using any combination of theories and media, (3) the validation of this program on individual subjects and, later, the field-testing of it on populations of students with subsequent revision, and (4) release of the program for instructional purposes complete with performance data derived from the testing.

The general strategy for preparing the programs for the Medical Information Project is in this new eclectic tradition, but not derived from it. Essentially, it is derived from S. L. Pressey's theories of the last few years and is best referred to in Pressey's nomenclature as auto-elucidative." Following a discussion of his general theory, Pressey(1963) referred directly to program construction in the following words:

...initial presentation of what is to be learned will be in field trip, demonstration or experiment, or most commonly a substantial unit like an inclusive textbook chapter, not all mixed up with autoinstruction. The "autodiscussion" would follow and its function would be... to enhance the clarity and stability of cognitive structure by correcting misconceptions, and deferring the instruction of new matter until there had been such clarification and elucidation.

In difficult matter such as a science text or industrial or military training manual, bits of auto-instruction may be needed more frequently; each step in the solution of a difficult problem may need such auto-elucidation....if the auto-instruction is thus to follow presentation of what is to be learned, then...it will deal only with issues which need further clarification or emphasis. Such adjunct auto-elucidation will not cover everything, may jump from one point to another or even back and forth [p. 3]. (Underlining in the first sentence of the second paragraph added for emphasis.)

This approach, modified somewhat by what has been learned about audio-visual presentations, was employed in the design of the Project materials.

There is a gap between programming theory and actual programming, however, and this is particularly true when medical expert, writer, producer, photographer, artist, narrator, and program-frame-writer must be coordinated in a consciously creative effort. A strategy had to be supported by precise tactics. The early effort at doing this is contained in Research Memorandum Number 3: Strategy and Tactics for Program Presentation, May 1967.
General Design of the Study (Experimental Phase).

The design of the experimental phase of the study entailed drawing a random sample of 100 general practitioners in eleven western states who would participate in the study. A control group of general practitioners was drawn on the same basis.

The experimental physicians who participated in the study were asked to complete pre- and post-program questionnaires covering their usual methods of obtaining medical information, such as medical meetings, staff meetings, journals, postgraduate courses, as well as other factors that might be related to their communications behavior, such as distance from medical schools. In addition a number of the participants were selected for interview before and after the program delivery phase. During the experimental phase, fifteen content programs were mailed to the participants at the rate of one per month (approximately). After viewing the programs, each physician was asked to complete an evaluation form and a short content test on that program.

The control group of physicians was asked to complete the same pre- and post-program questionnaires and the content tests.

The design for the evaluation of the system of individualized audiovisual

communication for the continuing education of general practitioners is presented in the paradigm below. Several symbols, most of which have been adapted from those used by Campbell and Stanley (1966), are identified here:

- E -- the experimental group
- C -- the control group
- R -- randomization that took place in the selection of subjects for the experimental and control groups
- $0_1, 0_3$ -- initial observations obtained from use of pretest (pre-program questionnaire)
- $0_2, 0_4$ -- terminal observations obtained from use of posttest (post-program questionnaire)
- X -- treatment applied
- N -- number of subjects employed in a given group

The arrangement of symbols from left to right within the paradigm corresponds to the temporal order in which the major steps of the experiment were undertaken. Thus, the design for studying change in communication behavior may be portrayed as follows:

$$\begin{array}{l} \text{E: } R \ 0_1 \ X \ 0_2 \\ \text{C: } R \ 0_3 \ 0_4 \end{array}$$

Practical circumstances, such as time and cost requirements, argued for this type of design rather than for a four-group design.

In evaluating content learning for each of the specific programs, the post-test-only control group design was used. There is evidence that subjects are sensitized by pre-tests, and hence, when testing for factual knowledge, post-test scores are almost always enhanced as a result of the pre-testing. In a study reported by Edling (1964), it was found that the differences between the control and film group in the before after design were not statistically significant, while differences between the control and film group in the after-only design were significant beyond the 1 per cent level. It was inferred from this

that the pretest, in interacting with the communication, masked its effectiveness.

Consequently, the symbols O_1 and O_2 in the paradigm for evaluating the effectiveness of the programs with respect to content learning refer to observations obtained from the use of post-test only for the experimental and control groups. The design may be portrayed as follows:

E: R X O_1

C: R O_2

Some Cautions on the Design

In a research and development study such as this one, which may possess a great deal of novelty or special appeal to the participants, one needs to be aware of the possible operation of certain psychological factors that cannot be completely controlled by even the most sophisticated experimental designs. Among the factors that may be operative specific attention needs to be directed toward the following:

1. The familiar "Hawthorne effect" in the experimental groups that may be associated with marked changes of a temporary nature in their responses because of the novelty and prestige that participation in the study affords. The lengthy time period of the study mitigates against this possibility.
2. The tendency during the interview to please or to impress the experimenters--the risk of the introduction of the response set of acquiescence and social desirability. The physician's responses to the questionnaires, evaluation forms and content tests were apparently anonymous, which should have lessened this tendency with respect to these forms. (These forms were coded for identification purposes.)
3. The threat to self-esteem that may lead some physicians to do a great deal of extra work or extra study of information sources so that they can honestly show changes in behavior that project the image of increased competencies in medical knowledge and practice.

4. The occurrence of communication among participants in the experimental and control groups concerning the objectives and outcomes they anticipate for the study--a tendency for reactive effects of the experimental arrangements (Campbell & Stanley, 1966, p. 6) to invalidate the outcomes. This is highly unlikely in this case due to the distribution of the physicians throughout the eleven western states .
5. The presence of marked differences in the frustration tolerance and degree of conscientious perserverence on the part of the physicians in keeping detailed records and accurate information on the extent and type of use which they make of communication materials--differences in temperament or styles of work that may lead to errors in recording their responses to items in the questionnaire during the post-test experience .

Statistical Treatment

The methods employed throughout this study for testing the statistical significance of the observations to rule out the possibility of chance happenings consisted of standard procedures. These included the familiar t-test for significance of difference between two means, McNemar's Chi Square test for correlated frequencies or proportions, the Chi Square test for independent groups, and other non-parametric statistical tests.

The experimental and control group mean scores for each of the content tests were evaluated through the t-test for significance of difference between two independent means. Results stated as statistically significant were such that the probability of their occurrence by chance alone was always 5 per cent or less. In some cases, the exact probability was stated.

Research Instruments

Several months were spent in carefully designing appropriate instruments which would elicit the information required to evaluate various aspects of the project. These materials included (1) pre- and post-program questionnaires,

(2) an interview guide, (3) program evaluation forms, and (4) content tests. All were systematically pretested by personal interview with a panel of selected general practitioners in the Los Angeles area and revisions made based upon their comments prior to utilization in the study.

The MIP research instruments may have the distinction of being the most thoroughly tested and analyzed forms utilized in a federally funded project. They were prepared, tested, revised, tested again by personal interview, and again revised. They were then submitted to the U. S. Public Health Service for approval by the Bureau of the Budget. The instruments were reviewed by personnel in the Behavioral Science Section of the Division of Community Health Services. Based on their recommendations, the instruments were again revised (which in some instances entailed reconciling two differing analyses), tested, and then resubmitted for clearance. Personnel within the Bureau of the Budget made some further suggestions for revisions, and after some discussions by telephone, the revisions were made in order to expedite clearance by that office. Approval of the instruments came nine months after they were submitted.

To achieve anonymity of responses and at the same time to keep record of who responded and who did not to each of the research instruments, a number code was assigned to each physician in the control and experimental samples, and affixed to each form.

A brief description of each of the instruments is presented in the following paragraphs, and a copy of each is included in the Appendix of the report.

Questionnaires. The pre- and post-program questionnaires were designed

to serve as the major source of data for investigating any changes in communication behavior in the physicians. These instruments provided data on the activities that the general practitioner exhibits in relation to his professional duties and particularly to his efforts to keep abreast of the expanding universe of medical knowledge and of modifications and innovations in clinical procedures. The questionnaires also elicited information on other factors that might be relevant to, or influence, the communications behavior of physicians, such as distance from medical schools, medical practice arrangements, number of hours worked. The final version that was administered to both the experimental and control groups of physicians prior to and again at the conclusion of the program delivery phase of the project consisted of 25 items, printed in pamphlet form, requiring about 30 minutes for completion.

The pre-program questionnaires were mailed with a covering letter to both groups of physicians on April 5, 1968. Return envelopes were printed, conspicuously stamped, and marked First Class. This special attention with the return envelopes was intended (a) to facilitate the mailing of the response and (b) to reinforce the professional predisposition to respond. Three weeks later a follow-up letter was sent to all who had not responded. No further attempt was made to solicit information from members of the control group who did not respond to the first or second request. The experimental group, however, who had agreed to participate in the study, were contacted by telephone if they had not responded to the first and second letters.

The post-program questionnaires were mailed to the control group of physicians on July 14 and to the experimental group on July 21, 1969. Followup

letters were sent to non-responding control group physicians on August 8 and to the experimental group on August 14, 1969. A massive telephone campaign was begun August 25, 1969 to urge the physicians' help in filling out the questionnaires as soon as possible. A postcard reminder was sent to non-responders on September 3, 1969.

Interview Schedule. To make procedures uniform and to provide a basis for gathering appropriate information, an interview guide for use by project field personnel was developed. As a validation device for the questionnaires and as a means for acquiring in-depth information from physicians regarding their needs for information and their ways of obtaining it and their attitudes and motivations relating to their communications patterns, interviews were carried out both prior and subsequent to the series of fifteen programs. Pre-program interviews, conducted with about 60% of the participating physicians provided information which served as a guide in the design of the specific program materials to be used during the course of the project. Post-program interviews were designed to provide information which would serve to guide the improvement of such a system of individualized, audio-visual, programmed instruction.

Program Booklets. Accompanying each of the fifteen audio-visual programs was a program booklet which included (1) program questions to be used in conjunction with the audio-visual program itself, (2) any tables of information that the general practitioner might want to keep for easy reference, (3) a program evaluation form, and (4) a content test. The booklet was constructed in such a way that the middle pages, consisting of the evaluation form and

content test, could be easily removed from the booklet and returned to the project in a prepaid envelope.

Program Evaluation Form. The program evaluation forms for each of the fifteen programs were designed to furnish information on the attractiveness and acceptability of each of the instructional units. The data from these forms provided feedback to the production team to guide in the design of future programs. The final form consisted of 11 items eliciting information regarding types of subject-- matter content, design features, etc. which might best be included in this mode of presentation, and how physicians view other sources of information in terms of their perceived needs.

Content Tests. The content tests were designed to provide information not only on how well the physician had learned, but also on how well the material in the program had been presented. One of the cardinal concepts of programmed instruction is that if the student fails, the program also fails. Test questions, while measuring content knowledge, also tested how closely the MIP programs met the behavioral objectives. These tests consisted, on the average, of ten objective (true-false, multiple-choice) or short answer items, requiring about five minutes to complete. These tests were also administered to the physicians in the control group, and mailed with the post-questionnaire.

The Sample and Sampling Procedure

It was very important to the Medical Information Project study that the physicians be representative of general practitioners in the eleven western states. For this reason, the sampling process is described in detail on the

following pages.

Defining the Population.

The primary and most useful source for determining the population from which the sample was drawn was the 1965 AMA Directory (23rd Edition). This was the latest edition available and was used even though the work on sampling began almost a year later (November, 1966). The 1966-67 AAGP Directory and lists provided by the state medical societies were also used for reference. The AAGP Directory was not heavily relied upon because it would have introduced a bias since only about 33% of the total GP population, nationwide, are members of the American Academy of General Practice, and the AAGP requires its members to engage in a minimum number of hours of postgraduate education.

Definitions and Assumptions.

In establishing the population from which the sample was to be drawn, it was necessary to consider a definition of general practice. As Peterson (1956) stated:

An attempt to define or describe general practice involves study of it under varying circumstances. It may change from town to city, with the age of the doctor, with season of the year, with the number of partners or aides, with the size of the physician's income and with many other factors. It would be necessary to know something about the doctor and his training, his patients and their diseases, his facilities, the extent of his work and any limitation imposed upon his practice [p. 6].

In this same vein, Wolf (1965) has stated:

There are a great number of general practitioners in the U.S., but to assume that they are all the same is, of course, foolhardy. Certainly, general practitioners are people with individual differences related to their own personal background, medical training and other factors. This is a large country with great differences in financial assets of communities, geography, population, and the consequent

health problems with which doctors must deal...Similarly, the definitions of a general practitioner is variable in terms of what he does (not what he is supposed to do). Although most general practitioners are less formally educated than specialists, it is not what they have been trained to do but what they must do to meet public demand which is important [pp. 737-738].

These comments illustrate the difficulty which faces one who tries to arrive at an adequate description of a general practitioner. This appears to be a period of transition within the medical profession as exemplified by the numerous attempts to define the generalist and his function, the question of whether general practice is on the decline or increase, and the whole issue of "family" practice versus "general" practice. There is also the question of whether or not some specialists (especially pediatricians and internists) are, in fact, practicing general medicine. If so, they may soon face some of the same problems the general practitioner faces in keeping abreast of medical knowledge.

This study utilized the traditional description of a general practitioner as a man who had no specialty training and did not limit his practice to a single field. There are many who fall between this group and those who would definitely be described as specialists by virtue of their training, board certification, and limitation of practice. In deciding which of these would be included in our population of general practitioners, the main emphasis was placed on the scope of their practices. Those who may have had some specialty training (but were not board certified and were still listed as GP's) and who did not limit their practices to a specialty field were included. Those who may have had very little further training in a specialty field but who did

limit their practices (e.g., a physician who practiced only obstetrics) were excluded. Physicians in this latter group were not considered specialists. They were excluded because it was the main purpose of this project to communicate a wide range of information to those physicians who practiced a broad range of medicine.

Universe and Frame.

Given the working definition of a general practitioner, a number of factors of potential importance were considered before selecting the sample.

(1) Age. General practitioners who were sixty-five years of age and older at the start of the project were deleted from the population. This was done because it was anticipated that doctors in this age group would be more likely to (a) be near retirement and/or (b) have limited practices. In a small sample such as this, it was necessary to minimize the possibility of "dropouts" due to retirement. It was also assumed that physicians with limited practices would be less likely to be as concerned about the information problem as those who are maintaining full-time practices.

(2) Type of Practice. Those physicians who were in institutional practices, in veterans' hospitals, in the armed services, in medical schools, or in training programs were deleted from the population.

(3) Area of Practice. Physicians who specified two or more specialty listings were deleted from the population.

Thus, the population was defined as general practitioners in the eleven (11) western states who (1) were in full time private practice, (2) were under sixty-five years of age and (3) did not limit their practice to a single area

of interest.

In this way the universe of 12,440 was reduced to a frame of 9,605 general practitioners as shown in Table 1.

TABLE 1

Distribution of Population of General Practitioners in Eleven (11) Western States

<u>State</u>	<u>Universe</u>	<u>Frame</u>
Arizona	520	401
California	7,955	5,928
Colorado	701	552
Idaho	276	239
Montana	261	236
Nevada	125	95
New Mexico	225	176
Oregon	719	591
Utah	304	248
Washington	1,198	1,001
Wyoming	156	138
TOTALS	12,440	9,605

Size and Selection of Sample

The size of the sample was set in the contract as one hundred general practitioners in the eleven (11) western states. Since this represents only about one percent (1%) of the eligible general practitioner population, great care was taken in developing the sampling procedures. A disproportionate stratified random sample was drawn rather than a simple random sample or a proportionate stratified random sample. The reasons for this are discussed in the next section.

Stratification Procedures

The decision to stratify disproportionately by state was based on three

criteria. First, it was necessary to insure that general practitioners in each of the eleven states would be represented. Table 2 shows the problem that would arise if only a simple random sample were used. California accounts for sixty-one per cent (61%) of the general practitioners in the population. It is highly likely that the states with a lesser population of general practitioners would not be adequately represented.

TABLE 2

Percentage Distribution of Population of General Practitioners in Eleven Western States

<u>State</u>	<u>GP Population</u>	<u>% of Total</u>
Arizona	401	4%
California	5,928	61%
Colorado	552	6%
Idaho	239	3%
Montana	236	3%
Nevada	95	1%
New Mexico	176	2%
Oregon	591	6%
Utah	248	3%
Washington	1,001	10%
Wyoming	138	1%
TOTALS	9,605	100%

Second, it was considered desirable to have general practitioners from each state adequately represented because of the varying availability in each state for continuing education activities and the concomitant effect this might have on communications needs and behavior. For example, Idaho, Montana, and Wyoming do not have medical schools. This would limit the ease with which general practitioners within these states could attend postgraduate courses. On the other hand, the University of Utah College of Medicine has

done a great deal of work with continuing education programs via television (Michael, 1963; Castle, 1963) on a statewide basis. In California and Washington numerous kinds of continuing educational programs (e.g., postgraduate courses, medical television, tapes) are available. Thus, it was an important part of the study to reach those doctors who had limited as well as ready access to continuing education in their state.

Another factor which was considered in the decision to stratify disproportionately was the location of the doctors' practices with regard to an urban-rural classification. In defining "urban" and "rural", the classification used was the one developed by the U.S. Public Health Service, on the basis of the 1960 Census of the Population projected to 1962 by Sales Management Incorporated. The five county groups (listed by degree of urbanization) are (Theodore & Sutter, 1966):

- Group 1: greater metropolitan--109 counties in SMSA's with 1,000,000 or more inhabitants.
- Group 2: lesser metropolitan--301 counties in SMSA's with 50,000 to 1,000,000 inhabitants.
- Group 3: adjacent--889 counties contiguous to metropolitan areas (population in such counties ranges from 500 to 508,500 inhabitants).
- Group 4: isolated semi-rural--1,024 counties containing at least one incorporated place with 2,500 or more inhabitants.
- Group 5: isolated rural--758 counties not included in the above four groups.

Groups 1, 2, and 3 are considered urban; 4 and 5 are rural.)

This classification is a further development of the metropolitan area concept of integral economic and social units with distinct population centers. The first two groups are determined by the SMSA's established by the Bureau of the Budget. [Each Standard Metropolitan Statistical

Area consists of the county in which the central city is located and the adjoining counties, which along with the primary county comprise an integral economic and social unit.] The third group consists of counties which border the SMSA's...Finally, the fourth and fifth groups comprise the rural areas of the country [pp. 9-11].

The factor of urban-rural distribution was important because it was assumed that the differences in the facilities, functions, and problems of practice in urban versus rural areas could potentially result in a difference in the information needs and communications behavior of general practitioners in these areas. Wolf (1965) and Greenhill and Singh (1964) discussed the significant differences in the activities of rural and urban practitioners. The difference in types of problems and diseases commonly seen in urban and rural practices, the fact that the rural practitioner attempts more complicated general surgery and specialized surgery than the urban practitioner (Greenhill & Singh, 1965) would seem to indicate that there is a significant difference in the information needs of urban and rural practitioners.

There also seems to be a marked difference in the number and kind of potential sources of information in urban and rural areas. The Task Force on Health Manpower (Pennell & Baker, 1965) reports that:

For both economic and professional reasons, physicians tend to concentrate in metropolitan areas. Such areas are usually characterized by high per capita income and population density and offer opportunities for entree to large hospitals, frequent contact with hospital staffs, and often access to medical teaching centers. (Underlining added for emphasis.)

...In counties adjacent to these metropolitan counties the lower ratio of physicians may be in the larger medical centers, but this is not equally true for persons living in isolated counties.

...The ratio of general practitioners to population is about the same in each of the county groups. For specialists in private practice, for physicians in hospital services, and for physicians in teaching,

research, and industry, the isolated counties are conspicuously low in comparison with the metropolitan areas [pp. 40, 46].

In summary, these classifications of different concentrations of population--greater metropolitan, lesser metropolitan, adjacent, isolated semi-rural, and isolated rural--could also serve as classifications or categories of the degree and ease of the availability of information to the general practitioner. As such, they would make natural strata for a sample in an information study.

However, it was for all practical purposes impossible to stratify specifically on an urban-rural basis within each state. On the other hand, an analysis of the data available (Theodore & Sutter, 1966) indicated that a disproportionate stratified random sample would result in an adequate urban and rural representation.

Urban areas in the United States include 80.4% of the general practitioners, while rural areas include 19.6%. The breakdown of urban and rural general practitioners in the eleven western states covered by this study is presented in Table 3. Urban areas include 85.8% of the general practitioners in these states; rural areas include only 14.2%. The wide variation between states is also shown in Table 3. In California 96% of the general practitioners are located in urban areas. The four states that would be considered primarily rural--Idaho, Montana, New Mexico, and Wyoming--together represent only 9% of the total general practitioner population in the eleven western states.

By decreasing the proportion of general practitioners in California and increasing the proportion in the ten other states, and by then taking a random sample from each state, it seemed reasonable to assume that the probability

TABLE 3

DISTRIBUTION OF GENERAL PRACTITIONER POPULATION ACCORDING
TO COUNTY TYPE (URBAN-RURAL) IN THE ELEVEN WESTERN STATES

STATE	TOTAL NO. GPs	%	URBAN GROUPS			URBAN TOTAL	URBAN %	RURAL GROUPS		RURAL TOTAL	RURAL %
			1	2	3			4	5		
ARIZONA	493	4	0	345	97	442	90%	47	4	51	10%
CALIFORNIA	7,631	61	4,674	1,923	769	7,366	97%	251	14	265	3%
COLORADO	673	6	307	68	143	518	77%	107	48	155	23%
IDAHO	273	3	0	27	60	87	32%	150	36	186	68%
MONTANA	258	3	0	35	28	63	25%	144	51	195	75%
NEVADA	119	1	0	83	6	89	75%	22	8	30	25%
NEW MEXICO	213	2	0	48	36	84	40%	110	19	129	60%
OREGON	698	6	0	324	160	484	69%	200	14	214	31%
UTAH	293	3	0	191	56	247	84%	28	18	46	16%
WASHINGTON	1,162	10	473	247	167	887	76%	264	11	275	24%
WYOMING	154	1	0	0	0	0	0%	130	24	154	100%
TOTALS	11,967	100	5,454	3,291	1,522	10,267	85.8%	1,453	247	1,700	14.2%

of obtaining an adequate distribution of cases in the urban and rural categories would be increased. The logic of stratified sampling theory could then be applied in the analysis of the data (Seltiz, Jahoda, Deutsch, & Cook, 1959).

After examining the percentage distribution of general practitioners in the eleven western states, it was decided to allocate California 50 per cent of the representatives it would have been allotted. Instead of 61 General Practitioners, 30 were included in the sample from California, and the remaining 31 General Practitioners were distributed among the other ten western states according to their proportion in the total general practitioner population. The final sample distribution of general practitioners shown in Table 4 was derived following this procedure.

TABLE 4

Final Adjusted Sample Distribution				
State	Nr. of GPs	% of Total	Proportionate Distribution	Adjusted Sample Distribution
Arizona	401	4%	4	7
California	5,928	61%	61	30
Colorado	552	6%	6	10
Idaho	239	3%	3	6
Montana	236	3%	3	6
Nevada	95	1%	1	2
New Mexico	176	2%	2	4
Oregon	591	6%	6	10
Utah	248	3%	3	6
Washington	1,001	10%	10	17
Wyoming	138	1%	1	2
Totals	9,605	100%	100	100

Selecting the Sample

After establishing the sample distribution among the different states, the actual drawing of the sample was undertaken. Each physician who met the

criteria discussed earlier was assigned a number. The required number of general practitioners for each state was selected from the population by pulling random numbers from two cans which corresponded to the row and column numbers of the table of random numbers. In this way the designated sample of one hundred general practitioners for the eleven western states was chosen.

Contacting the Sample

Despite the opinion of many authors and the MIP Advisory Committee, it was concluded that the physicians' responses would be considerably higher to the Medical Information Project program than to other types of postgraduate activities for the following reasons: (1) there would be a predisposition to respond favorably if the assumptions were sound that time involved, convenience, travel, and cost are major factors which deter many physicians from postgraduate education; (2) the effective response rate of doctors to surveys and projects seems to be somewhat higher than that of other professional groups. Parten (1950) reported that one survey of M.D.'s in New York received approximately 50% returns without follow-up. Also acting as incentives were the general novelty, interest, and practical possibilities of

this method of communication.

It was necessary to develop an effective strategy of reaching the doctor and ensuring a high rate of participation. The importance of this problem is dealt with in the social sciences, (Slocum, Emrey, & Swanson, 1956; Linsky & Spendlove, 1967). The strategy which was developed employed techniques derived from the social sciences, advertising, and other practical and theoretical communication procedures.

The barriers which prevented effective communication with the physician were analyzed. The main problem was to attract his attention. The communication demands on the doctor are horrendous. A letter can easily get buried in his daily mail. Medical Marketing (1960) reporting the sheer volume of mail stated that an average general practitioner in 1960 "received a total of 5,215 mailings [p. 10]." A study conducted by Mark Dresden, Jr. (1960) found that a "doctor gets, on the average, seventy or more direct mail promotions a week [p. 4]."

In order to counteract this direct mail problem, a telegram was sent to each of the 100 physicians notifying him of his selection as part of the sample and informing him that a letter was to follow which would describe the project further. The letters, explaining the project objectives, activities, and time requirements and requesting the doctors' participation were mailed two days after the telegrams were sent. These letters were typed on official MIP paper, bearing the letterhead of the university, and personally signed by the director. A printed, self-addressed, stamped postcard was provided for their responses.

A follow-up letter, again asking for their participation, was mailed to

those doctors who had not returned the postcard within two weeks. A telephone call was then made to those who failed to respond to the second letter after two weeks.

A letter of appreciation was sent to those who agreed to participate. For each general practitioner who declined, a name was drawn randomly from the same state to replace him. The same procedure for contacting the original sample was used for each substitute.

Copies of the telegram, postcard, and the two letters used in contacting the sample are included in the Appendix.

Analysis of Responses

Five telegrams from the original sample of 100 general practitioners were not delivered, two because of death and three for unknown addresses. Immediate replacements were randomly selected and contacted. The responses of the general practitioners contained with the first letter were distributed as follows:

	<u>First Letter</u>	
<u>Responses</u>	<u>Nr. of GPs</u>	<u>% of GPs</u>
Accepts	66	66%
Declines	10	10%
No Answer	24	24%

The twenty-four doctors who had not yet responded by the end of the second week were the target group for the second letter. Of these fifteen agreed to participate in the study and nine declined to do so.

The total figures for the original sample of 100 doctors were eighty-one (81%) who agreed to participate and nineteen (19%) who declined participation. In order to fill the nineteen slots, it was necessary to contact twenty-seven

doctors, of whom nineteen accepted and eight declined participation.

Four of the physicians who declined were not eligible, by reason of retirement or specialization, to be part of the sample. Thus, 123 physicians were contacted in order to arrive at a sample of 100 general practitioners, giving an overall acceptance rate of 81.3%.

Table 5 shows a summary of the data on the results of contacting the sample physicians and their responses. No elaborate analysis of the similarities and differences between first and second acceptors was conducted.

Problem of Decliners

A question of considerable interest arises as to information on those who did not respond: Did the twenty-three (23) doctors who declined to participate as part of the experimental group in the study constitute a possible self-selection bias in the final sample? There is a field of thought that purports that those physicians who agree to participate in such programs as this are the same ones (the literature indicates the figure is between 20% and 30%) who account for most of the physician-hours spent in postgraduate programs; whereas, those who refuse may very well be among those in most need of some form of postgraduate work. Vollan (1955) found that:

Although the majority of physicians do take some postgraduate work from time to time, with a few receiving abundant training of this kind, there still remains a sizeable group--probably between 30 and 50%--of practicing physicians who never take any [p. 47].

In order to determine whether those who declined to participate were different from those who agreed to participate, the two groups were compared on the demographic data (age, year of graduation from medical school, etc.)

TABLE 5SUMMARY OF DATA ON SAMPLING

Original Sample	100
Substitutions for nondelivery of telegrams:	
Due to death	2
Due to moving	3
# of telegrams sent originally;	105
<u>FIRST LETTERS:</u> First contact--number sent	100
Total accepts	66
Total declines	10
No answer	24
<u>SECOND LETTERS:</u> Second contact--number sent.....	24
Total accepts	15
Total declines.....	9
Of Original Sample:	
<u>ACCEPTS:</u> Totals from letters 1 & 2	81
<u>DECLINES:</u> Totals from letters 1 & 2	19
Total Substitutions for Declines	(27)
<u>FIRST LETTERS:</u> Number sent	27
Total accepts	16
Total declines	5
<u>SECOND LETTERS:</u> Number sent	6
Total accepts	3
Total declines	3
Of Substitutions for Original (19) Decliners:	
<u>ACCEPTS:</u> Totals from letters 1 & 2	19
<u>DECLINES:</u> Totals from letters 1 & 2	8

obtained from the AMA Directory. This comparison did not yield any significant differences between the two groups.

In addition to this comparison, the physicians were asked to indicate their reasons for declining. Of the doctors who were eligible to participate and declined, ten volunteered their reasons by jotting them on the response postcard. Three gave personal reasons such as illness and vacation; four stated that they were "too busy." It is interesting to note that three general practitioners mentioned extensive postgraduate activity as a reason for not participating in this study. The list of reasons for declining is shown in Table 6.

TABLE 6

<u>Reasons for Declining</u>	
<u>Reasons for Declining</u>	<u>Number</u>
Serious illness	2
Too busy	4
Extended vacation trip	1
Too much postgraduate education	3
	<u>10</u>
No reasons given	<u>13</u>
Total	23

On the basis of information available, it was concluded that the physicians who declined participation in the Medical Information Project were not significantly different from those who accepted.

The Control Group

The control group was drawn and selected on the same basis as the experimental group of physicians. This group was activated, however, at the

time that the pre-program questionnaires were mailed. These physicians initially were contacted and their cooperation solicited by sending them a night-letter informing them of their selection as a member of the control group for the study. This was followed by sending them the pre-program questionnaire with a covering letter explaining the objectives of the project and requesting their help in serving as a member of the control group by completing the questionnaire. One follow-up letter was sent to non-responding physicians, and if the physician still did not respond a new name was drawn to replace him.

It was expected from the beginning that the effective response rate from these physicians would be somewhat lower than for the experimental group, since many doctors are inundated with requests to complete questionnaires from the pharmaceutical industry, professional organizations, etc. Even so, the response rate for the control group was 54%. This rate is still higher than the expected response rate to mailed questionnaires indicated by Riley (1963, p. 190), Seltiz et al (1962, p. 241) and Simon (1962, p. 249) where the range was between 10 to 50 percent.

Summary

The procedures of contacting the experimental and the control groups have been described. Several conclusions can be drawn in this regard. A project that has something to offer a professional, even if it involves certain commitments in terms of time requirements has a good chance of obtaining a high rate of participation. Furthermore, as was pointed out by Slocum, Empey and Swanson (1956), the method by which the sample is approached seems to increase

the rate of positive response : (a) establishment of professional and social utility of the survey, (b) detailed descriptions of the project, (c) several follow-ups of non-respondents, (d) university sponsorship, (e) personalized contact. Finally, physicians seem to be a more receptive population than the general population, a conclusion which was previously drawn some twenty years ago by Parten (1950).

PHASE II: PRODUCTION AND PROGRAM DELIVERY

PHASE II: PRODUCTION AND PROGRAM DELIVERY

Distribution of Machines and Training Materials

In May, 1967, work was begun on the production and packaging of the introductory training program for the participating physicians. This program covered the general concept of the Project and the operation of the Hoffman audiovisual machine. It also provided practice to familiarize the physicians with the concept of programmed instruction. This program was delivered with the Hoffman machines.

The Hoffman equipment was installed in the doctors' offices during the months of November and December, 1967. Originally, it was planned that a Hoffman dealer would install the machine in the physician's office, check for any problems with the equipment, and demonstrate its operation to the physician. However, it was discovered that the machines had been shipped to the participating physicians and that the dealers had visited only about twenty of the doctors, and this only after the individual physician had called the dealer in his area. Consequently, the doctors were contacted to find out if they needed help in learning to operate the equipment and if the equipment was in good working order. Several of the machines didn't work properly, and were repaired or shipped back to Hoffman and replaced with new ones. However, at least one participant quit the Project during this period because of problems with the equipment and servicing by Hoffman.

With the experimental group established, the general design determined, the production processes operative, the machines installed, and the pre-program questionnaires administered to both the experimental and control

group of physicians, the Production or Program Delivery Phase became operable in April, 1968.

Design, Production and Distribution of MIP Programs

The preparation of fifteen audiovisual programs designed for viewing by general practitioners was an exacting and difficult task. It involved the transformation of complex medical and scientific knowledge into a new form: a concise and vigorous presentation in a new medium. Fifteen audiovisual programs were designed, produced and distributed to the participating physicians during the period from April, 1968, through August, 1969. Figure 8 lists the programs produced by the Medical Information Project with titles, dates, and personnel involved in each production.

Basic Responsibilities of the Production Team

The production of the programs required the formation of a smoothly functioning team which could convert important medical information into an audiovisual format. As noted earlier, the production team consisted of three people: a producer/writer, an artist, and a photographer. The medical consultant was a key member of the team who provided the basic outline of information to the program producer, researcher, artist and photographer, thus placing him in the difficult position of having to impart his specialty to the production group in a short period of time.

The basic responsibilities of the production component were as follows:

1. Design of Programs: statement of behavioral objectives, content research, selection and preparation of artwork and photography, production

Figure 8: PROGRAMS PRODUCED BY THE MEDICAL INFORMATION PROJECT

PROGRAM NUMBER AND TITLE	PRODUCER/WRITER	MEDICAL CONSULTANT	DATE OF 1ST CONTACT WITH CONSULTANT	DATE OF MAILING TO PARTICIPATING PHYSICIANS
1. Cardiopulmonary Resuscitation	Sam Kula	J. Samuel Denson, M. D. Professor of Surgery Chairman of Anesthesiology USC School of Medicine Richard A. Koons, M. D. Asst. Director of Anesthesia L.A. County General Hospital	3-29-67	4-17-68
2. Vaginitis	Sam Kula	Gail V. Anderson, M. D. Assoc. Professor of Medicine OB/GYN USC School of Medicine	6-13-67	5-08-68
3. Trichophyton Rubrum	Sam Kula	Norman E. Levan, M. D. Professor of Medicine Chairman, Dermatology and Syphilology USC School of Medicine Edward Petko, M. D. Senior Resident, Dermatology LAC-USC Medical Center	3-01-67	7-17-68
4. Family Planning	Sam Kula	Gordon Griggs, M. D. Asst. Clinical Professor OB/GYN USC School of Medicine	7-07-67	8-22-68
5. Routine GYN Examination	Sam Kula	Gail V. Anderson, M. D. Assoc. Professor of Medicine OB/GYN USC School of Medicine	10-01-67	9-13-68

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PROGRAM NUMBER AND TITLE	PRODUCER/WRITER	MEDICAL CONSULTANT	DATE OF 1ST CONTACT WITH CONSULTANT	DATE OF MAILING TO PARTICIPATING PHYSICIANS
6. Assessment of Maturity and the Environment of the Newborn	Sam Kula & Ron Sparks	Joan Hodgeman, M. D. Assoc. Professor of Pediatrics & Head Physician of Newborn Services LAC-USC Medical Center	8-30-67	10-16-68
7. Skin Tumors	Sam Kula & Ron Sparks	Edward Petko, M. D. Senior Resident, Dermatology LAC-USC Medical Center	2-01-68	11-27-68
8. Obstetric Emergencies	Ron Sparks	Gail V. Anderson, M. D. Assoc. Professor of Medicine OB/GYN USC School of Medicine	1-07-68	1-05-69
9. Jaundice in the Newborn	Ron Sparks	Joan Hodgeman, M. D. Assoc. Professor of Pediatrics & Head Physician of Newborn Services LAC-USC Medical Center	9-01-68	3-10-69
10. Tranquilizers	Ron Sparks	David A. Berman, M. D. Professor of Pharmacology USC School of Medicine	8-24-67	6-06-69
11. Inhalation Therapy	Ron Sparks	Ralph C. Jung, M. D. Asst. Professor of Medicine Director of Inhalation Therapy Services LAC-USC Medical Center	2-25-69	6-23-69

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PROGRAM NUMBER AND TITLE	PRODUCER/WRITER	MEDICAL CONSULTANT	DATE OF 1ST CONTACT WITH CONSULTANT	DATE OF MAILING TO PARTICIPATING PHYSICIANS
12. Hypertension	Ron Sparks	Robert Maronde, M. D. Professor of Medicine and Pharmacology Head, Clinical Pharmacology Section LAC-USC Medical Center	3-28-69	7-15-69
13. Aspiration of the Joints	Ron Sparks	Marvin H. Meyers, M. D. Assoc. Clinical Professor of Surgery (Orthopedic) USC School of Medicine	10-01-68	8-08-69
14. Anemia	Ron Sparks	William G. McGehee, M. D. Asst. Professor of Medicine USC School of Medicine	3-28-69	8-15-69
15. Examination of the Back	Ron Sparks	Marvin H. Meyers, M. D. Assoc. Clinical Professor of Surgery (Orthopedic) USC School of Medicine	3-28-69	8-29-69

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of scripts and storyboards, production of preliminary programs.

2. Coordination of Input from Consultants and Supplementary

Personnel: scheduling meetings with consultants, coordinating researchers' efforts, obtaining guidelines and criticism from physician consultants and Medical Advisory Committee, validating and revising programs through local physicians, working with hospital and other sources for visual material.

3. Coordination of Production of Final Program: integrating all feedback elements for final revisions, completing final photography and art work, recording sound track with professional narrator.

4. Coordination of Reproduction through Commercial Sources: distribution of final programs to various commercial companies for pressing and labeling of records, reproduction of filmstrips, encapsulation of filmstrips, punching filmstrips, pulsing records, printing of program booklets, etc.

5. Coordination of Program Distribution: checking quality of finished products, packaging materials, arranging delivery through commercial mailing company.

6. Revision of Processes and Products: interpreting data from program booklets (program evaluation forms, tests), analyzing design and production effectiveness, reorganizing basic strategies and content approaches as needed.

Programming Strategy

The main points of the MIP programming approach which determined the tactics selected in the production process and the resultant modifications of these tactics were:

1. The programs were presented in audiovisual form using a machine that could sit on a desk in a doctor's home or office.
2. The medium was projected, still, colored pictures, reinforced by sound.
3. The programs were approximately twenty-four minutes in length, divided into units of five to six minutes each. A program usually had self-contained parts.
4. The program presented content in sequences of frames which were followed by a frame on which the machine stopped automatically and which directed the physician to a program question in the booklet. The booklet required some sort of response--labeling a diagram, filling in a blank, etc. The physician then restarted the machine for the next sequence. At the completion of the program, a summary frame was presented. The physician then took a short content test and evaluated the program.
5. These programs had the following type frames:
 - a. Motivation frames (MF)--attempted to motivate the doctors with reference to the content and objectives.
 - b. Objective frames (OF)--related to the major objective of the programs; namely, to induce the doctor to change his communication behavior by seeking more information on a systematic basis.
 - c. Content frames (CF)--contained information.
 - d. Summary frames (SF)--summarized the main point of a presentation sequence.
 - e. Response frames (RF)--referred the doctor to the program booklet where he was asked to respond to a question or problem.
 - f. Answer frames (AF)--immediately followed the response frames and provided the correct answer to the question or problem.
6. Essentially, the program questions were used for three purposes in the Medical Information Project programs:
 - a. To review information. This type asked the doctor to review

information previously covered in the program.

- b. To preview information. In this case, a general question was asked that referred to information not yet covered in the program. The answer was given in the frame immediately following, and then the topic was developed.
- c. To branch ahead. A question was asked on the material to be covered in the remaining frames on that particular filmstrip. If the doctor answered correctly, he was given the option of pushing the eject button, thereby by-passing the remaining frames on that filmstrip, or he could review the rest of the filmstrip. These questions were more specific than those of types a or b.

The Production Process

In March, 1967, the MIP Research Memorandum Number 3: Strategy and Tactics for Program Preparation was written as a guide for the production team in designing the instructional units. It analyzed and attempted to define the relationship between the production team and the medical consultant in order to arrive at the best possible content programs.

The tactics outlined were introduced with a precaution: "These tactics must be viewed, however, as tentative and subject to revision as experience progresses." During the course of the production phase and the preparation of fifteen programs, the production team acquired this experience which necessitated revisions in the concept of the tactics involved. The tactical changes that evolved in practice centered around the role of the medical consultant in the specific stages involved in program preparation.

In attempting to describe the production process, it is difficult to list specific steps in a specific, linear order. For example, no two consultants had the same style of working. One may have worked many hours on the actual scriptwriting, whereas another may have been primarily concerned

with approving material that was assembled by the production crew. Although the steps are presented in linear form, the process was really much more fluid than described.

There was a give-and-take between members of the team as each played a role in trying to translate the specific content to the medium. The production group helped the consultant think in terms of the medium rather than as if he were writing an article or giving a lecture. All worked together in an attempt to refine and clarify the content into a concise teaching unit. The production process (shown in Figure 9) covering the stages from content selection through delivering the finished product to the participating general practitioner, is described in detail in the following pages.

Content Development. The general content areas from which the specific program topics were selected were established at the first meeting of the Advisory Committee on March 22, 1967. These areas were chosen on the basis of what the panel members felt was information needed by the average general practitioner to keep abreast of the changes in medical knowledge and which would have immediate practical implications for the physician's medical practice. Twenty content areas were originally listed, more than would be produced, in order to make substitutions if problems in obtaining consultants or technical barriers arose. Six specific topics were chosen initially from these twenty content areas. Specific topics for remaining programs were decided on the basis of feedback from the participating physicians through interviews, the questionnaires, and the program evaluation forms.

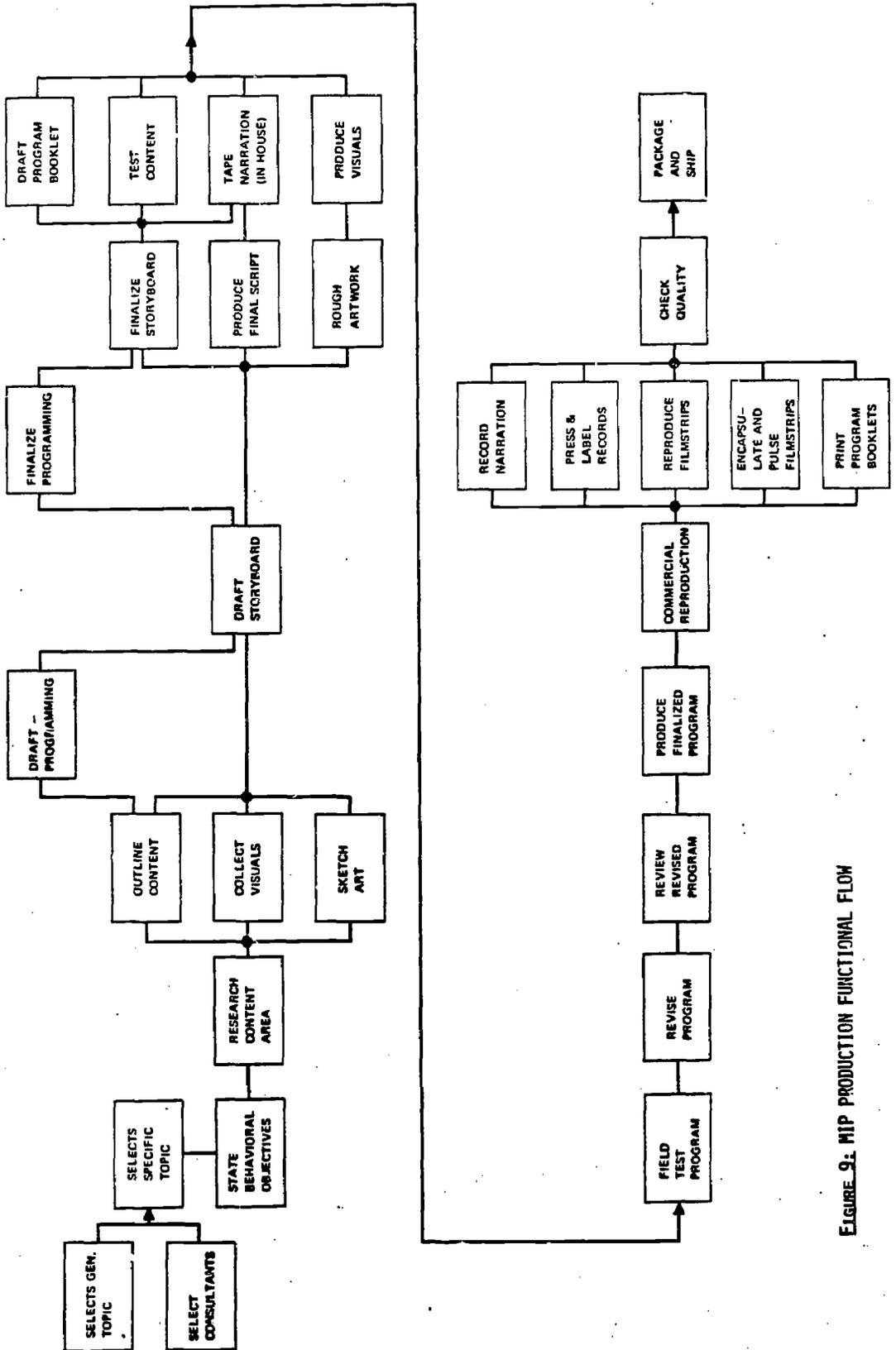


FIGURE 9: MIP PRODUCTION FUNCTIONAL FLOW

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Once the decision for a specific program topic had been made, a consultant was recommended by Dr. Phil Manning or other members of the Advisory Committee. The consultant was contacted by Dr. Manning to secure his participation and cooperation. The consultants responded favorably in almost every case. A confirming letter was sent to the consultant explaining the proposed topic, the pay, and an estimate of the time which would be involved. The following items were also enclosed:

1. The MIP information leaflet, stating the concept and objectives of the project.
2. A copy of Strategy and Tactics for Program Preparation (this was eliminated from the packet during the last seven programs because of changes in methodology).
3. A copy of Mager's Preparing Instructional Objectives.

An appointment was made for the project producer and the researcher to meet with the consultant to establish the concepts that would be covered in the program. During the initial meeting with the consultant, the producer and researcher attempted to clarify format and the length of time that an average program should run. The consultant in most instances attempted too broad a coverage to be presented in a single program.

An important outcome of this initial meeting was a statement of behavioral objectives for the particular instructional unit. The behavioral objectives were defined in terms of what the physician should be able to do after viewing the program; what points of knowledge he should take away from the program.

The consultant recommended sources of information from which the topic could be researched and a content outline written for the rough script

and storyboard. The researcher/writer had access to the USC School of Medicine Library which has an extensive collection of medical volumes. The researcher, working with the producer, collected as much factual information pertaining to the topic as possible. The collection of this material often took as long as thirty days. The writer also obtained a wide range of materials to review such as films, reference books, pertinent articles, pamphlets, drug company brochures, slides, transparencies, and illustrations. Materials were examined and key items were submitted to the producer. Although originally it was thought that the content outline would be written in close conjunction with the consultant, the consultants were usually too busy to do this. The problems involved in scheduling meetings convenient to both the production staff and the consultants were often exceedingly difficult. The writer finished a detailed outline, carefully noting the relationship to the initial objectives and time distribution in the program. Key points were also noted for possible programming frames.

The producer presented a preliminary program storyboard to the medical consultant who would modify, recommend, delete, and generally focus the content of the program to his perception of the general practitioner's needs.

The following summarizes the preliminary activities of the production team in the content development for a particular topic:

- a. . Selecting specific topic with the consultant from the general content area.
- b. Clarifying and defining specific behavioral objectives.

- c. Researching the topic and compiling notes based on the consultant's recommendations.
- d. Developing general content outline.
- e. Suggesting possible treatments.
- f. Discussing with the consultant the objectives, the content outline, and exploring possible treatments which would lead to a draft script and formal storyboard.

Development of Storyboard. In analyzing the subject content for the preparation of the storyboard, the production team worked from a set of notes, an outline, an essay, a complete script, or any variation of these. It was in the development of the storyboard that the basic approach to the presentation of the material, audiovisually, was determined. By working on paper, with the artist sketching appropriate visuals, a variety of approaches both to overall design and individual frame design were considered. The producer wrote a preliminary program based upon the research material and then wrote the first draft of the storyboard narration, defining the relationship between the audio and visual channels of communication in each frame.

Working closely with the artist and photographer, the producer tightly edited the commentary making continual adjustments in response to creative suggestions by the production team and the consultant. During this time, the consultant, working with the producer, developed the content test which was to accompany the program. The producer also developed a draft of the program questions for reinforcement of concepts that were to be included in the booklet.

At the end of this stage, the following had been completed:

- a. The producer completed the storyboard with each frame consisting of the artist's rough sketch and typed commentary.
- b. The medical consultant recommended specific changes, and gave preliminary approval.
- c. The producer developed response and answer frames in consultation with programing advisors.
- d. The consultant, with the producer, developed the content test.
- e. The producer drafted the program booklet, including the program questions and content tests.

Validation and Pre-Production Testing. Program validation is considered the key item in the technology of programing instructional materials. Audio-visual program validation is somewhat more difficult than the validation of printed verbal materials. The original plan for both program validation and pre-production testing called for the use of storyboard pencil sketches of the artwork and photographing these for slides for the visual frames, a technique which has proved effective in determining the instructional strengths and weaknesses of a film (Rose and Van Horn, 1956). To these would be added live photographs, particularly where precise scientific photography was required.

Pencil sketches were used in the early programs, and later colored felt tip pens were tried. However, the method which ultimately proved to be most effective, as well as feasible in terms of time and expense, was the use of white chalk on chalkboard, photographed on black and white film, with the negatives mounted in 2" x 2" slides. The resulting image was a dark line on a gray background. With this process the visuals could

be shot, developed, and mounted in slides on the premises within an hour, if necessary.

In-house narration in a form similar to the final product was taped to accompany the preliminary slides. Question frames, answer frames, and other configurations that were to appear within the program were included. Although many producers of educational and medical films test their material in the script and/or storyboard stage, it was felt that most laymen in the field of motion picture and slide production usually cannot visualize the final treatment of material solely from scripts or storyboards. Therefore, the storyboard was taken one step further. It was presented visually by slides of the rough sketches of artwork and photographs and accompanied by the approximate sound track that would be used in the final program. This procedure worked well as a cost-effective compromise between inexpensive paper scripts and a costly full-blown production of a preliminary program that might very well require revision.

The program was shown in this form to the consultant, the Advisory Committee, and then validated and pre-tested with a panel of three to five physicians in the Los Angeles area. The visuals and the narration were tested in combination this way since any change in one channel could alter the effectiveness of the other, and the "feedback" must relate to the whole program. This procedure also helped to avoid the common pitfall of encouraging attention to the verbal content rather than the visuals, following Ruhe's (1953) suggestions for overcoming the prejudice of medical consultants for emphasizing verbal type lecturing over visual content. After

the program was shown to the physicians, their comments and criticisms were recorded. The evaluation forms were studied and, if necessary, the audio, the visuals, or both channels were revised and the programs re-tested.

One example is described to demonstrate the importance of pre-production testing. In pre-testing "Assessment of Maturity in the Newborn", the most frequently missed question was in relation to the feeding of a low-weight newborn. A change in the recommended number of calories per kilogram has taken place in the last few years. While the correct number of calories was mentioned in the program, it was apparently not stressed enough to change previous knowledge. After revision, with emphasis added to this point, the physicians apparently learned the intended information. It was concluded that areas of recent changes in medical knowledge needed special emphasis rather than simply presenting the new information in a straight-forward manner.

The following summarizes the activities during the validation and pre-production testing stage:

- a. A set of 35mm slides was prepared consisting of photographs of the rough chalk sketches, and the actual photographs to be used, when available.
- b. The narration was recorded on tape, in-house, and the audio track was pulsed to approximate the timing suggested.
- c. The consultant approved, or recommended, specific changes on the basis of the slide-tape presentation.
- d. The slide-tape program, with the program frames and content tests, were tested on a panel of three to five physicians.
- e. The producer made revisions in the program, response frames, and content tests, if necessary, as suggested by the consultants and program advisors.

- f. The consultant gave final approval of the program.
- g. The Advisory Committee gave preliminary approval of the program.

Production of Final Program. After validation and revision, production of the final visuals was undertaken. Visuals were secured from a wide variety of sources. These included both original clinical and surgical sequences, full color art work, and half-tone reproductions. Some of the program topics required photographs almost exclusively; others necessitated a great deal of art work. For example, several topics, such as "Skin Tumors," "T. Rubrum," and "Jaundice in the Newborn" lent themselves more readily to actual color photographs of the conditions. On the other hand, such topics as "Family Planning" and "Tranquilizers" were composed primarily of art work, such as graphs, charts, etc.

After the final set of 35mm slides was prepared, using the in-house taped narration, the program was shown to the Advisory Committee for formal approval. Any final changes were made as recommended by the consultant and/or the Advisory Committee, and the approved set of slides were then copied with the repronar on negative film on the standard half-frame camera. This film was sent to RGB Labs (Identicolor) for processing into a master filmstrip.

The physical production of the final program is summarized as follows:

- a. Final art work was produced and photographed, final photography was completed, and existing slides were copied.
- b. Final production approval was obtained from the Advisory Committee.

- c. The approved set of 35mm double frame, 2" x 2" slide transparencies were copied on the reprinter.
- d. An internegative was processed to provide the master for the filmstrip reproduction.

Commercial Reproduction. After the color intermediate of the filmstrip was approved by the MIP production team, the internegative was sent to Deluxe General where it was looped and reproduced on a thousand-foot strip of positive release print, a quantity sufficient to supply the physicians participating in the project. The release print was sent to Hoffman where the final filmstrips were cut at the appropriate intervals and encapsulated in the plastic holders used in the Hoffman device. These holders were then punched to activate the programming function at the appropriate frames.

While the filmstrips were being reproduced, a professional narrator, George Walsh, recorded the script at RCA sound studios. This magnetic tape was edited at RCA, a continuous 50-cycle tone was added, and the tape was pulsed in accordance with the script. Breaks in the tone activated the mechanism which either changed the frame, or in the presence of a hole punched in the plastic filmstrip holder, stopped the mechanism in the programming mode. The 7" records were then pressed and the labels giving the program number and the title for the records were printed.

At the same time that the records and filmstrips were being reproduced, the content test, program questions, title sheets, credits, and any graphs, charts, etc. were typed and edited. The covers for the program booklets and the program evaluation forms had previously been printed and remained the same throughout the course of the project. The new pages were sent

to Don Figge Associates to be printed and collated.

The following summarizes the activities involved in the commercial reproduction of the MIP programs:

- a. The color intermediate of the filmstrips was approved; the internegative was looped and printed; the filmstrips were cut, encapsulated and punched.
- b. Narration was professionally recorded and edited; pulse was added to the tape; records were pressed and labels printed.
- c. Content tests, program questions, and other materials were typed and edited; program booklets were printed and collated.

Packaging and Distribution. When all of the components for a given program were reproduced and returned to the Medical Information Project production office, a quality control check was undertaken. Records were selected at random from the run and tested on the Hoffman machine in conjunction with a random selection of filmstrips. Several factors were checked, including correct pulsing for synchronization of record and filmstrips, and proper labeling of records. Some serious errors were caught in this way. In one instance, RCA had pressed both sides of one record with the same narration. The program booklets were also checked for errors in printing or collating. Each of the booklets was number coded.

After this check, each of the filmstrips was labeled with its appropriate number (1-4); included on this label was an arrow which made it easier for the physician to know which end of the filmstrips to insert into the projector.

Then began the task of assembling the packets. The albums usually contained the following items:

- a. Four filmstrips, labeled in sequence.
- b. Two records, both sides appropriately labeled.
- c. Program booklets, containing program questions, evaluation forms, and content tests.
- d. Postcard requesting further information.
- e. Self-addressed, stamped return envelope for return of forms.

Once the packages had been assembled, they were turned over to Minuteman Mailers along with album mailers and address labels for shipping to the participating physicians.

Problems Encountered in Production

The production process was originally planned to encompass an 80-day cycle. However, this varied significantly with problems that were encountered in the production of each of the specific programs. In any system the operation does not always run as smoothly as it was conceived on paper. The design of a system attempts to take into account as many factors as possible. However, many problems arose that could not be foreseen.

Although the original MIP schedule indicated that a program would be sent every two weeks to the participating physicians, many factors intervened to alter this plan. Most of these delays involved situations largely out of the control of the MIP staff. The best that could be done was to attempt to solve them when they arose as quickly as possible to minimize the delay.

Personnel turnover can cause an undetermined amount of slippage. Three producers were involved in production at different times during the course of the project. Some delay occurred during the period when it was necessary to orient the new producer with the tasks in progress, processes, involved, etc.

Many delays were encountered due to the extremely busy personal schedules and illnesses of consultants, narrator, Advisory Committee members, and validating physicians. Each time a delay in a single area was encountered, the production of that program was thrown off schedule, and further compounded the problems in other individual schedules and appointments. Scheduling meetings of the Advisory Committee often caused delays up to two weeks in which production necessarily came to a halt awaiting final approval for prepared programs.

Much delay was caused by the difficulty in arranging meetings with the consultants. The consultants who agreed to work on this project were paid a very modest honorarium. The amount of time involved for them varied from 20 to 40 hours. These consultants were highly respected men and women in their fields of medicine. Because of the pressing requirements of their other professional duties, appointments with the production team were often not kept or cancelled, resulting in a delay of weeks (or even months in a few cases) between initial contact and eventual production of the program.

For this reason the production team had at least three programs in various stages of production at any give time to minimize consequent delays

in production. Working on a number of programs simultaneously had its disadvantages, however. The production team was required to fragment its attention and efforts over several programs at various stages in production to utilize time as efficiently as possible under the circumstances, rather than being able to concentrate totally on one program to assure the smooth and orderly progression of the myriad of production details required. In spite of this, the programs remained high quality productions.

The distances involved should also be mentioned as this caused a great deal of travel time by the production team. The medical campus was located 10 miles from the main campus where the MIP production office was located, causing much travel for every meeting with consultants. Travel time was involved in going to each of the physician's offices who were involved in validation of the programs. Furthermore, a round trip of nearly 70 miles was required to take each release print to Hoffman Electronics for encapsulation, involving costly time of one of the production team members.

By far the most difficult problems encountered were in the commercial reproduction of the programs, where the production staff was literally at the mercy of the companies involved. Delays were encountered in the commercial pressing of the records and the encapsulation of release prints because each company had larger orders to fill. For example, the number of records required for MIP programs was a small run (100), and RCA often took from three to four weeks from the time of recording to finish the records. The small run of MIP filmstrips would be worked into the schedule of Hoffman Information Systems as per their convenience. Such delays caused mailing

dates and other basic time schedules to be jeopardized, thus holding up the entire production process.

The following illustrate some of the incidents which caused unavoidable delays over which the production team had no control:

1. Printer injured hand causing one week delay in printing program booklets.
2. Company punched filmstrip holders incorrectly and broke punch causing one week delay.
3. Loss of film and negative by processor causing three week delay.
4. Three weeks delay caused by record plant being closed down for repairs.
5. Narrator cancelled recording date because of laryngitis causing one week delay.
6. Record cutter ill; record labels delayed in printing; wrong labels on records resulting in total of two week delay.
7. RCA pressed both sides of record with same narration resulting in delay of three weeks.
8. Illness of consultant resulted in six week delay.
9. Senior consultant turned project over to junior consultant and change in emphasis resulted in three week delay.
10. After six-month production period, program was vetoed by the Advisory Committee, and consultant was replaced.

Recommendations on the Production Process

After completing the production of fifteen instructional programs, a few recommendations can be made with respect to the production process. First, the production unit would function with more efficiency if they were located nearer to the consultants, in this case, the medical school campus. This would encourage closer cooperation between the consultant and the

production team and would alleviate some of the problems of travel and scheduling meetings.

Second, adequate lead time should be allocated so that it would be possible to concentrate efforts of the production team on one program from start to finish, rather than overlapping work on several programs at the same time. Another possibility would be to have two production teams working on separate productions. This, of course, would have to be decided in terms of economic feasibility.

Third, every attempt should be made to validate and pre-test programs prior to the final production. MIP's experience with using slides of a photographed black and white storyboard with taped narration proved more valuable in pre-testing productions of this nature than relying solely on reading the script. The validation and pre-testing of productions should be done with physicians who will respond frankly about the programs. The physicians who assisted the Medical Information Project in pre-production testing seemed reticent to be as critical as they might have been.

Finally, the program researchers were generally graduate students from the Department of Instructional Technology, and except in rare instances had little or no background in medicine. These students were well-versed in the steps required in program production. However, at the level at which they were working, programming ability was not the important or perhaps even the necessary area of expertise. Therefore, it was concluded that medical students would be in a better position to grasp the relative importance of different aspects of a medical topic for inclusion in the content

outline. In addition, they would be more familiar with the concepts and terminology involved in researching a content area.

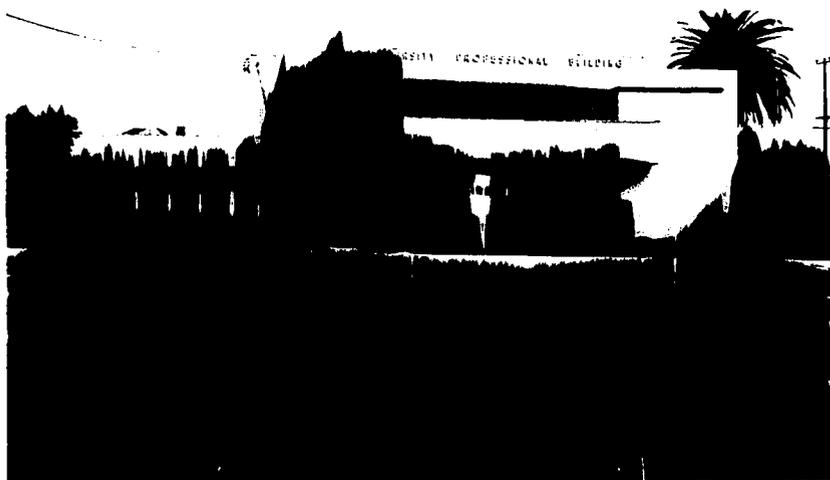


Figure 10
Medical Information Project Production Building

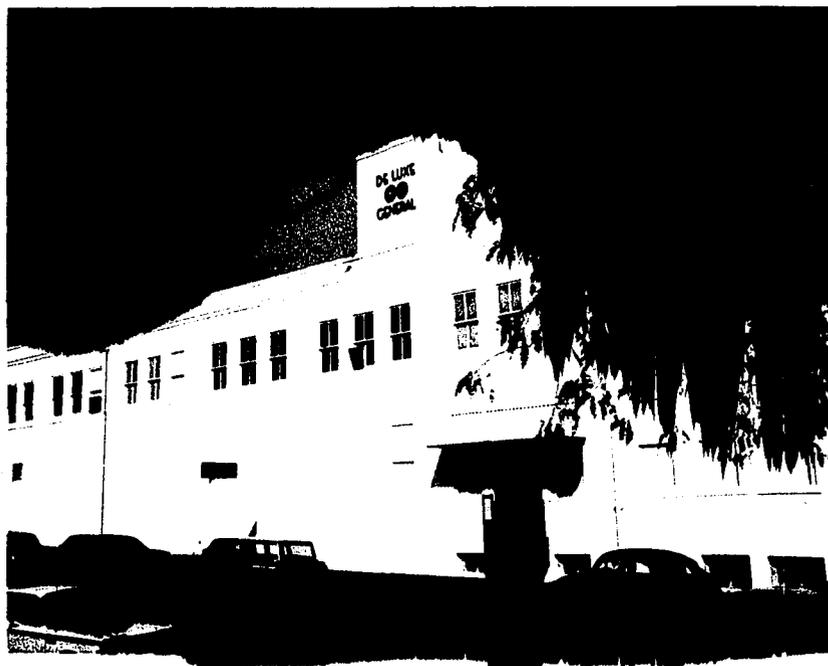


Figure 11
Delux General Film Laboratories - Filmstrip Printing



Figure 12
Medical Information Project Narrator George Walsh

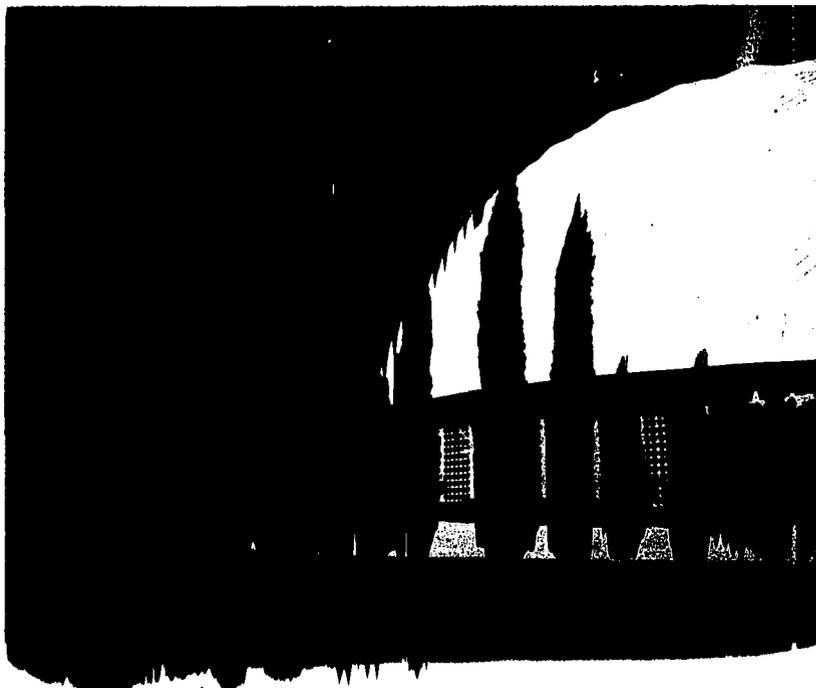


Figure 13
RCA Recording Studios Hollywood, California



Figure 14
Shooting Validation Frames
First Visual Production of MIP Programs

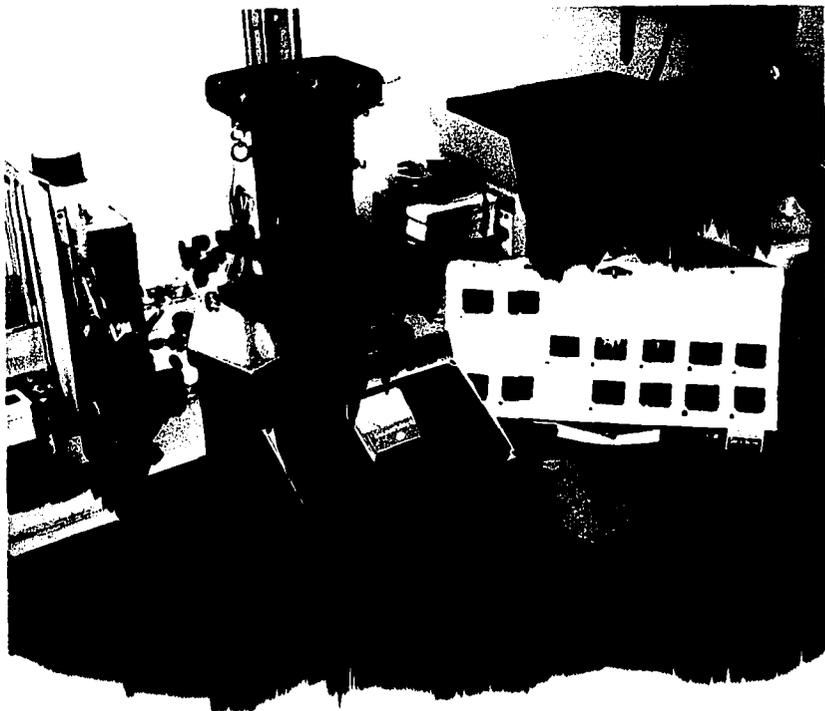


Figure 15
Producing the Master Negative for MIP Filmstrips

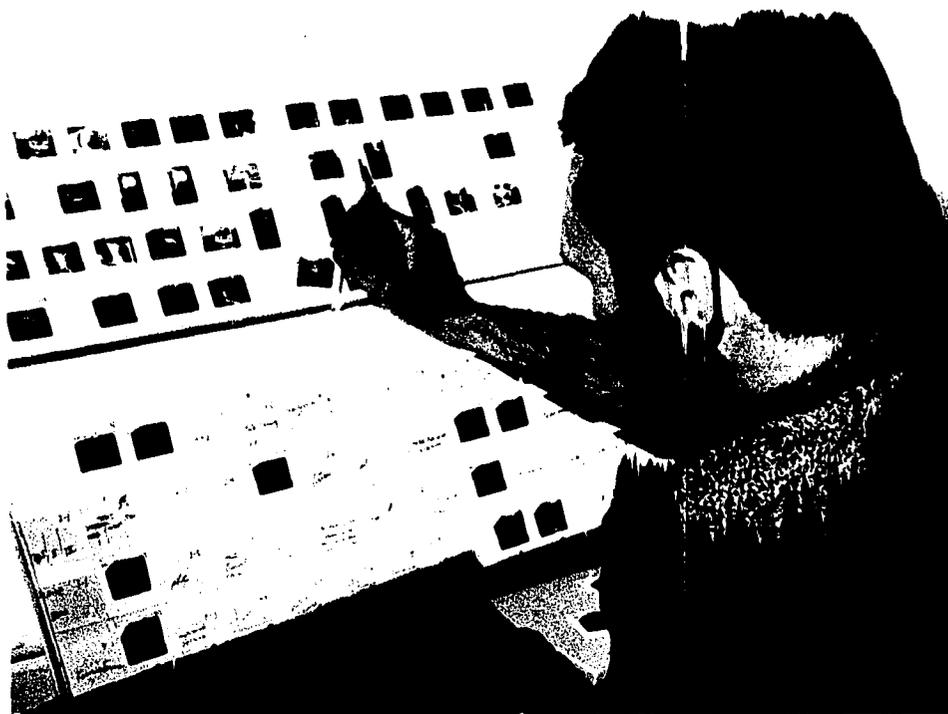


Figure 16 Sorting Slides for Storyboard



Figure 17
Working on Storyboard with Consultant



Figure 18
Medical Information Artist, Peggy Laird

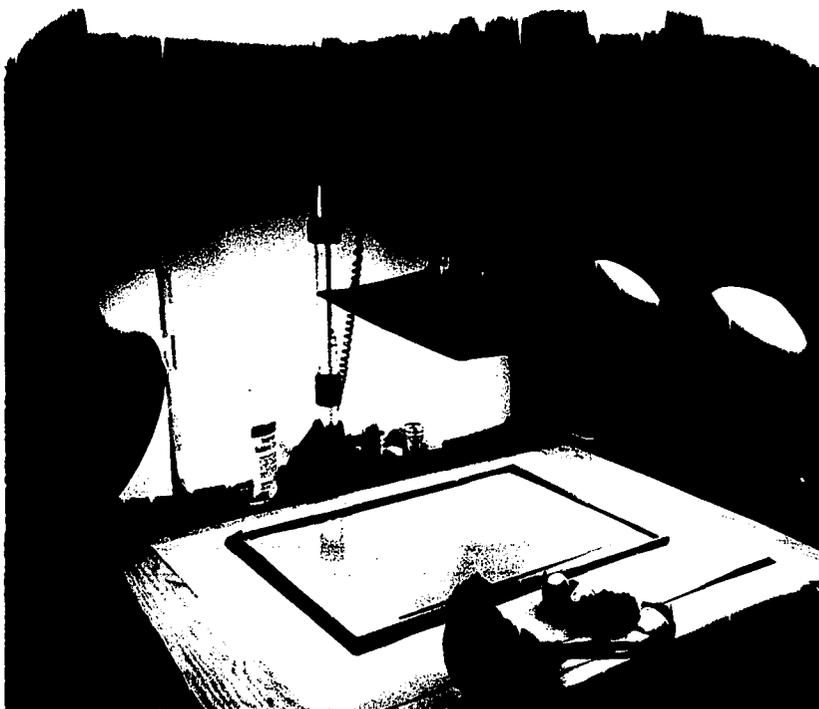


Figure 19
Shooting Final Art for Medical Information Project Programs



Figure 20
Transparency Duplication

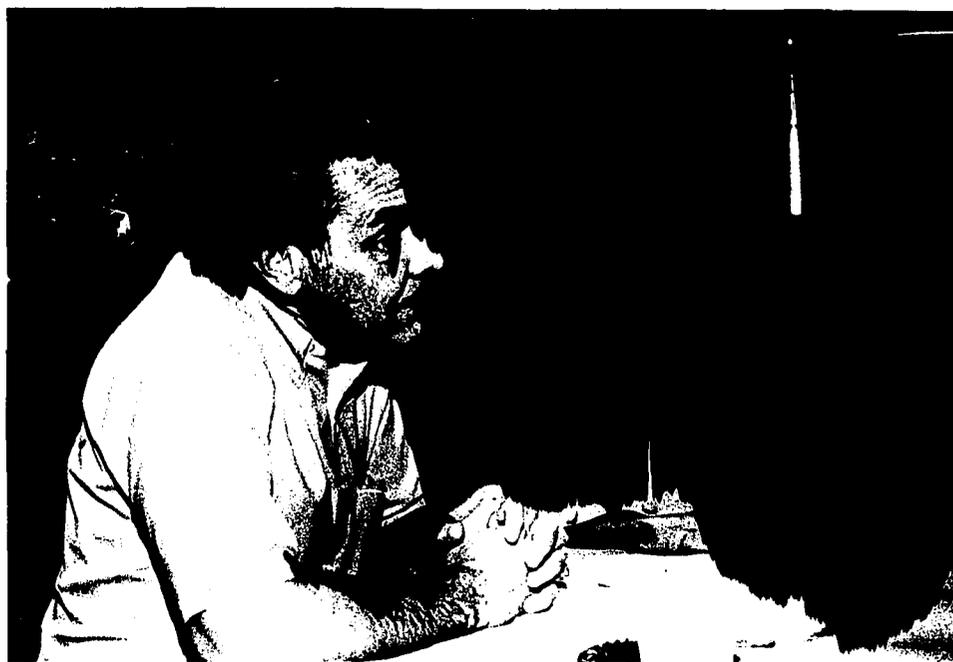


Figure 21
Recording Narration for MIP Programs at RCA Sound Studios

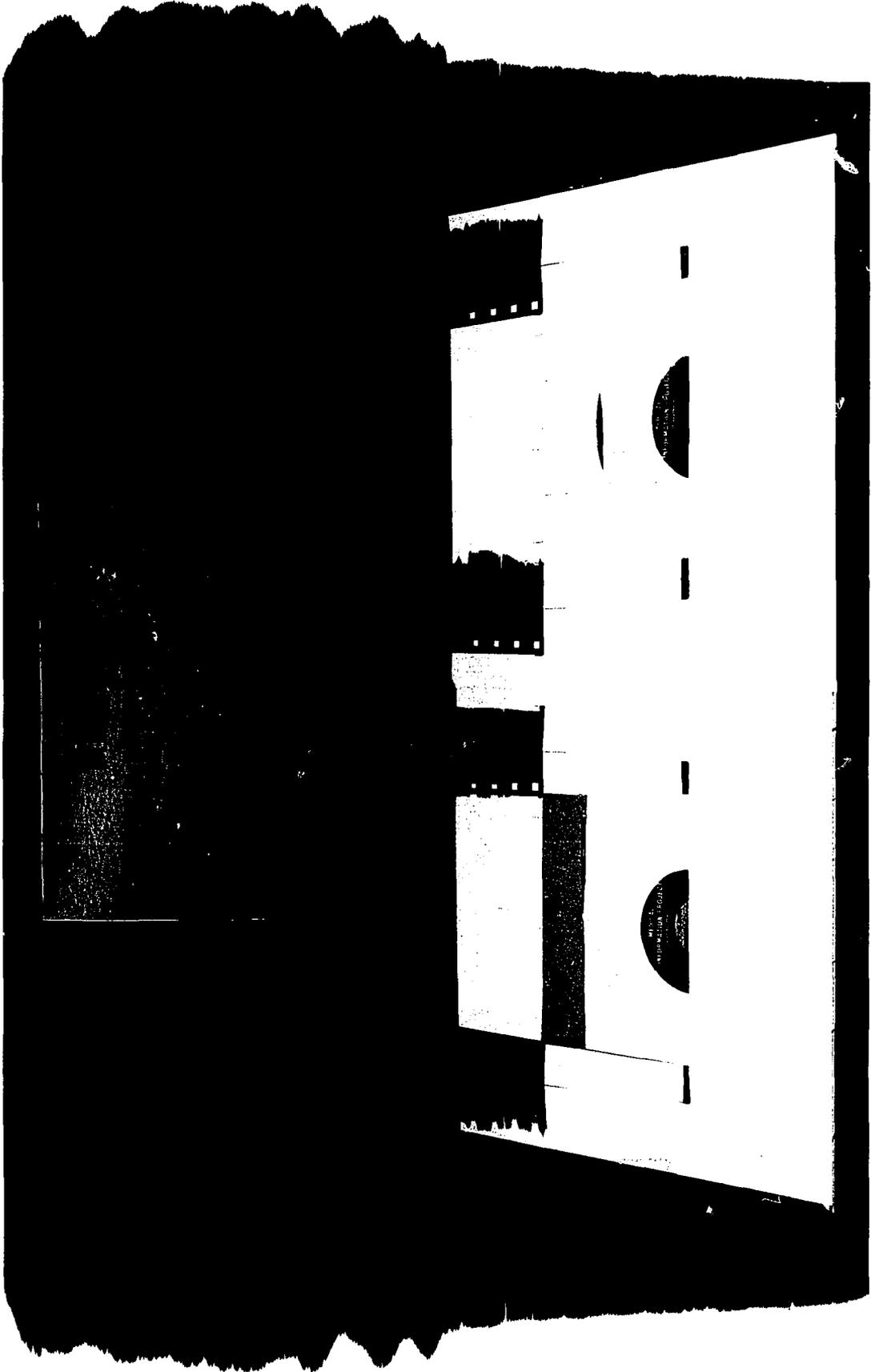


Figure 22
MIP Program Package--Album Containing Completed Materials As Sent To Participating Physicians

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PHASE III: EVALUATION
Findings and Recommendations

Phase III

Evaluation

Findings and Recommendations

Introduction

Three broad categories of interest were analyzed in this study in addition to the developmental study which resulted in the choice of the devices and the production of programs and in their improvement before project initiation.

Next are presented the kinds of hypotheses relevant to these three areas, the data collected and analyzed to test these hypotheses, and the assessment of the relative success of each of the three areas of interest. In addition, there will be some comment on other problems which were not formally measured in the project.

Content Learning

Of primary interest is the question of whether the subjects actually learned a significant part of the content presented to them in the program. The scheme of testing has been described earlier and Table 7 summarizes the results. The practical problems of attrition, passage of time, and equipment problems still left an experimental group of 73 and a control group of 36 with results on 9 programs which could be evaluated.

The hypothesis tested is the following. Programs which are effective in the nine content areas chosen will be such as to result in significantly higher achievement on the post-test by the experimental than the control group. The t-test chosen to do the analysis reveals achievement differences which

are statistically significant beyond the 1% level. Further, the consideration of the 103 separate items of the 9 content tests may be pooled into one "Grand Content Test" and retested. Here again, the t-test value of 17.42 is significant beyond the 1% level.

The manner in which these data were collected is described in an earlier chapter; the precautions which were taken to ensure validity of the content test seem sufficient to consider the hypothesis verified.

The sample described on Page 38 was drawn as indicated there. Table 8 indicates the resulting experimental and control groups, with the greatest attrition occurring at the point of returning the content tests and post-program questionnaires. Tables 9 through 15 illustrate various comparisons among the 97 experimental and 85 control people with regard to age, years of professional experience, sex, distances from medical schools and hospitals, hours worked per day and type of practice arrangement.

Tables 16 and 17 compare the sample with the population it reflects, using the original 100 experimental and 85 control physicians. The valid comparisons which could be made are discussed below; however, the generalization is that there is no reason to suppose differences which render the study less fruitful.

Of course, one must look at the final sample of 73 experimental and 36 controls, since the t-tests are based on that group rather than the original sample. These demographic data were gathered on the subjects as indicated in Table 18 through 22, to see if there were other biases present in the final sample.

TABLE 7

RESULTS OF CONTENT TESTS, EXPERIMENTAL AND CONTROL GROUPS, FOR NINE CONTENT AREAS						
No. of Items	Title and No. of Program	Experimental (N = 73)		Control (N = 36)		t value
		\bar{X}	SD	\bar{X}	SD	
14	1. Cardiopulmonary Resuscitation	11.33	1.01	9.44	2.20	t=6.07**
9	2. Vaginitis	8.32	0.72	6.61	0.98	t=10.18**
15	3. T. Rubrum	12.73	2.15	4.83	1.99	t=22.92**
16	4. Family Planning	13.62	1.96	8.56	2.48	t=11.47**
4	5. Routine Gyn Exam	3.40	0.68	2.25	0.76	t=7.91**
10	6. Assessment of Newborn	8.66	1.76	3.28	2.09	t=13.95**
6	7. Skin Tumors	5.64	0.53	2.81	1.20	t=16.95**
19	8. OB Emergencies	16.01	2.32	8.08	2.99	t=15.86**
10	9. Newborn Jaundice	8.86	1.46	6.50	2.09	t=8.20**
TOTAL:						
<u>103</u>	<u>ALL TESTS</u>	<u>88.57</u>	<u>12.59</u>	<u>52.36</u>	<u>16.78</u>	<u>t=17.42**</u>

**p = .01

TABLE 8

	EXPERIMENTAL	CONTROL
INITIAL CONTACT	123	147
Affirmative to participation	100	85
Received pre-program questionnaire	100	85
Returned pre-questionnaire	97	85
Received post-program questionnaire	93	80
Returned post-questionnaire	77	47
Sent content tests (1-9)	97	80
Returned content tests	73	36

TABLE 9

COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS: GRADUATION DATE				
Dates	Experimental (N=97)		Control (N=85)	
	Nr.	%	Nr.	%
1960-63	4	4.1%	7	8.2%
1950-59	39	40.2	30	35.3
1940-49	37	38.1	23(24)	27.1
1930-39	17	17.5	23	27.1
1920-29	0	----	1	1.2
Range = 1929-1962			Range = 1930-1963	
Mean = 1946			Mean = 1948	
Median = 1946.3			Median = 1949.2	

TABLE 10

COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS: AGE				
Age	Experimental		Control	
	Nr.	%	Nr.	%
60 - 65	2	2.0%	11	12.9%
50 - 59	35	35.0	31	36.5
40 - 49	46	46.0	29	34.1
30 - 39	17	17.0	14	16.5
Range = 32-64			Range = 33-64	
Mean = 49.00			Mean = 46.93	
Median = 49.50			Median = 46.50	

TABLE 11

COMPARISON OF EXPERIMENTAL & CONTROL GROUPS: SEX				
Sex	Experimental		Control	
	Nr.	%	Nr.	%
Male	98	98.0%	82	96.5%
Female	2	2.0%	3	3.5%

TABLE 12

COMPARISON OF EXPERIMENTAL & CONTROL GROUPS: MILES FROM MEDICAL SCHOOL				
Miles	Experimental		Control	
	Nr.	%	Nr.	%
0 - 9	18	18.6%	14	16.5%
10 - 24	11	13.4	14	16.5
25 - 49	12	12.3	6	7.0
50 +	54	55.7	51	60.0

TABLE 13

COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS: MILES FROM HOSPITAL				
Miles	Experimental		Control	
	Nr.	%	Nr.	%
0 - 5	87	89.7%	73	85.9
6 - 15	8	8.2	7	8.2
16 - 25	1	1.0	4	4.7
26+	1	1.0	1	1.2

TABLE 14

COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS: HOURS WORKED PER DAY				
Hrs. per day	Experimental		Control	
	Nr.	%	Nr.	%
0 - 5	2	2.1%	1	1.2%
6 - 8	19	19.6	15	17.6
9 - 11	51	52.6	50	58.8
12 - 14	21	21.6	16	18.8
15+	4	4.1	3	3.5

TABLE 15

COMPARISON OF EXPERIMENTAL AND CONTROL GROUPS: TYPE PRACTICE ARRANGEMENT

Type of Practice arrangement	Experimental		Control	
	Nr.	%	Nr.	%
Individual Practice	52	53.6%	42	49.4%
Information Association	13	13.4	11	12.9
Two-Man Partnership	13	13.4	9	10.6
Group Practice	14	14.4	15	17.6
Other	4	4.1	4	4.7

TABLE 16

COMPARISONS OF DISTRIBUTION GROUPS IN THE EXPERIMENTAL AND CONTROL SAMPLES AND IN THE POPULATION ON THE BASIS OF THE TYPE OF COMMUNITY IN WHICH THEY PRACTICE BY STATE

STATE	POPULATION		EXPERIMENTAL		CONTROL	
	Total # GPs	%	Total # GPs	%	Total # GPs	%
Arizona	493	100%	7	100%	5	100%
2	345	70.0	4	59.1	3	60.0
3	97	19.7	2	28.6	0	--
4	47	9.5	1	14.3	1	20.0
5	4	.8	0	--	1	20.0
California	7,631	100%	30	100%	28	100%
1	4,674	61.8	11	36.7	14	50.0
2	1,923	25.2	9	30.0	8	28.6
3	769	10.1	7	23.3	5	17.9
4	251	3.3	3	10.0	1	3.5
5	14	.2	0	--	0	--
Colorado	673	100%	10	100%	8	100%
1	307	45.7	7	70.0	2	25.0
2	68	10.1	1	10.0	2	25.0
3	143	21.2	2	20.0	0	--
4	107	15.9	0	--	3	37.5
5	48	7.1	0	--	1	12.5
Idaho	273	100%	6	100%	5	100%
2	27	9.9	2	33.3	0	--
3	60	22.0	1	16.7	0	--
4	150	54.9	3	50.0	5	100.0
5	36	13.2	0	--	0	--
Montana	258	100%	6	100%	5	100%
2	35	13.4	1	16.7	0	--
3	28	10.9	0	--	0	--
4	144	55.8	3	50.0	3	60.0
5	51	19.7	2	33.3	2	40.0
Nevada	119	100%	2	100%	1	100%
2	83	69.7	1	50.0	0	--
3	6	5.0	0	--	0	--
4	22	18.5	1	50.0	1	100
5	8	6.8	0	--	0	--

TABLE 16 (continued)

STATE	POPULATION		EXPERIMENTAL		CONTROL	
	Total # GPs	%	Total # GPs	%	Total # GPs	%
New Mexico	213	100%	4	100%	3	100%
2	48	22.5	1	25	0	--
3	36	16.9	1	25	1	33.3
4	110	51.7	2	50	2	66.6
5	19	8.9	0	--	0	--
Oregon	698	100%	10	100%	9	100%
2	324	46.4	4	40	2	22.2
3	160	22.9	3	30	5	55.6
4	200	28.7	2	20	1	11.1
5	14	2.0	1	10	1	11.1
Utah	293	100%	6	100%	4	100%
2	191	65.2	3	50	1	25
3	56	19.1	1	17	0	--
4	28	9.6	1	17	3	75
5	18	6.1	1	16	0	--
Washington	1,162	100%	17	100%	14	100%
1	473	40.7	6	35.3	6	42.9
2	247	21.3	5	29.4	5	35.7
3	167	14.4	3	17.7	2	14.3
4	264	22.7	2	11.8	1	7.1
5	11	.9	1	5.8	0	--
Wyoming	154	100%	2	100%	2	100%
4	130	84.4	2	100	2	100
5	24	15.6	0	--	0	--

TABLE 17

COMPARATIVE DISTRIBUTION OF GPs IN THE EXPERIMENTAL AND CONTROL SAMPLES AND IN THE POPULATION ON AN URBAN, SEMI-URBAN, AND RURAL BASIS

TYPE OF AREA	POPULATION		EXPERIMENTAL		CONTROL	
	NR. GPs	%	NR. GPs	%	NR. GPs	%
GROUP 1	5454	45.6%	24	24%	22	25.9%
GROUP 2	3291	27.5	31	31	21	24.7
GROUP 3	1522	12.7	20	20	14	16.5
GROUP 4	1453	12.1	20	20	23	27.0
GROUP 5	247	2.1	5	5	5	5.9
URBAN: 1 + 2	8745	73.1	55	55	43	50.6
SEMI-URBAN: 3	1522	12.7	20	20	14	16.5
RURAL: 4 + 5	1700	14.2	25	25	28	32.9

TABLE 18

COMPARISON OF THE EXPERIMENTAL AND CONTROL GROUP PHYSICIANS WHO COMPLETED THE NINE CONTENT TESTS				
AGE				
Age	Experimental (N = 73)		Control (N = 36)	
	Nr.	%	Nr.	%
60's	2	2.7%	6	16.7%
50's	29	39.7	10	27.8
40's	27	37.0	13	36.1
30's	15	20.6	7	19.4

TABLE 19

TYPE OF PRACTICE ARRANGEMENT				
Type	Experimental (N=73)		Control (N = 36)	
	Nr.	%	Nr.	%
Individual Practice	37	50.7%	14	38.8%
Informal Association	9	12.3	7	19.5
Two-Man Partnership	12	16.4	4	11.1
Group Practice	11	15.1	7	19.5
Other	4	5.5	3	8.3
No response	---	-----	---	-----

TABLE 20

NUMBER OF HOURS WORKED PER DAY				
Hours	Experimental(N = 73)		Control (N = 36)	
	Nr.	%	Nr.	%
0 - 5	1	1.4%	1	2.8%
6 - 8	14	19.2	6	16.7
9 - 11	42	57.4	23	63.8
12 - 14	13	17.8	6	16.7
15 +	3	4.2	0	----

TABLE 21

DATE OF GRADUATION				
Grad. Date	Experimental (N = 73)		Control (N = 36)	
	Nr.	%	Nr.	%
1960's	4	5.5%	4	11.1%
1950's	27	37.0	16	44.4
1940's	26	35.6	6	16.7
1930's	16	21.9	10	27.8

TABLE 22

MILES FROM MEDICAL SCHOOL				
Miles	Experimental (N = 73)		Control (N = 36)	
	Nr.	%	Nr.	%
0 - 9	12	16.4%	4	11.1%
10 - 24	9	12.3	8	22.2
25 - 49	10	13.7	1	2.8
50 +	42	59.6	23	63.9

Considerations of age, type of practice arrangement, length of workday, date of graduation from medical school, and distance of office from medical school were studied to see if the experimental group differed from the control group significantly in any of these aspects. Chi-square values were computed where feasible and showed no significant difference in these factors.

TABLE 23

Date of Graduation Control vs. Experimental (completers) $\chi^2 = 4.784$ (not significant)	Date of Graduation Control vs. Experimental (non-completers) $\chi^2 = 8.647$ (not significant)
Type of Practice Arrangement Control vs. Experimental (completers) $\chi^2 = 2.228$ (not significant)	Type of Practice Arrangement Control vs. Experimental (non-completers) $\chi^2 = 1.978$ (not significant)

The conclusion is therefore that the presentation of the experimental variable, the teaching program itself, accounts for the high degree of significant difference between the experimental and the control groups. The only additional comment concerns the obvious fact that one would expect this difference in content learning no matter what kind of teaching program were applied. The point here is that the differences are of such order as to conclude that this program not only imparted information, as all programs might do, but that it imparted information in a highly successful manner.

One further comment needs to be made on the nature of the physicians in the experimental group who left the study: they gave reasons which are listed

below. "Too busy" occurs frequently as does "machine problems," as will be seen later; these comments are also typical of those who stayed in the Project. Nevertheless, it is important to note the kinds of factors which cause a physician to put aside something of great potential use to him.

For example if MIP is a prototype of programs which will save physicians considerable time, the complaint "too busy" is somewhat difficult to comprehend. Of course, the physician may not perceive MIP as helpful and he may also focus his attention on the time required in completion of questionnaires, tests and the like.

TABLE 24

<u>SOME REASONS GIVEN FOR DROPPING OUT</u>	<u>NUMBER GIVING REASON</u>
Too busy	7
Machine problems and delays in receipt of programs	5
No longer in general practice	2
Deceased (1), Illness (1), Moved away (2)	4
Never "got around to completing forms"	4

One participant was averse to participating in any government-sponsored project. There were several who stated that they would participate, but never did, even though follow-up phone calls elicited statements of a very positive nature toward the program.

There is nothing in any of these statements to indicate anything unexpected; attrition of this sort is not unusual; however, a very interesting study might be made of what is behind a blanket statement of "too busy to participate."

Acceptability

In discussing the subject of acceptability, first are considered the first

nine programs as in the section on content learning; then there are comments on the other six programs (numbers 10-15) on which fewer data were collected.

Since physicians in private practice are free agents in the manner in which they choose to continue their own professional education, it is not enough to note that a highly efficient teaching program has been devised. It is conceivable that a highly effective teaching program might still contain factors which would militate against its use in the future by these same men. Therefore, after having established the efficiency of the program, it is the next order of business to assess as realistically as possible, the probability of such procedures gaining acceptance with a significant number of physicians as a means of continuing their own medical education. One aspect of measuring this ultimate acceptance is to attempt to measure their acceptance of this particular project. Another is to attempt to assess their preferences in continuing education and problems which they encountered in attempting to continue professional training by means other than those of the Project. Questions of this latter type were explored by the Pre and Post-Project Questionnaire administered to the experimental group.

No attempt was made to treat these data except descriptively. As can be seen from Table 25, there is no trend indicating change from pre-to-post-experimental conditions. What emerges instead is a description of the activities of these physicians with respect to formal and informal attempts to their part to continue postgraduate medical education.

On the Post-Project Questionnaire, over 89% of the physicians responding found "keeping up" with medical advances moderately or very difficult; 27%

found the reading of journal articles too time-consuming in terms of facts gained; about 10% found the reading of journal articles relatively easy; the other physicians felt that journal articles were moderately frustrating in terms of facts gained versus time expended.

On the other hand, the general experience with postgraduate courses was not so troublesome. Less than 4% felt that "they could more profitably spend their time elsewhere" than in postgraduate courses. Of ten problem areas discussed, in terms of percentages of physicians who felt they shared these problems, the following were the most troublesome to them: (1) reading of journal articles; (2) time loss from their families; (3) large number of patients consuming a great deal of their time. Finally, the following are the areas which did not present as much of a problem: (1) availability of relevant materials; (2) time consumed by hospital staff meetings; (3) general quality of postgraduate courses. In between these extremes, were these areas: (1) availability of fill-in M.D.'s to cover for the time when the physician is busy with continuing education; (2) tape recordings which are too lengthy; (3) scheduling problems for the educational opportunities which they are; (4) lack of appropriateness of material available.

Speaking generally, what emerges is a portrait of a busy doctor, with too many patients, too little time for personal use and exhibiting impatience with the use of journals. However, he does not feel that meetings at the hospital are a great problem, nor is he highly critical of postgraduate courses available to him. If he were less busy and the material could be presented in a less time-consuming way, his needs would be better met. Significantly,

TABLE 25

RESPONSES TO PRE- AND POST- PROGRAM QUESTIONNAIRE

QUESTION	PRE *		POST *		
	Number	%	Number	%	
1. How difficult do you find it to keep up with medical advances?	Very difficult	21	21.6%	16	20.77%
	Moderately difficult	62	63.9%	53	68.83%
	Not particularly difficult	12	12.4%	6	7.79%
2. All doctors face some problems in keeping abreast medically. Listed below are a number of comments made by physicians about why they do not engage in as much formal or informal continuing education activities (e.g., medical television, postgraduate courses, reading, etc.), as they might like to. Please indicate the degree to which each of the following fits your own situation.					
a) Aside from the mail, there's nothing available in my area	Very appropriate	10	10.3%	8	10.38%
	Moderately appropriate	27	27.8%	18	23.37%
	Not at all appropriate	59	60.9%	49	63.63%
b) I have too many patients to care for	Very appropriate	24	24.7%	14	18.18%
	Moderately appropriate	42	43.3%	47	61.03%
	Not at all appropriate	28	28.9%	16	20.77%
c) There's no one to take care of my patients if I leave to attend meetings, postgraduate courses, etc.	Very appropriate	10	10.3%	12	15.58%
	Moderately appropriate	31	32.0%	26	33.76%
	Not at all appropriate	55	56.7%	38	49.35%
d) I have to go to so many staff meetings at my hospital that I do not have time for other methods.	Very appropriate	4	4.1%	5	6.49%
	Moderately appropriate	22	22.7%	24	31.16%
	Not at all appropriate	70	72.2%	48	62.33%

* Discrepancies from a total of 100% indicate no response from some participants.

QUESTION	PRE *		POST *	
	Number	%	Number	%
e) It takes too long to wade through journal articles to get the facts.	21	21.6%	21	27.27%
	51	52.6	48	62.33
	23	23.7	8	10.38
f) My past experience with post-graduate courses has convinced me that I could spend my time more profitably elsewhere.	5	5.2%	3	3.89%
	39	40.2	26	33.76
	51	52.6	47	61.03
g) I am away from my own family too much as it is now.	25	25.8%	25	32.46%
	48	49.5	34	44.15
	23	23.7	18	23.37
h) Tapes are too long, and I can't skim through the material I already know.	16	16.5%	12	15.58%
	43	44.3	39	50.64
	33	34.0	22	28.57
i) Educational opportunities (e.g., medical television, lectures, etc.) are available, but they just don't fit my schedule.	13	13.4%	10	12.98%
	40	41.2	37	48.05
	42	43.3	29	37.66
j) What is available isn't what I need for my practice.	7.	7.2%	2	2.59%
	35	36.1	33	42.85
	52	53.6	40	51.94

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NAME OF PUBLICATION	PRE		POST	
	Number	%	Number	%

3. Please indicate which of the following professional publications you read:

a)	Journal of the American Medical Association	All/Most of Every Issue	4	4.12%	2	2.59%
		Parts of Every Issue	39	40.20	34	44.15
		Parts of Some Issues	37	38.14	28	36.36
b)	G.P.	All/Most of Every Issue	11	11.34%	9	11.68%
		Parts of Every Issue	40	41.23	27	35.06
		Parts of Some Issues	22	22.68	24	31.16
c)	Medical World News	All/Most of Every Issue	3	3.09%	3	3.89%
		Parts of Every Issue	22	22.68	26	33.76
		Parts of Some Issues	31	31.95	24	34.16
d)	New England Journal of Medicine	All/Most of Every Issue	5	5.15%	1	1.29%
		Parts of Every Issue	13	13.40	9	11.68
		Parts of Some Issues	14	14.43	11	14.78
e)	A.M.A. News	All/Most of Every Issue	7	7.21%	5	6.49%
		Parts of Every Issue	30	30.92	27	35.06
		Parts of Some Issues	35	36.08	21	27.27
f)	Postgraduate Medicine	All/Most of Every Issue	8	8.24%	2	2.59%
		Parts of Every Issue	23	23.71	19	24.67
		Parts of Some Issues	17	17.52	18	23.37
g)	Quarterly Journal of Medicine	All/Most of Every Issue	0	----	0	----
		Parts of Every Issue	1	1.03	1	1.29
		Parts of Some Issues	4	4.12	2	2.59
h)	Lancet	All/Most of Every Issue	0	----	0	----
		Parts of Every Issue	2	2.06	1	1.29
		Parts of Some Issues	2	2.06	7	9.09

NAME OF PUBLICATION

	PRE		POST		
	Number	%	Number	%	
i) Archives of Internal Medicine	All/Most of Every Issue	1	1.03%	0	----
	Parts of Every Issue	8	8.24	6	7.79
	Parts of Some Issues	23	23.71	13	16.88
j) Medical Economics	All/Most of Every Issue	18	18.55%	10	12.98
	Parts of Every Issue	45	46.39	33	42.85
	Parts of Some Issues	22	22.68	25	32.46
k) Annals of Internal Medicine	All/Most of Every Issue	0	----	0	----
	Parts of Every Issue	3	3.09	2	2.59
	Parts of Some Issues	8	8.24	8	10.38
l) American Journal of Medicine	All/Most of Every Issue	0	----	0	----
	Parts of Every Issue	2	2.06	1	1.29
	Parts of Some Issues	8	8.24	4	5.19
m) Medicine	All/Most of Every Issue	0	----	0	----
	Parts of Every Issue	3	3.09	4	5.19
	Parts of Some Issues	8	8.24	10	12.98
n) Modern Medicine	All/Most of Every Issue	5	5.15	1	1.29
	Parts of Every Issue	26	26.80	21	27.27
	Parts of Some Issues	38	39.17	30	38.96

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<u>GENERAL REFERENCE</u>		<u>PRE</u>		<u>POST</u>	
		Number	%	Number	%
4.	How often do you use the following general reference material?				
a)	Physicians' Desk Reference				
	Regularly	84	86.59%	63	81.81
	Occasionally	11	11.34	13	16.88
	Seldom or Never	1	1.03	--	----
b)	Merck Manual				
	Regularly	16	16.49	12	15.58
	Occasionally	43	44.32	32	41.55
	Seldom or Never	37	38.14	--	----
c)	Current Therapy				
	Regularly	36	37.11	22	28.57
	Occasionally	46	47.42	43	55.84
	Seldom or Never	14	14.43	--	----

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5. The methods of continuing education that are available to the physician can be thought of according to the ways in which they are organized. How much time do you devote Per Month to the following methods of continuing medical education?

	(1)	(2)	(3)
Indicate average number of hours per month **	Method not available to me	Method not available to me--should be developed for use in my area	Method not available to me--should be developed for use in my area
Mark 0, 1, 2, etc. where appropriate	Mark X where appropriate	Mark X where appropriate	Mark X where appropriate

(Note: (1), (2), and (3) will be used rather than re-typing the Method each time).

** Numbers given here are the numbers and percentages of participants who have spend sometime in this activity, not the number of hours spent per month.

METHOD	PRE		METHOD	POST	
	Number	%		Number	%
5. (Continued)					
a) Formally Organized Programs of Post-graduate Instruction:					
1) Direct participation or attendance					
(1) Number of hours per month**	60	61.86	48	62.35	
(2) Not available to me	11	11.34	11	14.28	
(3) Not available to me-should be developed in my area	4	4.12	5	6.49	
2) Correspondence Courses					
(1)	9	9.27	16	20.79	
(2)	8	8.24	7	9.09	
(3)	5	5.15	1	1.29	
b) Other Instructional Arrangements:					
1) Demonstrations (ward rounds and clinics where you are the student)					
(1)	11	11.34	7	9.09	
(2)	37	38.14	31	40.25	
(3)	12	12.37	9	11.68	
2) Group discussions (local seminars and study groups)					
(1)	44	-----	47	61.06	
(2)	18	18.85	10	12.98	
(3)	10	10.30	3	3.89	
3) Supervised clinical practice (where you are the student)					
(1)	3	3.09	1	1.29	
(2)	34	35.05	35	45.45	
(3)	15	15.46	8	10.38	
4) Regular staff meetings of hospitals					
(1)	84	87.00	68	88.33	
(2)	4	4.12	3	3.89	
(3)	0	-----	1	1.29	

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TABLE 25 (Continued)

METHOD	PRE		Number of hours per month **	POST	
	Number	%		Number	%
5) "Circuit Rider" programs					
(1)	14	14.43	21	27.29	
(2)	29	29.89	22	28.57	
(3)	7	7.21	8	10.38	
			be available in my area		
6) Lectures, panels and symposia sponsored by local, state, regional or national medical organizations					
(1)	66	68.0	56	72.74	
(2)	5	5.15	5	6.49	
(3)	3	3.09	3	3.89	
c) Personal Contacts:					
1) Colleagues					
(1)	82	84.5	65	84.42	
(2)	0	-----	0	-----	
(3)	0	-----	0	-----	
2) Consultants					
(1)	86	88.7	69	89.63	
(2)	1	1.03	1	1.29	
(3)	1	1.03	1	1.29	
3) Detail Men					
(1)	87	89.7	68	88.32	
(2)	1	1.03	0	-----	
(3)	1	1.03	0	-----	
d) Individual Efforts:					
1) Reading					
(1)	95	11.05	73	94.81	
(2)	0	-----	0	-----	
(3)	0	-----	0	-----	

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TABLE 25 (Continued)

METHOD	PRE		POST	
	Number	%	Number	%
2) Listening (to tapes, etc)				
(1) Number of hours per month **	28	28.9	32	41.58
(2) Not available to me	13	13.4	4	5.19
(3) Not available to me-should be available in my area	4	4.12	1	1.29
3) Viewing (TV, films, etc.)				
(1)	20	20.6	28	36.38
(2)	21	21.64	7	9.09
(3)	15	15.46	8	10.38

MEDIA	PRE		POST	
	Number	%	Number	%

6. In these communications activities, you may receive information from a variety of media. Will you estimate the amount of time PER MONTH or the number of times PER YEAR you have spent using the following media.

a) Printed Media

1) Journals				
(1) Number of hours per month **	95	97.94	75	97.41
(2) Not available to me	0	----	0	----
(3) Not available to me-should be available in my area	0	----	0	----
2) Medical digests				
(1)	70	72.2	57	74.03
(2)	0	----	0	----
(3)	0	----	0	----
3) Medical textbooks				
(1)	85	87.62	73	94.81
(2)	0	----	0	----
(3)	0	----	0	----
4) Unsolicited medical literature (e.g., pharmaceutical company literature)				
(1)	76	78.4	55	71.43
(2)	0	----	0	----
(3)	0	----	0	----



TABLE 25 (Continued)

MEDIA	Instruction	PRE		POST	
		Number	%	Number	%
5) Programmed Instruction	(1) Number of hours per month **	14	14.43	36	46.76
	(2) Not available to me	21	21.64	7	9.09
	(3) Not available to me-should be available in my area	13	13.40	4	5.19
b) <u>Audiovisual Media</u>					
	1) Medical radio	4	4.12	6	7.79
		46	47.42	26	33.76
	(3)	11	11.34	6	7.79
2) Medical television	(1)	14	14.43	14	18.20
	(2)	34	35.05	16	20.77
	(3)	18	18.55	12	15.58
3) Audio tape recordings and records (e.g., Audio-Digest)	(1)	23	23.7	30	38.96
	(2)	21	21.64	8	10.38
	(3)	4	4.12	2	2.59
4) Telephone services (e.g., Dial-a-lecture)	(1)	1	1.03	3	3.89
	(2)	46	47.42	26	33.76
	(3)	10	10.30	9	11.68
c) <u>Audiovisual Media</u>					
	1) Telephone Conferences (e.g., 2-way tele-lectures)	3	3.09	4	5.19
		47	48.45	29	37.66
	(3)	12	12.37	11	14.28

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TABLE 25 (Continued)

<u>MEDIA</u>			Number	%	Number	%
2) Films	(1)	Number of hours per month **	38	39.2	34	44.17
	(2)	Not available to me	22	22.68	12	15.58
	(3)	Not available to me-should be available in my area	8	8.24	5	6.49
3) Slide or filmstrip presentations	(1)		23	23.7	34	41.57
	(2)		28	28.86	8	10.38
	(3)		7	7.21	7	9.09
4) Scientific exhibits	(1)		46	47.4	36	46.76
	(2)		23	23.71	11	14.28
	(3)		2	2.06	4	5.19

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of 14 professional periodicals generally available, and using the criterion "I read parts of every issue," only four periodicals were mentioned by 40% of the sample. That is, only 40% felt that they could make that statement about four of fourteen journals.

When asked questions about the quality of the MIP methods as compared to other methods (see Table 26, question 9), the MIP approach was preferred by as few as 54.5% (Program III) and as many as 80.0% (Program II). If we allow some "suggested changes," the percentages range even higher (70.2% in Program IV to 90.4% in Program II). Classes and seminars were preferred by a range of 3.2% (Program II) to a high of 14.1% (Program VIII). For conventional film or television programs, the range was 3.2% for Program II to 15.7% for Program I. On verbal statement alone, the MIP is heavily preferred in all 9 programs.

Overall ratings for this material were very high as indicated in the answers to question 11 in Table 26. Further, as can be seen from the responses to questions 1 through 7, there is very little comment of a really negative type on the 9 programs. Only a few comments need be made, since the Table is self-explanatory.

- (1) Only programs VI and IX seemed to satisfy fully the criterion of "newness and usefulness" (question 3), yet only Programs IV and V were rated low in this category by more than 20% of the sample.
- (2) Every program except III was rated high in "general importance" (question 2); only Programs II, III, and IV were not rated high in "personal importance" by a majority of the sample. This pattern seems to indicate special problems with Program III itself.

The overall impression is that all except III were at least satisfactory in "content" to a majority of the sample.

- (3) Questions 5, 6, and 7 indicate generally satisfactory or high ratings on the technique itself again in all programs except Program III. Program III certainly needs special study to ascertain the nature of the problem.
- (4) Finally, an overall rating of "very good" or "excellent" was given to all nine programs by a range of 66.3% (Program V) to 95.1% (Program VI). Only Program V was rated as "not very good" by over 10% of the sample.

The conclusion is that MIP Programs made a very favorable impression on the sample and that other sources of information are rated much lower to MIP. Even when one considers the heavy conditioning of physicians to monographs and journal articles as sources of basic information, the time-consuming aspects of journal reading and the superior technique of MIP can be shown in this sample. In fact, the most favorable reaction to another means of presentation than MIP was the 15.7% preferring films or television and 13.5% preferring classes, seminars, etc., in Program I, while 68.6% preferred MIP.

Clearly, MIP has made a very favorable impression on this sample and this fact, coupled with the statistics concerning content learning, makes MIP approaches very difficult to minimize in terms of the potential for physician education. When one considers this with the crucial problems of time saved and convenience, it is necessary to conclude that the first objective (p.9) has been met completely.

Now to turn briefly to the other six programs (Table 27), we find the number of respondents ranging from 71 down to 60. In these programs, and considering content, we continue to find generally high or medium ratings for all

RESPONSES TO POST-EVALUATION FORMS (#1 - #9)

MIP PROGRAMS	I	II	III	IV	V
Cardiopulmonary Resuscitation	N = 90	N = 91	N = 86	N = 87	N = 86
	Cardiopulmonary Resuscitation	Vaginitis	T. Rubrum	Family Planning	Routine Gyn. Exam

Evaluation Question RESPONSES IN PERCENTAGES

1. Content:

Personal Importance

HIGH (A)	77.5%	45.2%	30.2%	37.9%	52.3%
MED. (B)	19.1	51.6	61.6	48.3	38.4
LOW (C-E)	3.4	3.2	7.0	13.8	9.3
No Response	----	----	1.2	----	----

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2. Content:

General Importance

HIGH (A)	84.3	55.9	36.0	52.9	57.0
MED. (B)	14.6	40.8	57.0	37.9	36.0
LOW (C-E)	1.1	2.2	5.8	9.2	7.0
No Response	----	-1.1	1.2	----	----

3. Content:

Newness and Usefulness

HIGH (A)	3.4	14.0	30.2	9.2	7.0
MED. (B)	87.8	72.0	64.0	69.0	60.5
LOW (C-E)	8.8	14.0	4.6	22.1	32.5
No Response	----	----	1.2	----	----

TABLE 26 (Continued)

VI Assessment of Newborn: Matur. and Env. N = 83	VII Skin Tumors N = 84	VIII Obstetric Emergencies N = 78	IX Jaundice in the Newborn N = 79
RESPONSES IN PERCENTAGES			
50.0%	56.5%	57.7%	65.8%
47.6	41.2	34.6	29.1
1.2	2.3	7.7	5.1
---	---	---	---
52.5	61.2	71.8	67.1
45.1	36.5	26.9	31.6
2.4	2.3	1.3	1.3
---	---	---	---
59.8	17.7	10.3	64.6
34.1	78.8	76.8	32.9
4.9	3.5	12.9	2.5
1.2	---	---	---

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MIP PROGRAMS

	I Cardiopulmonary Resuscitation	II Vaginitis	III T. Rubrum	IV Family Planning	V Routine Gyn. Exam
	N = 90	N = 91	N = 86	N = 87	N = 86

Evaluation Question RESPONSES IN PERCENTAGES

4. Organization of Material

HIGH (A)	87.8%	93.5%	55.7%	62.0%	89.5%
MED. (B)	9.0	6.5	32.6	29.9	9.3
LOW (C-E)	2.2	----	10.5	7.0	1.2
No Response	----	----	1.2	1.1	----

5. AUDIO

HIGH (A)	80.2	84.9	60.5	63.2	81.4
MED. (B)	16.5	14.0	27.9	29.9	17.4
LOW (C-E)	2.2	----	8.1	4.6	----
No Response	1.1	1.1	3.5	2.3	1.2

6. VISUALS

HIGH (A)	59.4	71.0	31.4	48.3	47.6
MED. (B)	33.9	23.6	29.1	39.1	32.6
LOW (C-E)	5.6	5.4	34.8	10.3	19.8
No Response	1.1	----	4.7	2.3	1.2

7. Attention Value

HIGH (A)	22.5	22.6	19.8	17.2	22.1
MED. (B)	67.4	70.0	61.6	48.3	57.0
LOW (C-E)	10.1	7.4	17.4	33.4	20.9
No Response	----	----	1.2	1.1	----

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TABLE 26 (Continued)

VI Assessment of Newborn: Matur. and Env.	VII Skin Tumors	VIII Obstetric Emergencies	IX Jaundice in the Newborn
N = 83	N = 84	N = 78	N = 79
RESPONSES IN PERCENTAGES			
62.3%	84.7	75.6	64.6
31.7	14.1	20.5	27.7
4.8	1.2	2.6	6.4
1.2	---	1.3	1.3
67.1	65.9	64.1	75.9
29.3	29.4	28.2	20.3
2.4	4.7	6.4	3.8
1.2	---	1.3	---
58.5	54.1	57.7	63.2
35.4	38.8	34.6	24.1
4.9	7.1	6.4	11.4
1.2	---	1.3	---
36.6	28.2	23.1	48.1
50.0	60.0	60.2	44.3
12.2	11.8	15.4	7.6
1.2	---	1.3	---

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Table 26 (continued)

MIP PROGRAMS

	I Cardiopulmonary Resuscitation	II Vaginitis	III T. Rubrum	IV Family Planning	V Routine Gyn. Exam
Evaluation Question	N = 90	N = 91	N = 86	N = 87	N = 86

9. PREFERRED SOURCE
(one choice)

MIP as Presented	61.9%	80.0%	54.5%	61.0%	59.3%
MIP with Changes	6.7	10.4	20.9	9.2	16.3
Total (MIP)	68.6	90.4	75.4	70.2	75.6

Journals and Texts	1.1	3.2	4.7	5.7	3.5
Class, Seminars, etc.	13.5	3.2	7.0	11.5	5.8
Film/TV	15.7	3.2	10.5	5.7	5.8
Colleagues	----	----	1.2	1.1	1.2
Detail Men	----	----	1.2	3.5	----
Other	1.1	----	----	2.3	8.1

10. RATINGS
(each source)

MIP:

High (6 & 7)	79.9	91.4	70.9	75.9	72.0
Med. (4 & 5)	17.9	8.6	24.4	17.3	18.7
Low (1-3)	2.2	----	4.7	6.8	8.1
No Response	----	----	----	----	----

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TABLE 26 (Continued)

VI Assessment of Newborn: Matur. & Env. N = 83	VII Skin Tumors N = 84	VIII Obstetric Emergencies N = 78	IX Jaundice in the Newborn N = 79
67.1%	69.5%	69.4%	67.0%
14.6	14.1	5.1	8.9
81.7	83.6	74.5	75.9
3.7	1.2	3.8	5.1
7.3	8.2	14.1	11.4
6.1	4.7	3.8	7.6
---	---	3.8	---
---	---	---	---
---	2.3	---	---
84.1	76.5	73.1	83.6
14.7	22.3	24.3	15.2
1.2	1.2	2.6	1.3
---	---	---	---

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TABLE 26 (Continued)

MIP PROGRAMS	I		II		III		IV		V	
	Cardiopulmonary Resuscitation		Vaginitis		T. Rubrum		Family Planning		Routine Gyn Exam	
Evaluation Question	N = 90		N = 91		N = 86		N = 87		N = 86	
<u>Journals:</u>										
High	(6 & 7)	8.0%	15.0%	14.0%	18.4%	16.3%				
Med.	(4 & 5)	48.6	51.6	47.5	60.9	45.4				
Low	(1 - 3)	42.3	31.2	35.0	20.7	36.0				
No Response		1.1	2.2	3.5	----	2.3				
<u>Class:</u>										
High	(6 & 7)	49.4	33.4	27.9	36.8	34.9				
Med.	(4 & 5)	33.7	43.9	48.8	49.6	39.5				
Low	(1 - 3)	15.8	20.5	21.0	12.5	18.6				
No Response		1.1	2.2	2.3	1.1	7.0				
<u>Film/TV:</u>										
High	(6 & 7)	50.0	49.5	32.6	42.7	34.9				
Med.	(4 & 5)	42.2	37.6	53.4	42.5	52.3				
Low	(1 - 3)	6.7	10.7	8.2	12.5	9.3				
No Response		1.1	2.2	5.8	2.3	3.5				
<u>Colleagues:</u>										
High	(6 & 7)	12.3	16.2	10.5	14.9	8.1				
Med	(4 & 5)	48.4	39.8	38.4	41.5	45.3				
Low	(1 - 3)	38.2	41.8	48.8	43.6	41.9				
No Response		1.1	2.2	2.3	----	4.7				

VI Assessment of Newborn: Matur. and Env.	VII Skin Tumors N = 84	VIII Obstetric Emergencies N = 78	IX Jaundice in the Newborn N = 79
20.7%	16.4%	21.8%	29.1%
56.1	50.7	51.3	53.2
20.8	31.7	24.3	15.2
2.4	1.2	2.6	2.5
39.1	31.7	47.5	44.3
37.8	47.1	39.7	45.5
21.9	20.0	11.5	8.9
1.2	1.2	1.3	1.3
37.8	50.5	46.1	45.5
53.7	42.4	43.6	43.1
7.3	5.9	9.0	8.9
1.2	1.2	1.3	2.5
10.9	7.1	16.7	14.0
48.8	42.3	35.9	41.6
39.1	49.4	44.8	41.9
1.2	1.2	2.6	2.5

MIP PROGRAMS	I		II		III		IV		V	
	Cardiopulmonary Resuscitation		Vaginitis		T. Rubrum		Family Planning		Routine Gyn. Exam	
Evaluation Question	N = 90	N = 91	N = 85	N = 87	N = 86	N = 86				

10. RATINGS (continued)

Detailmen:

High (6 & 7) -----
 Med. (4 & 5) 10.1
 Low (1 - 3) 88.8
 No Response 1.1

1.2%
 12.8
 83.7
 2.3

4.6%
 20.7
 73.6
 1.1

 10.5
 86.0
 3.5

Other:

High (6 & 7) 2.2
 Med. (4 & 5) -----
 Low (1 - 3) 1.1
 No Response 96.7

4.7

 2.4
 92.9

 100.0

3.5

 96.5

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11. OVERALL RATING:

Excellent 48.3
 Very Good 40.5
 Fair 9.0
 Not Very Good 1.1
 Poor -----
 No Response 1.1

29.1
 53.4
 16.3
 1.2

28.7
 48.4
 19.5
 1.1
 2.3

26.7
 39.6
 16.3
 11.6
 3.5
 2.3

TABLE 26 (Continued)

VI Assessment of Newborn: Resuscitation N = 83	VII Skin Tumors N = 84	VIII Obstetric Emergencies N = 78	IX Jaundice in the Newborn N = 79
---	---	---	---
2.4	2.4	5.1	1.3%
93.9	96.4	88.5	3.8
3.7	1.2	6.4	91.1
			3.8
1.2	2.3	---	1.3
---	---	---	---
---	---	---	---
98.8	97.7	100.0	98.7
43.9	36.5	32.1	63.3
51.2	52.9	46.1	27.8
4.9	10.6	16.7	5.1
---	---	3.8	3.8
---	---	---	---
---	---	1.3	---

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MIP PROGRAMS	X N = 71	XI N = 70	XII N = 70	XIII N = 60	XIV N = 60	XV N = 60
Tranquillizers						
Inhalation Therapy				Aspiration of the Joints	Anemia	Examination of the Back

RESPONSES IN PERCENTAGES

1. Content:

Personal Importance

HIGH (A)	46.5%	35.7%	59.5%	31.7%	56.6%	33.3%
MED. (B)	7.9	60.0	31.9	53.3	31.7	63.4
LOW (C-E)	5.6	4.3	4.3	13.3	5.0	3.3
No Response	---	---	4.3	1.7	6.7	---

2. Content:

General Importance

HIGH (A)	50.7	35.7	59.5	30.0	58.4	43.3
MED. (B)	45.1	60.0	34.8	61.6	33.3	51.7
LOW (C-E)	4.2	4.3	1.4	6.7	3.3	5.0
No Response	---	---	4.3	1.7	5.0	---

3. Content:

Newness and Usefulness

HIGH (A)	31.0	34.3	18.6	41.7	40.0	23.3
MED. (B)	60.6	62.9	67.1	48.3	50.0	68.4
LOW (C-E)	8.4	2.8	10.0	8.3	8.3	8.3
No Response	---	---	4.3	1.7	1.7	---

TABLE 27 (Continued)

MIP PROGRAMS	X	XI	XII	XIII	XIV	XV
	Tranquilizers	Inhalation Therapy	Hypertension	Aspiration of the Joints	Anemia	Examination of the Back
Evaluation Question	N = 71	N = 70	N = 70	N = 60	N = 60	N = 60

RESPONSES IN PERCENTAGES

4. Organization of Material

HIGH (A)	63.4%	50.0%	69.7%	61.6%	53.3%	80.0%
MED. (B)	29.6	42.8	24.6	31.7	43.3	18.3
LOW (C-E)	7.0	4.3	5.7	5.0	1.7	---
No Response	---	2.9	---	1.7	1.7	1.7

5. AUDIO

HIGH (A)	67.6	55.8	50.7	60.0	71.7	68.3
MED. (B)	29.6	34.4	39.2	33.3	21.7	28.3
LOW (C-E)	2.8	9.1	7.2	5.0	3.3	1.7
No Response	---	2.8	2.9	1.7	3.3	1.7

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6. VISUALS

HIGH (A)	49.4	42.8	44.9	60.0	66.6	70.0
MED. (B)	39.4	38.6	43.6	31.7	21.7	25.0
LOW (C-E)	9.8	14.3	4.3	5.0	6.7	1.7
No Response	1.4	4.3	7.2	3.3	5.0	3.3

7. Attention Value

HIGH (A)	25.4	24.3	29.0	40.0	35.0	36.7
MED. (B)	59.1	55.8	52.2	35.0	48.3	48.3
LOW (C-E)	15.5	17.1	18.8	23.3	15.0	15.0
No Response	---	2.8	---	1.7	1.7	---

MIP PROGRAMS	X N = 71	XI N = 70	XII N = 70	XIII N = 60	XIV N = 60	XV N = 60
Evaluation Question	Tranquilizers	Inhalation Therapy	Hypertension	Aspiration of the Joints	Anemia	Examination of the Back
9. <u>PREFERRED SOURCE</u> (one choice)						
MIP as Presented	49.3%	40.0%	53.8%	58.4%	58.4%	61.6%
MIP with Changes	18.3	17.2	8.7	10.0	16.5	13.3
Total (MIP)	67.6	57.2	62.5	68.4	74.9	74.9
Journals and Tests	5.6	1.4	8.7	8.3	5.0	6.7
Class, Seminars, etc.	15.5	30.0	18.8	10.0	15.0	6.7
Film/TV	9.9	10.0	5.8	8.3	1.7	8.3
Colleagues	1.4	---	1.4	---	---	1.7
Detail Men	---	---	---	---	---	---
Other	---	---	1.4	3.3	1.7	1.7

10. <u>RATINGS</u> (each source)	MIP:
HIGH (6 & 7)	61.9
MED. (4 & 5)	33.9
LOW (1 - 3)	4.2
No Response	---
	48.6%
	47.2
	7.0

	56.4
	37.7
	4.4
	1.5
	71.7
	13.3
	1.7
	3.3
	71.7
	25.0

	3.3
	71.7
	24.9
	3.4

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TABLE 27 (Continued)

Evaluation Question	Tranquilizers N = 71	Inhalation Therapy N = 70	Hypertension N = 70	Aspiration of the Joints N = 60	Anemia N = 60	Examination of the Back N = 60
<u>Journals:</u>						
High (6 & 7)	25.3%	22.8%	29.0%	21.7	26.7	16.7
Med. (4 & 5)	56.4	47.1	50.7	48.9	43.3	51.7
Low (1 - 3)	18.3	25.8	13.1	21.7	25.0	28.3
No Response	---	4.3	7.2	6.7	5.0	3.3
<u>Class:</u>						
High (6 & 7)	45.1	50.2	45.1	35.0	36.7	30.0
Med. (4 & 5)	45.0	38.5	39.1	44.9	41.6	56.7
Low (1 - 3)	9.9	8.5	11.5	13.4	15.0	10.0
No Response	---	2.8	4.3	6.7	6.7	3.3
<u>Film/Tv:</u>						
High (6 & 7)	35.2	40.0	44.4	38.3	46.7	48.3
Med. (4 & 5)	50.7	44.4	44.7	46.7	38.2	45.0
Low (1 - 3)	14.1	11.3	8.6	8.3	8.4	5.0
No Response	---	4.3	4.3	6.7	6.7	1.7
<u>Colleagues:</u>						
High (6 & 7)	14.1	27.1	14.5	8.3	15.0	18.3
Med. (4 & 5)	26.8	28.6	30.4	33.3	36.7	45.1
Low (1 - 3)	59.1	40.0	47.9	81.7	41.6	41.7
No Response	---	4.3	7.2	10.0	6.7	3.3

TABLE 27 (Continued)

MIP PROGRAMS	X Tranquilizers N = 71	XI Inhalation Therapy N = 70	XII Hypertension N = 70	XIII Aspiration of the Joints N = 60	XIV Anemia N = 60	XV Examination of the Back N = 60
10. <u>RATINGS</u> (continued)						
<u>Detailmen:</u>						
High (6 & 7)	4.2%	---	---	---	---	---
Med. (4 & 5)	11.3	5.7	4.3	5.0	1.7	3.4
Low (1 - 3)	83.1	88.6	87.0	81.7	91.6	88.3
No Response	1.4	5.7	8.7	13.3	6.7	8.3
<u>OTHER:</u>						
High (6 & 7)	1.4	---	1.4	3.3	---	---
Med. (4 & 5)	---	---	---	---	---	---
Low (1 - 3)	1.4	---	---	---	---	---
No Response	97.2	100.0	98.6	96.7	100.0	---
11. <u>OVERALL RATING:</u>						
Excellent	29.6	20.0	29.0	33.3	48.3	35.0
Very Good	45.1	50.0	49.2	45.0	38.3	51.7
Fair	21.1	22.9	13.1	6.7	11.7	10.0
Not Very Good	2.8	5.7	5.8	3.3	---	---
Poor	1.4	---	2.9	1.7	---	3.3
No Response	---	1.4	---	10.0	1.7	---

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programs; only Program XIII had over 10% rating the content low in personal importance, and only Program X had 10% rating it low in newness and usefulness. Ratings on "organization" and "audio" remain fairly high; only Program XI had over 10% rating it low in visuals. "Attention Value" reflects a larger low rating, with all of the six programs receiving 15% or more low rating. When one moves on to "preferred sources of information," MIP with or without changes is still the choice for all six programs. However, Program XI received a full 30% who would have preferred classes or seminars to MIP. Other programs which had over 10% preferring classes and seminars were Numbers X through XIV. On Program XI, only 10% would have preferred films. Incidentally, Program XI was the only one of the fifteen on which less than 60% preferred MIP.

Since all fifteen programs were rated on question 9 for MIP as is or MIP with changes, the section later in this report dealing with suggestions for improvement is most relevant, since as can be seen from Tables 26 and 27, a large number of physicians preferred MIP only with the stipulation that certain changes be made. The section on positive and negative criticisms augments these ideas.

The overall rating of the last six programs was generally high, with a low of 70% rating Number XI as "very good" or "excellent" to a high of 86.6% giving the same rating to Number XIV. The analysis of these data is limited to these statements, since the information on content learning for the last six programs did not include data on any control group.

Figure 23 summarizes the ratings of the various information sources for all

COMPARATIVE MEAN RATINGS OF INFORMATION SOURCES

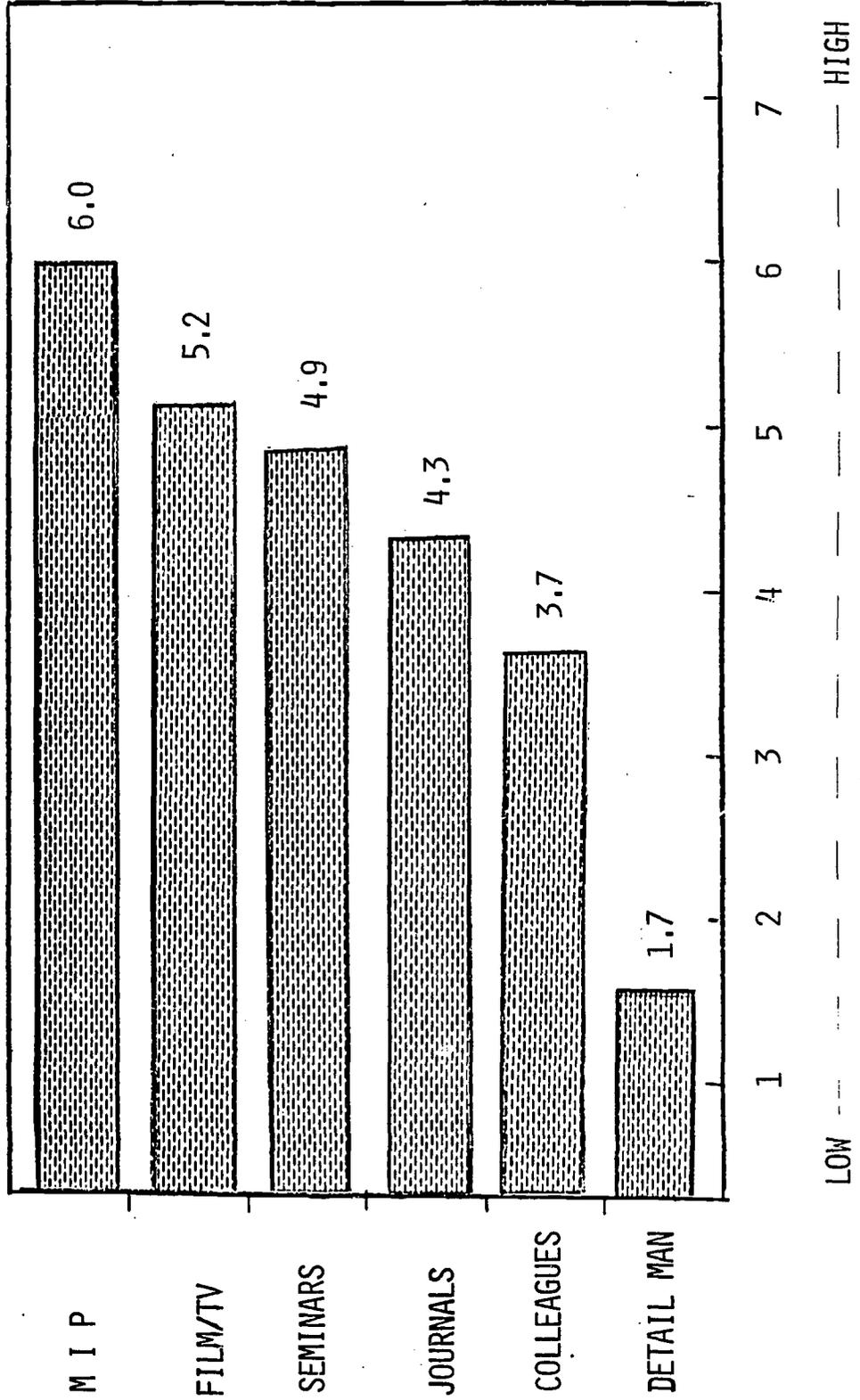


FIGURE 23

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fifteen programs.

Reason for Participating in MIP

Table 28 lists the reasons given for participation by a sample of 50 interviewed on this subject. The figures exceed 100% since the physicians often gave more than one reason.

TABLE 28

<u>Reasons for Participating in MIP (From Interview)</u>		
<u>REASONS</u>	<u>N = 50</u>	
	<u>TOTAL</u>	<u>PERCENTAGE</u>
1. Intrigued with technique	34	68%
2. Need for information	30	60%
3. Convenience of time and place	20	40%
4. Sponsored by med. school	6	12%
5. Time involved	5	10%
6. No cost	3	6%
7. Other	12	24%

As can be seen from this table, need, convenience and interest in the technique or concept were the most important factors involved. These three items certainly describe the conditions of importance in a project such as MIP; one might expect the curiosity factor to diminish in importance as time went on and familiarity with technique increases. Still, the need and convenience factors are of first order of importance.

Utilization Survey

Three questions were asked of participants concerning the utilization of the MIP system with colleagues. These questions and responses are summarized in Table 29.

TABLE 29

UTILIZATION SURVEY - RESPONSES

-
-
1. How many people were involved or how often was the MIP system used for these other purposes?
 - a. 3 - 5 times
 - b. 10 - 15 people; 4 students at LPN school monthly
 - c. About 10
 - d. 6 interns training programs once a year
 - e. 2 times
 - f. I plan to loan entire set to associate when complete
 - g. 2 times
 - h. Used by office staff
 - i. 3 - 4 M.D.'s not often
 - j. Occasionally - partial viewing by colleagues and nurses
 - k. 6 people
 - l. Used illustrations of newborn for High School class to illustrate newborn's needs, dependancy and responsible parenthood.
 - m. 12 AAGP members
 - n. 2 times to two people
 - o. 2 times to eight members of the ski patrol
 - p. 14 nurses, 6 colleagues, 3 allied medical personnel
 - q. Resuscitation 2 times to Fire Dept... "Big Event"; 5 colleagues thought very good.
 - r. Program #1 - 60 to 80 times hundreds of people; others as noted 20 nurses; 6 doctors
 - s. One or two colleagues
 - t. Small number internally at their leisure
 - u. Accompanied lecture to the Army Reserve Staff of my hospital
 - v. 2 colleagues on 3 occasions
 - w. One person (nurse)
 - x. Approximately 12 people on 2 occasions (nurses)

 2. How did your colleagues respond to it? How useful did they find it, in your opinion?
 - a. Very useful
 - b. Mostly felt it very useful
 - c. G.P.'s felt it was quite useful; specialists were indifferent
 - d. Excellent for small groups; they benefited from their use
 - e. Used one time with good response
 - f. Useful but (1) failed to take full advantage
 - g. Good
 - h. Liked it
 - i. Found it interesting--but only view an occasional program in part

- j. Have not had opportunity to share with colleagues, believe they would be favorably impressed as GP's.
 - k. Excellent Response
 - l. They were favorably impressed
 - m. Very favorable
 - n. Mixed opinion. Subject material was useful; presentation with filmstrips in time-wasting
 - o. 3 saw irregularly-very good
 - p. Agreed with me in usefulness
 - q. Moderately helpful
 - r. Enjoyed it
 - s. Useful
 - t. Quite interesting-slightly hard to see because of small screen (Army Reserve staff at hospital).
 - u. They thought the programs were instructive and useful
 - v. Moderately interesting
3. If you used the system for training of allied medical personnel
- (1) How did they respond?
 - (2) How useful did you find the system as a teaching tool?
- a. (1) Well
 - (2) Quite useful
 - b. (1) Enthusiastically
 - (2) Very Good, could repeat until they got it
 - c. (1) Enthusiastic
 - (2) Excellent for nurses and allied medical personnel
 - d. (1) They enjoyed them and felt they were worthwhile
 - (2) Good for small groups
 - e. (1) Not used
 - f. (1) Well to resuscitation
 - (2) I really haven't used it adequately
 - g. (1) Did not use it for this-but I believe it would be useful for this
 - (2) Not used
 - h. (1) Well
 - (2) Helpful
 - i. (1) Daughter who wants to study medicine was greatly impressed
 - (2) Quite useful
 - j. (1) Not used
 - (2) Helped me take care of a program requirement (AAGP)
 - k. (1) Well
 - (2) Excellent
 - l. (1) Good attention, good response
 - (2) Very useful
 - m. (1) Office personnel-interested and offered criticism: "Too technical", also "repeat showing several times";
 - (2) Very useful in my limited application. Should have used it more frequently for this function but...etc., etc.

- n. (1) Great to #1
(2) Excellent
- o. (1) Not used
(2) I don't do any teaching
- p. (1) Interested
(2) Very helpful
- q. (1) No-my viewing equipment is at residence and not available to office personnel
(2) It would be an excellent teaching tool
- r. (1) With interest
(2) Moderately.

As can be seen, the entire population did not reply, but the replies indicate a wide range of uses to which it was put by the 24 respondents and suggest that these be studied to ascertain if some of these contexts in which they were used might be of interest for further study. As can also be seen, most of the uses were met with success. One cannot generalize at all from this, since it is entirely possible that only successful people would wish to reply to these questions. Nevertheless, there certainly is a fertile ground of suggestions here to follow up in any study of situations in which MIP might be employed as a tool in general use or in other controlled studies.

Personal Importance

Table 30 indicates the reaction to the question of relative personal importance in terms of content. Means are given for the seven categories with a grand mean of 5.29. The range was from 4.43 for Number 4 to 6.02 for Number 1. The interpretation of such a set of figures are on the high side of "average" (4.00 would be a score of "average" importance); we could not conclude that these programs are scored "high" in personal importance. Since each program is one special topic in the whole range of interests of the general practitioner, it is perhaps unrealistic to expect

a very large proportion of ratings of "7" since some would perceive this high a rating as being reserved for the most central facet of their practices. When one observes the spread of the figures across the seven rating categories, it can be seen that the distributions are all skewed on the high side with almost no ratings of "2" or "1", so a median would be a better measure than the arithmetic mean (medians are given as the first column in the Table). A tentative conclusion is then that the population responding perceives these topics to be of high personal importance.

TABLE 30

IMPORTANCE OF PROGRAMS TO PHYSICIAN'S PERSONALLY

MEDIAN	PROGRAMS-AVERAGES	HIGH										LOW
		7	6	5	4	3	2	1				
6.35	1. Cardiopulmonary Resuscitation (6.00)	23	10	10	3	1	1	1	-	-	-	
5.67	2. Vaginitis (5.61)	10	18	14	6	1	-	-	-	-		
5.23	3. T. Rubrum (5.14)	10	12	11	9	5	2	-	-	-		
4.58	4. Family Planning (4.53)	5	7	13	10	8	3	1	-	-		
4.75	5. Routine Gyn. Exam (4.81)	9	9	8	13	3	3	2	-	-		
5.58	6. Assessment of Mat. & Env. (5.37)	13	13	12	5	3	2	1	-	-		
5.13	7. Skin Tumors (5.17)	8	12	12	12	4	-	-	-	-		
4.94	8. Obstetrics Emergencies (4.78)	10	10	3	9	5	2	4	-	-		
5.40	9. Jaundice in the Newborn (5.24)	13	11	10	10	2	1	2	-	-		
5.03	10. Tranquilizers (5.08)	9	7	19	9	3	2	-	-	-		
4.92	11. Inhalation Therapy (4.84)	5	13	12	10	6	3	-	-	-		
5.63	12. Hypertension (5.51)	11	16	14	4	3	1	-	-	-		
5.50	13. Joint Aspiration (5.43)	13	11	13	3	7	-	-	-	-		
6.17	14. Anemia (5.70)	19	15	8	-	5	-	-	-	-		
5.83	15. Examination of the Back (5.61)	15	15	10	5	2	2	-	-	-		

GRAND MEAN 5.29

GRAND MEDIAN 5.99

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Full Participation in MIP

Not every participant returned all programs. Tables 31 and 32 give the breakdown on returns. Table 31 gives the breakdown according to Urban, Semi-urban and Rural location of the participants. In all three categories, over 70% of the participants returned 10 or more programs. The sample size is too small to attempt to give any significance to the breakdown, except to say that the urban sample seemed to have the higher rate of returns. If this were studied on a larger scale, it might prove to be important since rural physicians have fewer opportunities to supplement their postgraduate education and it would be unfortunate if they were the ones who returned the fewest number of programs as the Table seems to indicate.

TABLE 31

Number of Programs Returned by Urban-Rural Distribution							
Number Programs Returned	Urban (1 & 2)		Semi-Urban (3)		Rural (4 & 5)		Total
	Nr.	%	Nr.	%	Nr.	%	
0 Programs	5	9.1	2	10.0	1	4.0	8
1 - 3	1	1.8	1	5.0	1	4.0	3
4 - 6	5	9.1	0	----	1	4.0	6
7 - 9	4	7.3	1	5.0	3	12.0	8
10 - 12	5	9.1	5	25.0	6	24.0	16
13 - 15	35	63.6	11	55.0	13	52.0	59
TOTALS	55	100.0	20	100.0	25	100.0	100
All 15 Programs	29	52.7	8	40.0	10	40.0	47

Table 32 gives the same breakdown using age of the physicians as the criterion. Some of the same remarks apply here; one would guess that the older physicians would tend to have more need of help than the younger men

in keeping current; the Table indicates that the "middle" group, the 40-49 year old category, had the poorest returns. Again, little more can be stated, except to say in general, that the amount of participation was good overall since about 75% did most (at least 10) of the programs.

TABLE 32

Number Programs Returned	Number of Programs Returned by Age								Totals
	30-39		40-49		50-59		60+		
	Nr.	%	Nr.	%	Nr.	%	Nr.	%	
0 Programs	2	11.8	5	10.9	1	2.8	0	----	8
1-3	0	----	3	6.5	0	---	0	----	8
4-6	0	----	3	6.5	3	8.6	0	----	6
7-9	0	----	4	8.7	3	8.6	1	50.0	8
10-12	2	11.8	8	17.4	5	14.3	1	50.0	16
13-15	13	76.4	23	50.0	23	65.7	0	----	59
TOTALS	17	100.0	46		35	100.0	2	100.0	100
All 15 Programs	12	70.6	16	34.8	19	54.3	0	----	47

Summary

It seems justified to say that criteria of acceptability are met by our sample. The preceding discussion indicates strong approval of MIP, preference for it over other forms of postgraduate medical education, and a range of constructive suggestions for improvement which indicate a high degree of interest. Further studies, comparing effectiveness of various other means of transmitting information are certainly suggested. However, it seems safe to say that with improved equipment performance and some further checking by previously mentioned panels to insure the proper level of training, MIP would be very hard to better in effectiveness and acceptability.

Communications Behavior Change

This is undoubtedly the most difficult of the areas studied to assess adequately within the confines of the study. Table 25 summarizes the data collected pertaining to these questions. Did members of the sample significantly change their communications behavior as a result of their experience with MIP? This question can not be answered definitively.

A few general comments need to be made at this point. Behavior change in any experienced person in a well structured profession must be judged to be difficult to attain. The study as constructed had other objectives which seem to be adequately met, as has been discussed in previous sections on content learning and acceptability. In view of (1) the fact that the physicians indicate that they accept MIP and (2) the additional fact that the test scores indicate they learned from the programs, the idea that they would not or did not change their communications behavior as a result of this experience is difficult to explain. However, one important aspect of any study of behavior change is missing from the structure of the study: that is, the idea that it is realistic to assume that expectation of behavior change is realistic in the first place. Since MIP-style instruction is not part of the "real world" of the physicians' communication efforts, change in behavior is not realistic. That is, films, film strips, journals, monographs etc., are the "real world" of the physicians' attempt to improve his medical knowledge. They are available; he knows where and how to obtain them; he has "made his peace" with them. MIP is part of an experimental research program and is not perceived as part of this "real world" of which we have

been speaking. Therefore, the more direct way to measure communications behavior change would be to restructure this "real world" as having MIP as one of its "inhabitants." That is, until the physician perceives MIP as on the same footing as other more conventional means of communication, it is impossible to measure his behavior change with respect to it.

The foregoing implies that structured studies need to be made to decide whether behavioral change will occur if MIP is available on the same basis as other means of continuing medical education. The obvious difficulties here are enormous, but when one considers the whole matter from an economic standpoint, it might be solved if funds were available for wider dissemination of MIP materials in the same way as are other aids. That is, commercial enterprises actually selling such material could be considered and also, funding by foundations and government sources could be considered. Once MIP is part of the "real world," a reassessment of MIP's effect on physician communication behavior can be made. Such was not possible within the range of the current study. The findings of the current study can be summarized simply in two statements. First, there is no evidence of significant change in physician communication behavior; second, the design employed to measure this area is not adequate to conclude that this is an important criticism of the Project.

Summary of Commentary on Specific Questions Raised

Before the physicians had been questioned about the various sources of information, they were asked, "How difficult do you find it to keep up with medical advances?" Very difficult? Moderately difficult? Not

particularly difficult?

In the pre-questionnaire, 22% found it very difficult, and 64% found it moderately difficult. The corresponding figures for the post-questionnaire were 21% and 69%. (Information is given in Table 25).

The physicians then were asked about the causes of the difficulty; how appropriate were various reasons for not engaging in as much continuing education activities as they might like to. (One of the questions in the questionnaire survey dealt with the relative importance or appropriateness of various deterrents to their engaging in continuing education activities.) The most important problem in the pre-questionnaire survey was the feeling that they were away from their own families too much already. Over three-fourths of the physicians ascribed appropriateness to their situation to this factor. Since many of the types of continuing education activities, such as postgraduate courses and lectures require the physician to take time out not only from his practice, but from his family as well, types of activities such as MIP may well help this problem. However, it should be noted that other types require a different kind of "being away" . . . i.e. if he is reading a journal, the physician cannot spend time with family doing family things. But perhaps at least less time is required and physical proximity to his family is retained.

Three-fourths of the respondents felt that it took too long to wade through journal articles to get the facts that they need for their practice. This was verified in the interviews where the journals came in for a great deal of criticism such as "too much theory, too esoteric, contained too little that was of interest or of practical use to a GP."

Sixty-eight percent before and seventy-nine per cent after felt that they had too many patients to care for to engage in as much continuing education activities as they might like to; practice load kept them too busy. Sixty-one per cent before and sixty-six per cent after felt that their experience with tapes was that they were too long and the inability to skim through the material they already knew was a problem in such things as Audio-Digest. This is interesting in light of the finding that many suggested tapes because of replay ability.

Educational opportunities that were available but didn't meet their own schedules was considered an important deterrent by 54% before and 61% after. These opportunities included use of medical TV in hospitals and postgraduate courses.

Forty-five percent before and thirty-eight percent after had previous unsatisfactory experience with postgraduate courses. This apparently kept them from participating in more postgraduate courses. The feeling is that little thought was given to meeting needs of General Practitioners. Inadequate preparation often resulted in an experience disappointing to General Practitioners.

The fact that subject matter of courses offered and other types of continuing education did not meet their needs for their practices deterred 43% before and 45% after from continuing educational activities. This emphasizes the need for more adequate analyses of content needs by postgraduate program directors.

Lack of someone to care for the physician's patients while he might

be away attending a postgraduate course or lecture was a deterrent to approximately 42% before and 49% after.

Over a third (38% before and 34% after) of the respondents reported the lack of availability of continuing education activities, other than the mail in their area, as a deterrent. This was relatively more important to physicians in rural than to those in urban areas.

Another deterrent given by over a fourth before and over a third after was the fact that they had to attend so many staff meetings at their hospital that they did not have time for other methods.

This information seems to indicate that the other questions asked on the pre- and post-questionnaires yield no conclusive evidence of behavioral change, although there are some trends indicated. For example, there appears to be an increase in the use of programmed instruction, audio tape recordings and slide or filmstrip presentations. There is not enough of a trend, nor is there a consistent pattern in the kinds of changes to establish any kind of definitive statement concerning communications behavior change. Comparing of the tables, especially when one considers the small number of entries in some categories, is enough to point out the need for further study of the problem of the kind indicated earlier. The very experience of being part of the MIP is enough to sensitize some participants to the whole problem and color their thinking as they fill out a questionnaire and what they put down cannot be interpreted as final statement about their actual communication behavior.

The thing we are trying to establish (which is really out of the scope of

the present study) is the degree to which exposure to the kinds of materials contained in MIP actually changes the style of self-education employed by the participants. If they revert back to pre-project behavior and employ journals, classes and seminars, etc., in about the same proportion as before the study, it can be inferred that the experience was ineffective in changing physicians' behavior, since it is admitted that there are many problems associated with obtaining information in the traditional ways (e.g. excessive time required to read journal articles). If "keeping up" is such a problem, and if MIP represents a new and more efficacious means (as earlier statements seem to indicate), then the post-project physicians should show a change in the direction of the use of MIP materials.

Evaluation of Positive and Negative Statements on MIP

Included in the Appendix is a representative selection of positive and negative comments made by the participants to each of the fifteen programs. These comments serve to augment the ideas expressed by participants at the conclusion of the project when they were asked to indicate what aspects they liked best, what they liked least, and suggestions for improving MIP as a system. An attempt to comment on important aspects of these statements follows.

Table 33 summarizes those aspects of MIP liked best and liked least, given as percentages of physicians responding. The figures exceed 100% since physicians often made more than one comment.

It is always difficult to perform an evaluation of a system and materials of this sort, since there are so many possible contaminating factors. We

shall point out the possible detractors from the use of such comments and then make the remarks which still seem appropriate.

First of all, it is possible that an attitude more closely identified as "indifference" might characterize the approach of the physicians to these questions. They are forced to make a "good" and "bad" qualitative judgment to the overall MIP system, when the actual attitude might have been indifference as stated. However, to the question, "What did you like best about the MIP system?" five (13%) of the respondents declined to answer or replied with such comments as "no complaints." To the question, "what did you like least?" eight (20%) declined to answer or gave such statements as "Can't think of anything." This lack of response was also true of the specific program evaluations where the range of no responses to the open-ended question, "What did you think of this program and why?" ranged from 10% (program 8) to 35% (program 7). This lack of responses may instead reflect an attitude of indifference, although there are other interpretations: (a) those who did not comment liked MIP as it was, (b) they disliked the entire MIP program, or (c) it merely reflects a difference in attitude toward paperwork requirements (i.e., open-ended questions require more time to answer, and while many will place checks next to question items, some will not answer open-ended questions). At any rate, only comments which occur repeatedly can be considered as reliably indicating the collective point of view of the participants.

Secondly, many physicians are concerned about "level" of training. Are the programs above or below their levels of competence? This may be

TABLE 33

RESPONSES ON VARIOUS ASPECTS OF MIP SYSTEM			
LIKE BEST	PERCENT	LIKE LEAST	PERCENT
Convenience	53%	Level of Content	42%
Technical quality	51%	A-V Machine	30%
A-V Mode	46%	Choice of Content	12%
Ability to Review	23%	Technical Quality	12%
Choice of Content	23%	Related Paperwork	9%
Level of Content	18%	Lack of Feedback	6%
P.I. Aspects	9%	Time Involved	6%
Self-Pacing	9%	Irregular Spacing	3%
Miscellaneous	12%	Miscellaneous	6%

the actual level of competence or it may be the level on which the physician perceives himself to be. In a profession as structured as is medicine and with status a factor of great importance, it is understandable that physicians would be annoyed by a program which they perceive as below their levels of competence. This was a frequent comment made and one can only suggest a follow-up study of the appropriateness of the level of presentation of each program by a panel of medical personnel, including the specialty people, general practitioners, medical school faculty and even medical students.

Finally, the program area itself may be a source of annoyance. Many men expressed a negative comment, for example, about OB-Gyn problems, since they themselves no longer were involved with that kind of work. In a larger urban center, this is to be expected. However, the GP in a small town or isolated community may still expect to see the whole range of problems, and no difficulty would be expressed about the "area" of medicine involved in any particular program, as long as it was of general interest. A GP in a cool climate might not be appreciative of information on malaria, nor would a Floridian be interested in treatment of frost bite. Perhaps a study could be designed in which programs would be geared to the particular physician population studied.

With these opening remarks, the following are the patterns which the comments took.

Negative Commentary

There was a general feeling about level of training as previously noted.

"Fit for first aid class," "valuable for nurses," "for sophomores in Medical School"; these and similar comments were frequently made. One might consider a follow-up on these men exploring possible factors which would tend to put them "above" the average GP in sophistication and training.

Inappropriateness of topic and lack of general interest were comments frequently seen. Again, one would be interested in knowing if these physicians are urban or rural in their locations, since the lack of specialized help can make more medical topics seem relevant.

Technical questions dotted the negative comments. These technical comments are of two kinds, those which involve the use of media and those which involve medicine. As for media-related criticisms, interruption involving changing of slides and records was listed; poor pronunciation of medical terms and poor photography were mentioned, especially where exact hue was important for understanding certain conditions (skin); the pace of presentation (too fast or slow) was cited; some criticism of graphs was made (either too rapidly displayed or not clear enough); machine breakdown, lack of sync between audio and visual were also listed.

As for technical-medical questions, they blended into the previously mentioned criticism of level of presentation. We must separate two aspects of this criticism, however. In the one, it is a function of the level of sophistication of knowledge of the physician or at least his perception of the level of sophistication he has attained; in the other, it is a matter of introducing a subject and then not giving enough detail. This latter criticism

occurred fairly often and could very easily be evaluated by the kind of panel mentioned earlier. That is, when level of training was discussed, there was discussed the possibility of a panel which could review these programs with respect to these criticisms. This is easier here where specifics of media technique and medical knowledge and technique could be discussed. Where one is dealing with level of sophistication, it becomes partially a psychological assessment of the consumer of the MIP materials. Nevertheless, if such programs are to become a significant facet in postgraduate medical education, they have to overcome the problem of being considered too elementary by a significant portion of their consumers.

In sum, the negative criticisms are of considerable importance and certainly point out the need for further, controlled study of the relative efficiency of different modes of instruction. A deeper study of the psychological components could be done, involving physicians who tend to see these programs as too elementary, but the difficulties there are great and perhaps one should conclude that this kind of reaction is not going to be overcome in all cases. The final remark might be that the "healthy skepticism" reflected in these views has other values in physician personality and should be left undisturbed. The kind of doctor who feels this way may have certain strengths related to quality of patient care which we would not like to lose in our society.

Positive Commentary

In general, the positive commentary offsets the negative in many areas; also, one might say that the positive commentary on each individual program was somewhat less specific than the negative. In giving praise, a

blanket "good" is often used without clarification. However, when analyzed in conjunction with the statements concerning best aspects of the MIP system, there were positive comments specific enough and frequent enough to mention.

(a) Utility is an important consideration. The convenience of the MIP approach, the ease of its use, the fact that relatively little time is consumed, and the fact that participants choose the time and place for viewing are all important.

(b) Organization and technical quality are frequently mentioned. That is, the material is well organized for the maximum benefit to the recipients. This, of course, is a function of the blending of good media technique and the sound medical knowledge of the consultants. The citing of organization is perhaps also a function of the fact that the perception of this kind of factor is a rather good indicator of the perception of this kind of factor is a rather good indicator of re-learning or completion of learning in an area. The fact that a physician perceives a program as organized may mean that he has really learned the area under consideration for the first time, or that a set of concepts which had been lost to him was now revitalized. This is a central experience in the learning of any area studied, that one comes to see the area as "organized" when it previously had not been. Without developing a lengthy thesis, one can consider this as one of the most important kinds of positive comments which could be made about any teaching program. Terms such as "clarified," "corrected knowledge," "good review," "reinforces and renews," are used in conjunction with the idea of organization of materials.

(c) Audio-visual mode of presentation is considered a valuable method of instruction. Many stated that the combination of audio with visuals helped their understanding of subject matter and improved their learning. Others commented that this reinforcement of audio and visuals allowed faster acquisition of concepts and made it easier to retain the information. Many stated that this method afforded them the ability to review the material quickly and as often as necessary for learning of concepts.

(d) Need is also stressed. Many men stated that they "needed" this information and were glad to have it in such a convenient and condensed form. Many stated the practicality of the information--they use it "every day." Some stated that they realized how little they knew about certain conditions and were glad to be informed or, in some cases, to have knowledge "refreshed" since they had forgotten a great deal about a subject or had come to take certain things for granted. A few also stated that the programs provided "reassurance" that they were doing what was currently accepted as good medical practice.

(e) General Importance: Even some physicians who are not currently working in a certain area (e.g., obstetrics is not done by many of the commentators) felt that the programs were worthwhile because of the general interest in the topic considered. This is important, since it would be easy, especially if the participant perceived the program as poor in any important respect, to use lack of relevance as a central criticism. For a program outside the area of a physician's practice to receive the comment that the program was of general interest to everyone is high praise.

(f) Other Comments: Several comments involve the statement by the physician that he is bringing the program or the information contained in the program to his associates, other physicians or nurses and interns in the hospital. Ideally, one would see the dissemination of information to others not having access to the program as a criterion of its importance.

General: The material is summarized in the Appendices with a representative sample of the positive and negative comments for each of the fifteen programs given, together with the overall comments on likes and dislikes of various aspects of the MIP system and materials. The evaluation just given represents the major areas of concern in the comments. Since the previous section on overall evaluation of the programs was very high on the positive side the comments serve to fill out the reasoning behind this generally positive reaction. The selected comments in the Appendix reflect approximately an equal number of negative and positive, although the positive comments usually outnumbered the negative. It is important to know what these negative items are so that suggestions can be made for improvement and also for more controlled studies for the future; one must do this, however, in the light of the generally favorable reaction given.

Suggestions for Improvement

Table 34 is a summary of the suggestions for improvement in the MIP system and materials, remembering that the general reaction was favorable to the system. The table indicates that one educational area, namely level/treatment of content, and three technical areas were most often cited. These three areas are (1) improved A-V machine, (2) method of distribution, and

(3) technical quality of the programs. More trouble was encountered with the machine than one would expect. Over one-third of the participants had some trouble with their machines during the program-delivery phase of the project. Better quality control and reliability of the machines would be a first-order recommendation for any further studies of this kind of program or any ongoing educational program based on MIP. The "level" problem was discussed earlier in this section.

The suggestions on the method of distribution are worth mentioning. Most of the participants dealing with this aspect indicated that there should be an adequate supply of programs available dealing with an increased range and variety of subject matter from which the physician could select the courses in which he is most interested. An index or catalog of these programs would have to be available to the physicians. Some suggested that the programs could then be available on a rental basis with an option to purchase, if desired, by the user. Others felt that a lending library would be more desirable. The equipment should be available on either a rent-lease basis or purchased by the physicians, if desired.

TABLE 34

SUGGESTIONS FOR IMPROVEMENT OF MIP SYSTEM	
AREAS OF SUGGESTIONS	PER CENT
Level/treatment of content	42%
Improved A-V machine	36%
Method of distribution	24%
Higher technical quality	21%
Choice in selection of content	16%
Include supplementary source material	16%
Miscellaneous	6%
Like MIP as is	24%

Conclusion

There is no need to repeat in detail all the findings of the study. However, it seems clear that content learning and acceptability objectives have been achieved unequivocally. Communications behavior change requires further study. In the body of the text, several suggestions have already been made concerning further studies which might be done.

One must conclude that MIP has great potential for continuing medical education and that efforts made to improve and augment it would be worthwhile. With the problems of "knowledge explosion" explored at the beginning of this text and the success of MIP in transmitting effectively some of that knowledge to interested recipients, it seems relevant to suggest that this kind of effort be continued and expanded.

REFERENCES

- Abelson, P. H. Continuing education. Science, 1965, 150 (No. 3698).
- Brickell, H. M. State organization for educational change: A case study. In Miles, M. R. (Ed.), Innovations in Education. New York: The Horace Mann-Lincoln Institute of School Experimentation, Teachers College, Columbia University, 1964.
- Cahal, M. F. The physician's communication needs. In An Adventure in Medical Communication. Kansas City, Missouri: American Academy of General Practice, 1962, 5-11.
- Can psychology improve AV communications? Photo Methods for Industry. 1969, 12(10), 56-72.
- Caput, D. Z. & Finn, J. D. Interim report on the search bibliography and document collection. Medical Information Project Research Memorandum Number 1. University of Southern California, 1967. (Mimeo).
- Campbell, D. T. & Stanley, J. C. Experimental and quasiexperimental designs for research. Chicago: Rand McNally & Company, 1963.
- Castle, H. C. Open-circuit television in postgraduate medical education. Journal of Medical Education, 1963, 38, 254-260.
- Clute, K. F. The general practitioner: A study of medical education and practice in Ontario and Nova Scotia. Toronto, Canada: University of Toronto Press, 1963.
- Cunningham, R. M. Traditional media. In An Adventure in Medical Communication. Kansas City, Missouri: American Academy of General Practice, 1962, 19-24.
- Direct mail volume up. Medical Marketing, 1960, 19 (11), 10-13.
- Dresden, M. K., Jr. Are physicians receptive to pharmaceutical promotion to direct mail? Clifton, New Jersey: Fisher Stevens, Inc., 1960.
- Dryer, B. V. Lifetime learning for physicians: Principles, practices, proposals. Journal of the American Medical Association, 1962, 180, 676-679.
- Edling, J. V. Role of newer media in planned change. In Meierhenry, W. C. (Ed.), Media and Educational Innovations. Lincoln, Nebraska: The University of Nebraska Press, 1964.

- Finn, J. D. The testing of public relations AV materials. PR: The Quarterly Review of Public Relations, 1956, 1(5).
- Finn, J. D. Automation and education III: Technology and the instructional process. Audiovisual Communication Review, 1960, 8(1), 5-26.
- Finn, J. D., Abrahamson, S. & Caput, D. Z. Strategy and tactics for individual program presentation. Medical Information Project Research Memorandum Number 3. University of Southern California, 1967. (Mimeo).
- Finn, J. D. & Weintraub, R. An Analysis of audiovisual machines for individual program presentation. Medical Information Project Research Memorandum Number 2. University of Southern California, 1967. (Mimeo).
- Greenhill, S. & Singh, H. J. Comparison of the functions of medical practitioners in rural areas with those in urban areas: A pilot study. Journal of Medical Education, 1964, 39, 806-809.
- Greenhill, S. & Singh, H. J. Comparison of the professional functions of rural and urban general practitioners. Journal of Medical Education, 1965, 40, 856-861.
- Guilford, J. P. Fundamental statistics in psychology and education. (4th ed.) New York: McGraw-Hill, 1965.
- Hoban, C. F. Fourth quarterly report: An interim statement on the audience for professional journals. Philadelphia: Institute for Cooperative Research, University of Pennsylvania, July, 1966. (Mimeograph).
- Lange, P. C. (Ed.) Programed instruction. Sixty-sixth Yearbook of the National Society for the Study of Education, Part II. Chicago: University of Chicago Press, 1967.
- Leveridge, L. L. Films for medical education. Journal of Medical Education, 1963, 38, 307-314.
- Linsky, A. S., & Spendlove, G. A. An unusually high response rate. Journal of Health and Social Behavior, 1967, June, 146-148.
- Mager, R. F. Preparing instructional objectives. Palo Alto, California: Fearon Publishers, 1962.
- McKim, J. W., West, T. C., & Stickley, W. T. Short films for self-instruction in biomedical education. SMPTE Journal, 1965, 74, 741-742.

- Michael, M., Jr. Television in graduate and post-graduate medical education. Journal of Medical Education, 1963, 38, 261-263.
- Michael, W. Tentative design for the evaluation of the medical training program for general practitioners. University of Southern California, 1969. (unpublished report prepared for the Medical Information Project).
- Orr, R. H. How the practitioner learns. In An Adventure in Medical Communication. Kansas City, Missouri: American Academy of General Practice, 1962, 13-14.
- Orr, R. H. The "newer" media for postgraduate education--their promises and problems. Journal of Medical Education, 1962, 37, 137-144.
- Parten, M. B. Surveys, polls, and samples. New York: Harper and Brothers, 1950.
- Pennell, M. Y., & Baker, I. K. Health manpower source book 19. Location of Manpower in 8 Occupations. Public Health Service Publication Number 263, Section 19. Washington, D. C.: U. S. Government Printing Office, 1965.
- Peterson, O. L., Andrews, L. P., Spain, R. S., & Greenberg, B. G. An analytic study of North Carolina general practice. Journal of Medical Education, 1956, 31(12), 1-165.
- Pressey, S. L. Teaching machine and learning theory crisis. Journal of Applied Psychology, 1963, 47(1).
- Riley, M. W. Sociological research. New York: Harcourt, Brace & World, 1963.
- Roney, J. G. Quantity, quality, and gadgetry in medical communication. Journal of the National Medical Association, 1962, 54(5), 563-569.
- Rose, N., & Van Horn, C. Theory and application of preproduction testing. Audiovisual Communication Review, 1956, 4, 21-30.
- Ruhe, D. S. Illustrated lectures in moving pictures. Journal of Medical Education, 1953, 28(9), 30-38.
- Seltiz, C., Jahoda, M., Deutsch, M., & Cook, S. W. Research methods in social relations. (Rev. one-volume ed.) New York: Holt, Rinehart, and Winston, 1959.
- Simon, J. L. Basic research methods in social science. New York: Random House, 1969.

- Slocum, W. L., Emrey, L.T., & Swanson, H.S. Increasing response to questionnaires and structured interviews. American Sociological Review, 1956, 21(2), 221-225.
- Theodore, C. N., & Sutter, G. E. Distribution of physicians, hospitals, and hospital beds in the U.S. Chicago: American Medical Association, 1966.
- Vollan, D. D. Postgraduate medical education in the United States. Chicago: American Medical Association, 1955.
- Wald, D. The uses of professional film techniques in medical motion-picture production. SMPTE Journal, 1965, 74, 743-744.
- Wolf, G. A. The organization of medical practice in the United States: The specialist and the general practitioner. Journal of Medical Education, 1965, 40, 737-741.
- Zuckerman, J.V. Predicting film learning by pre-release testing. Audiovisual Communication Review, 1954, 2, 49-55.



**THE
UNIVERSITY
OF
SOUTHERN
CALIFORNIA**

**SCHOOL OF MEDICINE
SCHOOL OF EDUCATION**

information about the
MEDICAL INFORMATION PROJECT

- An attempt to design and test a new audiovisual system of communication for the general practitioner of medicine — the physician on the firing line.
- A joint research and development project of the
 School of Medicine
 and the
 School of Education
 University of Southern California
- Funded under a research and development contract by the
 Bureau of Health Professions, Education,
 and Manpower Training
 National Institutes of Health
 United States Public Health Service

Project Director

JAMES D. FINN
 Professor of Education
 Department of Instructional Technology
 School of Education

Associate Project Director

STEPHEN ABRAHAMSON
 Professor of Education
 Division of Research in Medical Education
 School of Medicine

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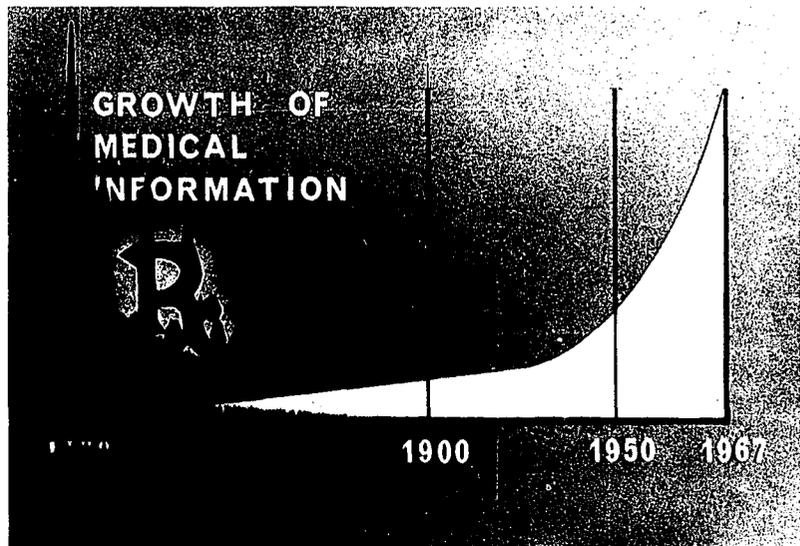
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 California Medical Association

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Assistant Medical Director and Director, Out-Patient Department
 Los Angeles County – USC Medical Center



The Medical Information Project is still another attack on the serious problem of the exponential growth of information in medicine.

✓ **For General Practitioners**

It is an attempt to supply current information about a variety of medical fields to the man who feels the information burden the most — the general practitioner of medicine.

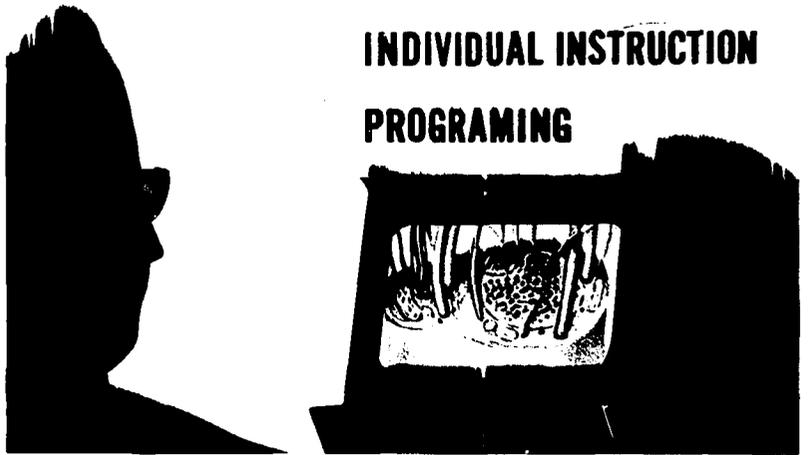
✓ **A Research and Development Project**

Throughout the medical and allied health sciences today there is increasing concern over the problem of communication. All of the efforts to solve this problem — television, new types of continuing courses, circuit riding teams, etc. — have contributed something toward its solution, but, admittedly, the problem continues to grow.

The Medical Information Project is a research and development project which is attempting to design and test an individualized audiovisual communication system for physicians which, if it works out, will help to break the information barrier.

It is not a commercial enterprise and the results will be available to anyone who requests them.

AV PRESENTATION INDIVIDUAL INSTRUCTION PROGRAMING



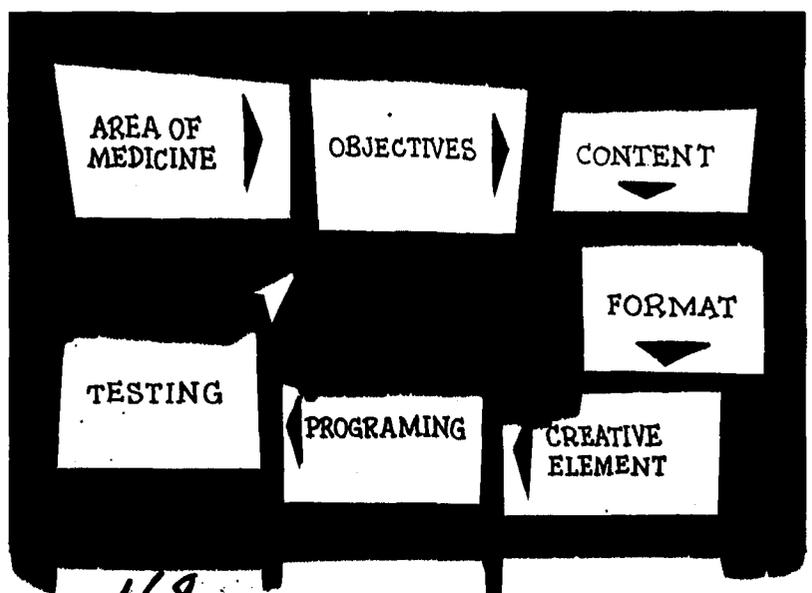
The concept of the communication system includes an instrument which will sit on a desk or table in the doctor's office, project colored still pictures with sound and allow for some form of response.

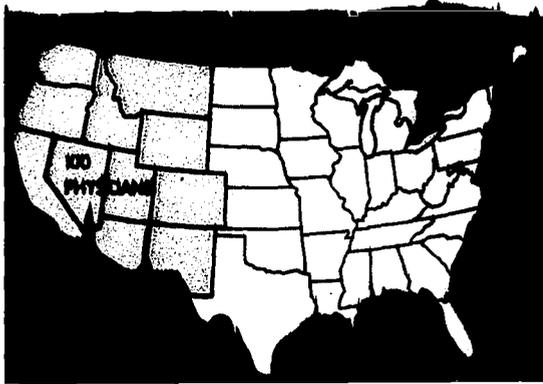
✓ Program Content Development

Content for the programs to be supplied the physicians in the sample will be developed by the faculty for postgraduate education of the USC School of Medicine. Topics for the programs were decided by the Project Advisory Committee listed on the front page.

✓ Program Design

Program design is the responsibility of the Department of Instructional Technology of the USC School of Education. The general elements of the design process are shown in the illustration.





The research – or feasibility testing – aspects of the project require the selection of a sample of 100 general practitioners from the eleven Western States. The sample will be stratified according to population and other requirements and then an attempt will be made to randomize the sample within these categories.

✓ Program Delivery and Evaluation

Fifteen programs will be prepared and mailed to the sample at the rate of about one every three weeks for twelve months. Accompanying each will be (1) a program book to use with the audiovisual presentation, (2) a self-scoring content test and (3) an evaluation form. Mailing was begun April 17, 1968.

✓ Research Objectives

CHANGE IN COMMUNICATIONS HABITS

CONTENT LEARNING

ACCEPTABILITY



As indicated in the illustration, an attempt will be made to ascertain (1) what change, if any, occurs in the communication habits of the physician, (2) the nature of the content learning and (3) the feasibility and acceptability of the system. In addition to the instruments accompanying the programs, questionnaires and interviews will be used as measuring devices.

For further information write: **Dr. James D. Finn, Director
Medical Information Project
School of Education
University of Southern California
Los Angeles, California 90007**

APPENDIX II

CORRESPONDENCE PACKETS:

EXPERIMENTAL

CONTROL

EXPERIMENTAL - initial contact telegram

II
-2-

April, 1967

John Doe, M.D.
Any Address
City, State

The University of Southern California Schools of Medicine and Education are combining in a Research and Development project in the field of Medical Communication. Our general problem is to design a new individualized Audio-Visual system for the continuing education of General Practitioners. Our study requires a random sample of 100 general practitioners in the eleven Western states. This letter is to advise you that we have rolled the dice and your name came up. As a result, at the end of this week we are going to mail you a letter inviting you to participate in what we feel is a very interesting and exciting project and which will have, hopefully, great value for General Practitioners and medical education. Our study is not, repeat not, a commercial enterprise and is funded by a Research and Development grant from the U.S. Public Health Service.

We very much hope you can find the time to cooperate and that you will answer our letter affirmatively. Thank you very much.

Stephen Abrahamson,
U.S.C. School of Medicine

James D. Finn
J.S.C. School of Education

MEDICAL INFORMATION PROJECT



June 30, 1967

John Doe, M.D.
Any Address
City, State Zip

Dear Dr. Doc:

By now you have received our telegram which advised you that we would soon be writing you to request your cooperation in the Medical Information Project. As one of the 100 general practitioners selected in our random sample to represent the 9600 GP's in eleven Western States, your cooperation is extremely important to the success of the project.

The Medical Information Project is, very simply, an attempt to invent, design and test a new means of communicating medical information to the general practitioner using an individualized audiovisual system that can be operated in your own office at your convenience. The project is described in some detail in the attached leaflet.

We wish to emphasize that this is a project of two major divisions of the University of Southern California, the School of Medicine and the School of Education, and is funded by a research and development contract from the Bureau of Health Manpower of the U.S. Public Health Service. Perhaps you have seen a news release about the project. It is not in any way a commercial enterprise.

As indicated in the leaflet, we propose beginning sometime in September to mail programs to you at the rate of two a month for one year. These programs can be played on an individual audiovisual device we will place in your office. The program areas have been selected by the Advisory Committee as described in the leaflet and will range over a wide variety of topics. Each will be prepared using, as a consultant, a member of the faculty of the U.S.C. School of Medicine. These audiovisual programs will be accompanied by a short (no more than ten minutes) test and an evaluation form.

The other activities involved in the research phase will be a short questionnaire administered at the beginning and end of the program portion of the project, and a diary of your communication activities (reading, meeting attendance, etc.) kept for four one-week periods during the 12 months the experiment is in progress. We also hope to interview a sample of the sample during the year.

Dr. James D. Finn, Director, Medical Information Project, Department of Instructional Technology, School of Education, University of Southern California, Los Angeles, California 90007

CONTROL - initial contact telegram

II
-9-

April, 1968

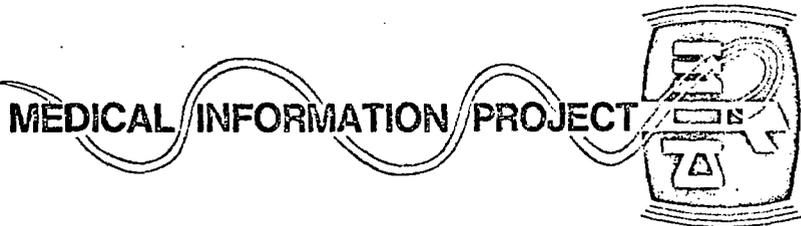
John Doe, M.D.
Any Address
City, State

The University of Southern California would like to request your help in filling out a questionnaire as a member of a control sample in a study we are doing for the U.S. Public Health Service. The questionnaire and explanation of our study will follow in a few days. Thank you very much.

James D. Finn
Medical Information Project, Director
University of Southern California

CONTROL - letter and 1st questionnaire

II
-10-



April 5, 1968

John Doe, M.D.
Any Address
City, State

Dear Dr. Doe:

Several days ago we probably surprised you with a telegram asking for your cooperation in our study. I am enclosing with this letter the questionnaire we very much hope that you could find time to fill out and return. I am also enclosing a leaflet which describes our overall study.

The project is being funded by the U.S. Public Health Service; it is in the field of continuing education for general practitioners, and is being conducted jointly by the School of Medicine and the School of Education of the University of Southern California. There are no commercial aspects to this study.

By the use of random sampling procedures, we pulled your name as a representative of the population of general practitioners of your state and also, therefore, as comparable to our first sample with which our experiment is being conducted. In complex social research of this nature, it is very important that we establish the nature of a comparable control sample. By filling out this questionnaire, you would be helping us to do so. The whole process should take about thirty minutes of your time, and this is all we need to ask of you.

Thank you very much, and if you have any questions, please write me or you can reach me or my associate, Mrs. Caput, at (213) 748-2710, collect if you wish.

Cordially,

James D. Finn, Director
Medical Information Project

174

CONTROL - follow-up for 1st questionnaire

II
-11-



May 8, 1968

John Doe, M.D.
Any Address
City, State

Dear Dr. Doe:

Several weeks ago we sent you a Medical Information Project questionnaire with a request for your cooperation as a member of a control group in the project. We have not yet received your completed questionnaire and we are wondering if it simply slipped your mind. At any rate we miss your response -- it is very important to us.

If you have misplaced the questionnaire, return the enclosed postcard and we will send you another copy. If it is still in your in-basket, I sincerely hope that you will take a little time out of your busy schedule to fill it in and return it.

Your help and cooperation are extremely important to the study and will be appreciated very much.

Sincerely yours,

James D. Finn, Director
Medical Information Project

175

CONTROL - letter with post-questionnaire and content test

II
-12-

MEDICAL INFORMATION PROJECT



July 14, 1969

John Doe, M.D.
Any Address
Any City, State Zip

Dear Dr. Doe:

A year ago you were kind enough to help us out by filling out a questionnaire as a member of a control sample representative of the population of general practitioners in the eleven western states in a study we are conducting for the U. S. Public Health Service.

As you may recall, the project is in the field of continuing education for general practitioners, and is being conducted jointly by the School of Medicine and the School of Education of the University of Southern California. We hope that the results of the study may provide information that will lead to the improvement of continuing education methods to meet the needs of the practicing physician, such as yourself.

Our project is now coming to an end, and as part of the study we would like to ask that you fill out a post-questionnaire on your continuing education activities as a member of our control sample. Second, we have enclosed a test form by which we are trying to check the reliability and validity of the programs and tests we used during the course of the project. In field research of this nature, it is very important that we establish the nature of a comparable control sample. We hope that you can help us out this one last time by filling in the enclosed questionnaire and test form. Each of these forms should take about fifteen minutes of your time, and this is all we need ask of you.

All information that you report will be kept completely confidential and will be used for statistical purposes only. Since our samples were selected by the use of random sampling techniques, the strength and validity of the study depends upon your help and cooperation.

Thank you very much, and if you have any questions, please write me or you can reach me or my associate, Mrs. Caput, at (213) 748-2710, collect if you wish.

Cordially,

Stephen Abrahamson, Director
Medical Information Project

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CONTROL - follow-up to non-responders: post-questionnaire & test



August 8, 1969

John Doe, M. D.
Any Address
Any City, State

Dear Dr. Doe:

The evaluation of the Medical Information Project has begun. However, some of the essential data is missing. We urgently need all of the completed questionnaires and tests.

If you are among the participants who have not returned this necessary information, we would sincerely appreciate its immediate return.

If you did not receive the questionnaire and test or if they have been misplaced, please indicate this on the enclosed card.

Cordially,

(Mrs.) Diana Caput
Director of Research

DC/ld

Dr. James D. Finn, Director, Medical Information Project, Department of Instructional Technology, School of Education, University of Southern California, Los Angeles, California 90007

QUESTIONNAIRE



MEDICAL INFORMATION PROJECT

A joint project of the School of Medicine and
the School of Education, University of South-
ern California.

Project Funded By
Bureau of Health Professions, Education, and
Manpower Training
National Institutes of Health
United States Public Health Service

Bureau of the Budget
Approval No. 68-R 1031

MEDICAL INFORMATION PROJECT

School of Education School of Medicine
University of Southern California
University Park
Los Angeles, California 90007

Q U E S T I O N N A I R E

All information which you report will be kept completely confidential in accordance with the regulations of the United States Public Health Service. The information will not be discussed with any persons outside the study project, and will be used for statistical purposes only.

Your identity, nor the fact that you are participating in the project, will not be released or made available without your expressed consent.

MEDICAL INFORMATION PROJECT

School of Education School of Medicine
University of Southern California
University Park
Los Angeles, California 90007

I. GENERAL INFORMATION

1. What is your sex?

_____ Male
_____ Female

2. In what year did you graduate from medical school?

3. How far is your office from the nearest medical school?

_____ Less than 10 miles
_____ 10-24 miles
_____ 25-49 miles
_____ 50 or more miles

4. How far is your office from the nearest hospital or medical center?

_____ Less than 6 miles
_____ 6-15 miles
_____ 16-25 miles
_____ 26 or more miles

5. What is the average number of hours you spend EACH DAY at your practice (e.g., at the office, hospital, house calls, etc.)?

_____ Less than 6 hours
_____ 6-8 hours
_____ 9-11 hours
_____ 12-14 hours
_____ 15 or more hours

2.

6. Which of the following describes most closely your field of practice?

(a) _____ General practice

(b) _____ General practice with particular attention to a special area of interest (specify area) _____

(c) _____ Practice limited to a special area of interest (specify area) _____

→ If you answered (b), approximately what percent of your patients fall within this special area of interest?

- _____ Less than 25%
- _____ 25-49%
- _____ 50-74%
- _____ 75% or more

7. Which of the following best describes your type of practice arrangement at the present time?

_____ Individual ("solo") practice

_____ Informal association with one or more physicians with minimum or no sharing of income or expenses

_____ Two-man partnership

_____ Group practice under some type of formal agreement; i.e., three or more physicians formally organized to provide medical consultation, diagnosis, and/or treatment through the joint use of equipment and personnel, and with income from the medical practice distributed in accordance with methods previously determined by members of the group

_____ Other type of practice arrangement (describe) _____

8. During an average WEEK of medical practice, how many hours do you devote to the following activities? (Please do not include postgraduate educational activities. These will be covered later in the questionnaire.)

<u>Activities</u>	<u>Hours per Week</u>
a. Diagnosis and treatment of patients	_____ hours
b. Conference with colleagues in office or hospital regarding your patients	_____ hours
c. Travel to and from office, hospital, house calls, etc.	_____ hours
d. Formal teaching of medical students, nurses, other health professionals	_____ hours
e. Formal research activities	_____ hours
f. Other paid medical positions (e.g., industrial, institutional, public health, etc.)	_____ hours
g. Voluntary unpaid medical services	_____ hours
h. Other activities (e.g., completion of third-party insurance forms, administrative supervision of ancillary workers, etc.)	_____ hours

Please specify other activities:

- | | |
|----------|-------------|
| i. _____ | _____ hours |
| j. _____ | _____ hours |
| k. _____ | _____ hours |

Total hours: _____

4.

9. We all have the problem of finding enough time to do everything we want to. Admittedly, estimates of distribution of time vary with seasons, activities, age, responsibilities, etc. (Management experts also say executives and professionals do not estimate time distribution accurately anyway.) Recognizing all of these hazards, would you make a general guess as to your time distribution during an average WEEK.

<u>Activities</u>	<u>Hours per Week</u>
a. Medical practice	_____ hours
b. Continuing education activities	_____ hours
c. Civic	_____ hours
d. Personal - Family - Recreation	_____ hours
e. Business (if any, other than medical)	_____ hours
f. Other _____	

_____	_____ hours
Total hours: _____	

6.

11. To what civic and/or public service voluntary organizations do you belong? Do you hold office(s) or serve on any committee(s) of any of these organizations (e.g., school board, P.T.A., American Legion, Rotary, etc.)?

<u>Name of organization</u> <u>(please spell out)</u>	<u>Hold office or</u> <u>serve on committee</u>	
	<u>Yes</u>	<u>No</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

8.

2. Approximately how many hours PER WEEK do you spend viewing television?

_____ hours

What types of commercial or educational television programs do you watch regularly, occasionally, seldom or never?

Watch

<u>Type of Program</u>	Watch		
	Regularly	Occasionally	Seldom or Never
Musical Variety Shows			
Westerns			
Drama			
Documentaries			
News Reporting and Commentary			
Science Fiction			
Sports Events, Reporting and Commentary			
Game Shows			
Panel Discussions			
Mystery-Detective-Spy			
Comedy Shows			

3. Approximately how many hours PER WEEK do you spend listening to radio?

	<u>Hours Per Week</u>
a. In car	_____ hours
b. At home	_____ hours
c. Doctors' lounge	_____ hours
d. At office	_____ hours
e. Other (specify) _____ _____	_____ hours

4. About how often do you attend a movie?

_____ Once a week
 _____ Once or twice a month
 _____ Once every 2 or 3 months
 _____ Seldom or never

10.

B. Acquiring Professional Information

1. How difficult do you find it to keep up with medical advances?

- Very difficult
- Moderately difficult
- Not particularly difficult

2. All doctors face some problems in keeping abreast medically. Listed below are a number of comments made by physicians about why they do not engage in as much formal or informal continuing education activities (e.g., medical television, postgraduate courses, reading, etc.) as they might like to. Please indicate the degree to which each of the following fits your own situation.

<u>Problem</u>	<u>Appropriateness to My Situation</u>		
	<u>Very</u> <u>Appropriate</u>	<u>Moderately</u> <u>Appropriate</u>	<u>Not at All</u> <u>Appropriate</u>
a. Aside from the mail, there's nothing available in my area.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I have too many patients to care for.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. There's no one to take care of my patients if I leave to attend meetings, postgraduate courses, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. I have to go to so many staff meetings at my hospital that I do not have time for other methods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. It takes too long to wade through journal articles to get the facts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. My past experience with postgraduate <u>courses</u> has convinced me that I could spend my time more profitably elsewhere.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Continued

<u>Problem</u>	<u>Appropriateness to My Situation</u>		
	<u>Very Appropriate</u>	<u>Moderately Appropriate</u>	<u>Not at All Appropriate</u>
g. I am away from my own family too much as it is now.	_____	_____	_____
h. Tapes are too long, and I can't skim through the material I already know.	_____	_____	_____
i. Educational opportunities (e.g., medical television, lectures, etc.) are available, but they just don't fit my schedule.	_____	_____	_____
j. What is available isn't what I need for my practice.	_____	_____	_____

You may have some special reasons of your own which aren't covered by the comments listed above and on the previous page. Please jot down any other problems not covered here that apply to your situation.

12.

3. Please indicate which of the following professional publications you read. To which do you subscribe?

<u>Name of Publication</u>	Read				Subscribe to	
	All/ Most of Every Issue	Parts of Every Issue	Parts of Some Issues	Little or None of Any Issue	Yes	No
<u>Journal of the American Medical Association</u>						
<u>G.P.</u>						
<u>Medical World News</u>						
<u>New England Journal of Medicine</u>						
<u>A.M.A. News</u>						
<u>Postgraduate Medicine</u>						
<u>Quarterly Journal of Medicine</u>						
<u>Lancet</u>						
<u>Archives of Internal Medicine</u>						
<u>Medical Economics</u>						
<u>Annals of Internal Medicine</u>						
<u>American Journal of Medicine</u>						
<u>Medicine</u>						
<u>Modern Medicine</u>						
Others:						

4. How often do you use the following general reference material?

<u>General Reference</u>	Use		
	Regularly	Occasionally	Seldom or Never
Physicians' Desk Reference			
Merck Manual			
Current Therapy			
Others:			

14.

5. The methods of continuing education that are available to the physician can be thought of according to the ways in which they are organized. How much time to you devote PER MONTH to the following methods of continuing medical education?

<u>Method</u>	(1) Indicate average number of hours <u>per month</u>	(2) Method not available to me	(3) Method not available to me--should be developed for use in <u>my area</u>
	Mark 0, 1, 2, etc. where appropriate	Mark X where appropriate	Mark X where appropriate
a. <u>Formally Organized Programs of Post- graduate Instruction:</u>			
(1) Direct participation or attendance	_____	_____	_____
(2) Correspondence courses	_____	_____	_____
b. <u>Other Instructional Arrangements:</u>			
(1) Demonstrations (ward rounds and clinics where you are the student)	_____	_____	_____
(2) Group discussions (local seminars and study groups)	_____	_____	_____
(3) Supervised clinical practice (where you are the student)	_____	_____	_____
(4) Regular staff meetings of hospitals	_____	_____	_____
(5) "Circuit Rider" programs	_____	_____	_____
(6) Lectures, panels and symposia sponsored by local, state, regional or national medical organiza- tions	_____	_____	_____

5. Continued

<u>Method</u>	(1) Indicate average number of hours <u>per month</u>	(2) Method not available to me	(3) Method not available to me--should be developed for use in <u>my area</u>
	Mark 0, 1, 2, etc. where appropriate	Mark X where appropriate	Mark X where appropriate
c. <u>Personal Contacts:</u>			
(1) Colleagues	_____	_____	_____
(2) Consultants	_____	_____	_____
(3) Detail Men	_____	_____	_____
d. <u>Individual Efforts:</u>			
(1) Reading	_____	_____	_____
(2) Listening (to tapes, etc.)	_____	_____	_____
(3) Viewing (TV, films, etc.)	_____	_____	_____

16.

6. In these communications activities, you may receive information from a variety of media. Will you estimate the amount of time PER MONTH or the number of times PER YEAR you have spent using the following media.

<u>Media</u>	(1) Indicate average number of hours <u>per month</u>	(2) Medium not available to me	(3) Medium not available to me--should be developed for use in <u>my area</u>
	Mark 0, 1, 2, etc. where appropriate	Mark X where appropriate	Mark X where appropriate
a. <u>Printed Media</u>			
(1) Journals	_____	_____	_____
(2) Medical digests	_____	_____	_____
(3) Medical textbooks	_____	_____	_____
(4) Unsolicited medical literature (e.g., pharmaceutical company literature)	_____	_____	_____
(5) Programed instruction	_____	_____	_____
b. <u>Audiovisual Media</u>			
(1) Medical radio	_____	_____	_____
(2) Medical television	_____	_____	_____
(3) Audio tape recordings and records (e.g., Audio-Digest)	_____	_____	_____
(4) Telephone services (e.g., Dial-a-Lecture)	_____	_____	_____

6. Continued

<u>Media</u>	(1) Estimate average number <u>per year</u>	(2) Medium not available to me	(3) Medium not available to me--should be developed for use in <u>my area</u>
	Mark 0, 1, 2, etc. where appropriate	Mark X where appropriate	Mark X where appropriate

c. Audiovisual Media

(1) Telephone conferences (e.g., 2-way tele- lectures)	_____	_____	_____
(2) Films	_____	_____	_____
(3) Slide or filmstrip presentations	_____	_____	_____
(4) Scientific exhibits	_____	_____	_____

18.

7. Consider questions 5 and 6 on the previous pages. In the light of the practical considerations of your situation, please indicate the combinations of methods and media you think are the most effective in meeting your current professional needs.

Examples: INSTRUCTIONAL METHODS

MEDIA

symposia

films

lectures

television

INSTRUCTIONAL METHODS

MEDIA

<hr/>	<hr/>

8. How do the sources of information you listed in question 7 best meet your professional needs? What do you like best about them?

PROGRAM XIV
EVALUATION FORM

General Instructions

Please complete the Evaluation Form on the next seven pages as soon as possible after viewing the program. It is important that your reactions be recorded while the details are still fresh in your mind. It is also important that your response be as direct and honest as possible. You will do us a disservice if you attempt to spare our feelings. Please answer all of the questions completely. All responses will remain anonymous. Please do not sign or otherwise identify the evaluation form.

6

PROGRAM EVALUATION FORM

Program Number XIV: ANEMIA

Subject Matter Content

1. How important to you was the information in the program?

As a practicing physician, the information it contained was:

- _____ Very important
_____ Important
_____ Not particularly important
_____ Of no importance whatsoever
_____ Other (state) _____

2. How important would you say the information in the program would be to general practitioners as a group?

I feel that, for general practitioners as I know them, the information in this program is:

- _____ Very important
_____ Important
_____ Not particularly important
_____ Of no importance whatsoever
_____ Other (state) _____

3. The program which I have just seen:

- Presented new and useful information.
- Presented information which, while not completely new, was important and useful.
- Presented new information which was interesting but not particularly useful.
- Presented information which was new but neither interesting nor useful.
- Presented material which I already knew well and was, therefore, not useful.
- Other (state) _____

4. If you felt the information presented was useful, for what specific purposes was it useful (e.g., diagnosis, treatment, research, etc.)?

8

Program Design

We are concerned here with how well the program was organized to help you deal with the information it contained.

5. In general, I found the program:
- _____ Easy to follow and understand
 - _____ Fairly easy to follow and understand
 - _____ Somewhat confused and difficult to understand
 - _____ Impossible to follow and understand
 - _____ Other (state) _____

6. Another element of good program design is clarity. How clear were the explanations? Since we are using two sense modalities, in this question we ask you to evaluate both the audio and visual as to clarity.

	Audio. (language)	Visuals (pictures, charts, etc.)
Very clear; explanations excellent		
Reasonably clear; explanations good		
Clarity of program was just adequate		
Not very clear; explanations need improvement		
Unclear; confusing		

Other comments on audio? _____

Other comments on visuals? _____

7. Another way to evaluate a program is to assess its ability to keep your attention. In the case of the program you have just seen and heard, would you assess this quality by checking the statement that most nearly reflects your opinion.

- _____ Excellent attention value; my interest never wavered.
- _____ High attention value; it was fairly easy to stay with the program.
- _____ Moderate attention value; I could take it or leave it.
- _____ Little attention value; the program dragged.
- _____ No attention value; I felt like turning off the machine or doing something else.
- _____ Other (state) _____

8. Would you make a general comment as to the presentation-esthetic quality of the program (i.e., quality of photography, ease of reading print, quality of sound, artistic merit).

The Program as Information Source

9. Given only one choice for a source of information, and taking into account the time, effort, etc. required of you, check only one answer in terms of the topic of this specific program.

- I would take this program as presented.
- I would take this program in this format if certain changes were made. (specify changes)

- I would prefer to read about this topic in journals or texts.
- I would prefer to attend a continuing education class, medical society meeting or hospital seminar on this topic.
- I would prefer to watch a film or view a medical television program on this topic.
- I would prefer to discuss this topic informally with a colleague or colleagues.
- I would prefer to discuss this topic with a detail man.
- Other (state) _____

10. We would now like to have you rate these same seven possible sources---again, in terms of the topic of this program only. In the space provided, rate each source of information on a 7-point scale. Seven is high and one is low. Two or more sources can be rated the same.

Source	High					Low	
	7	6	5	4	3	2	1
The MIP program you have just seen							
Reading in journals and texts							
Class, society meeting or seminar							
Film or medical television							
Informal discussion with colleagues							
Discussion with detail man							
Other (state) _____ _____							

14

TEST QUESTIONS

Program XIV: ANEMIA

1. The laboratory reports that the hematocrit of a patient is 20% and the reticulocyte count (uncorrected) is 5%. This patient's bone marrow is making red cells at
 - (a) the normal rate
 - (b) one-half the normal rate
 - (c) twice the normal rate
 - (d) five times the normal rate
 - (e) ten times the normal rate

2. A 68 year old woman with a negative history is found to have an anemia on a routine blood count. The PCV is 28%, the hemoglobin concentration is 7.0 grams percent, and the corrected reticulocyte count is 1.0%. Which of the following tests would be appropriate for this patient?
 - (a) Bone marrow
 - (b) Schilling's test
 - (c) Intravenous urogram
 - (d) Barium enema
 - (e) Coombs test

3. A 25 year old man is found to have a hematocrit of 20%, a hemoglobin of 7.0 grams percent, and a corrected reticulocyte count of 8%. The physician obtained the history that the patient was treated briefly two months before for an ear infection with oral chloramphenicol. Check which of the following statements is true:
- (a) Iron deficiency is not the cause of his anemia.
 - (b) He does not need vitamin B-12.
 - (c) Chloramphenicol did not produce marrow aplasia as a cause of the anemia.
 - (d) All of the above are true.
4. A 17 year old negro girl is found to be anemic with a PCV of 30%, a hemoglobin of 9.0 grams percent and a reticulocyte count of 1.5%. A sickle cell preparation was positive. The peripheral blood smear was thought to be unremarkable. The physician properly:
- (a) prescribes ferrous sulphate.
 - (b) informs the girl and her parents that she has an inherited type of anemia.
 - (c) advises the girl to eat a better diet.
 - (d) suggests that more tests will be needed before a diagnosis can be made.
 - (e) tells the patient her blood count is normal.

5. A 72 year old man was admitted to the hospital because of severe anemia. One week before he had gone to a physician because of weakness which had been gradually worsening over a three month period. The doctor had given him a shot of an unknown medication and ordered a blood count. When the blood count was reported to be low several days later, the patient was advised to go to the hospital. Admitting laboratory work showed a PCV of 16%, a hemoglobin concentration of 5.8 grams percent, and a corrected reticulocyte count of 7.0%. The peripheral blood smear showed anisocytosis, poikilocytosis, and oval macrocytes.

What is your best explanation for this combination of findings? How would you proceed with this patient?

6. A 22 year old woman entered the hospital after a synocopal attack. She had been well until the morning of admission when she developed lower abdominal cramping pain and had vomited. The pain persisted, she became "dizzy" and had then fainted. Physical examination showed a young woman in moderate distress with abdominal pain. The pulse was 110/minute. There was lower abdominal tenderness but rectal and pelvic examinations added no further information. The laboratory studies revealed the following:

	<u>PCV</u>	<u>Hemo- globin</u>	<u>Corr. retic count</u>
Admission	22	7.5	5.0
2 hours later	19		5.5
4 hours later	18		8.0
6 hours later	16		6.0

Except for reticulocytosis, the peripheral blood smear was normal. If you were this patient's physician, what would you advise?

- (a) Have the blood bank set up blood and prepare for an emergency splenectomy.
- (b) Administer vitamin B-12, folic acid, iron and transfuse with whole blood.
- (c) Line up blood and perform a culpoentesis.
- (d) Start her on adrenal steroids.

MEDICAL INFORMATION PROJECT
University of Southern California

PERSONAL INTERVIEW GUIDE

Doctor's Name: _____

Address: _____

Phone Number: _____

Date Interviewed: _____

Interviewer's Name: _____

1. To what degree do you have difficulty in "keeping up" medically? (Information explosion, time problem)

What is the primary nature of the difficulty?
How does it manifest itself?
2. Most physicians figure out their own pattern of keeping up. How would you describe yours in general?
3. If you need some information for a specific problem in a hurry, what do you do? Can you give us an example?
4. Do you rely upon other physicians or health professionals for information? How, for what, and upon whom? (Not names, but kinds of specialists as Cardiologists, other G.P.'s, Gynecologists, Nurses, Pharmacists, etc.)
5. There is some good and bad in all of these things. What has been your experience in general with (a) meetings, (b) postgraduate courses, lectures, etc.
 - a.
 - b.
 - c.
6. Can you tell us why you decide to:
 - (a) Read an article or not.
 - (b) Go to a meeting or not.
 - (c) Listen to a detailman or not. (Like/dislike, useful or not)
 - (d) Read unsolicited mail or not. (What do you do with it?)
7. What does your practice include:
 - (a) Major operative surgery? _____
 - (b) Obstetrics? _____
 - (c) Minor office surgery? _____
 - (d) General medicine for men, women, children? _____
8. In the questionnaire you returned a few weeks ago, you gave us information about your communication preferences, and this information will be very helpful to us. However, there are some things a questionnaire cannot supply. We are very interested, for example, in clues as to the best possible way to program our material. Give us an example of medical communication which particularly appealed to you? (Explain in detail.) Why did you like it?

9. Many people, especially medical school faculty, have been telling us that we must avoid any appearance of a so-called "cookbook" or "how to" program. On the other hand, many practicing doctors have indicated that they need more of this kind of practical information. How do you feel about this?
10. What do you feel is needed more in the way of information: (Rank in order of preference if 2 or more are specified)
- (a) New medical advances.
 - (b) Review or refreshed knowledge.
 - (c) Theoretical knowledge.
 - (d) Practical.
11. During the last three (3) years, have you been asked to:
- (a) fill out questionnaires in connection with studies made by drug companies, A.M.A., other organizations, institutions, government agencies, etc?
- _____yes _____no _____approximate number
- Did you fill them all out? Did you fill some of them out? Why?
- _____yes _____no _____approximate number
12. Were there any particular aspects of the Medical Information Project that influenced you to participate? If yes, what were these aspects?
(Check only if doctor volunteers one or more of the choices given).
- _____no cost _____time involved
- _____need for information _____intrigued with technique
- _____a medical school involved
(sponsorship)
- _____convenience of time & place (e.g. in office when want to rather than at some other place)
- _____other

APPENDIX VII

PHYSICIANS' COMMENTS ON OVERALL CONCEPT OF MIP SYSTEM:

- (1) Aspects best liked
- (2) Aspects least liked
- (3) Suggestions for improvement

What were the most useful aspects about the MLP as a system of acquiring information? What did you like best about it?

Physicians Comments

No.

- 00 Clear, concise, factual.
I could take advantage of it when I had the time, and in my own surroundings.
- 02 It was well presented; clear, and concise. I liked being able to stop the machine and think about different points that were covered as we progressed through the film strip.
- 03 It is new and different.
There was always something important, useful in the information provided.
- 04 1. Practical - easy to follow.
2. Easy to fit into an extremely busy practice.
3. Current therapy with good diagnosis and research.
4. Not too complicated, consequently useful and easy to remember.
5. Audio-visual - makes lasting impression.
- 06 Selection of subjects.
- 07 Its thoroughness with no wasted time.
- 09 No comment.
- 10 Variety of topics covered.
- 13 New information that I gained from it.
- 15 Concise rapidly available and completed instructions on one subject.
- 16 Can choose when I want to listen and view.
Consist of both audio and visual learning.
- 17 I liked the availability of experts in all fields of medicine being able to present their subject matter together with visual material in the office and home at my convenience. Most of the time I was impressed with the clarity and presentation of the subject matter. It was right to the point and eliminated most padding material that is so prevalent in other media.

No.

- 19 Timely subject matter;
convenient;
condensed;
concise;
well-arranged;
easily understood
- 20 Time involved - no necessity of meetings.
If I didn't care for it or material didn't meet
need I could skip it or not use it without walking
out on lecturer. You can pick and choose information
wanted.
You can review at a glance. This would be one thing
that would be an advantage over tapes or reading.
- 22 I thought it was a good project in that it was fast,
clear and not a lot of equipment to keep around.
Programs could be stored for review.
- 23 It was concentrated and hit several of my learning
processes at once. There were parts that were re-
searched out and hit my needs nicely.
- 24 Illustrations were helpful and the subject matter was
easy to follow.
- 26 1. Convenience
2. Clarity
3. Ready - review features
4. Generally excellent choices of material.
- 29 Brief and concise and complete enough that one feels
the important points of that subject have been covered
and can be grasped. May be reviewed as needed.
Questions and answers regarding presented material.
- 30 I was able to acquire the information at a place and
at times convenient to me.
Information I acquired easily and quickly could be
given a quick "once-over".
Other matters could be repeated as needed until clear
understanding and learning was accomplished.
- 31 The combined audio-visual approach is of value.
- 32 For the most part a good review of subjects covered
and stimulated some extra reading on my part.
Good visual and audio instruction and served as good re-
view and stimulation for further reading and review.

- No.
33 One can do this at one's leisure.
Also, one can review film strip as desired.
- 34 Able to concentrate quietly and can repeat any film strip. All programs exceptionally well presented.
- 36 It provided a good current review of the subjects attempted. Most of the material while usually familiar to me was useful, and I could replay the strips several times in a short period if the subject required it.
- 37 Could be done at my convenience; could be stopped and considered when needed at any point in the presentation.
- 38 It demands and gets my attention.
3-way learning methods improve my learning.
- 39 Brief, useful information which was pertinent to my practice. I liked the combination visual and auditory methods given.
- 40 1. Brief
2. Well planned
3. To the point
4. Available after work or on off days
5. Good rough of subject matter.
The MIP system is of definite value in continuing medical education. Is the cost of such a system reasonable?
- 41 Quick, attention receiving review of some old and some new needed information.
- 42 The visual aspect tied in with auditory explanations that are available on an "on call basis".
- 44 1. It is able to present a fair amount of material in a short time.
2. Could probably use this to fit into a schedule away from time needed for the practice of medicine.
- 46 1. Available at my own time.
2. Can be reviewed, repeated if necessary.
3. For my own acquisition of knowledge a combination of audio and visual allows faster boning and stays with me longer.
- 47 For the most part I liked the manner in which the subject was organized and presented.
I like the assurance that the presentation was authoritative - come from a good institution.

No.

- 48 Very useful in reviewing and renewing basic information in regard to the subjects covered. It put in small packages subject material to be reviewed.
- 49 Brief and concise.
Left out unimportant material.
Easy to set up.
- 50 I could study at my leisure and they utilized several methods at once - audio, visual, color, simplicity, reinforcement by answering workbook, then taking a test.
- 51 The method of direct teaching was good - the manner of presentation.
The material presented was often not interesting because of its superficial approach or the lack of really demanding teaching.
- 52 Ability when time permitted (often swiped from something else) to sit down, organize thinking, and consider total of a subject for consideration. The combined audio-visual approach with student control is good. Subject matter not too expensive in field - limited to practical aspects of condition in question. Quality audio good; visual usually good; organization quite good.
Ability to repeat - for review or to grab a specific point perhaps forgotten, was good.
- 54 Coverage of one subject fairly thoroughly with visual reinforcement.
Simplicity and attention keeping qualities.
- 55 The material was well chosen; cut to the important elements and well presented. The visual aspect makes this information better retained. I could review if in doubt. Our anaesthetists were impressed with the inhalation lesson. I used the birth control unit many times.
- 56 I found the programs - interesting and most of them well chosen.
The presentations were well presented. Audio and visual were excellent.
Many were more of review but we need that.

No.

- 57 Could do at home -- little time involved -- no traveling.
- 58 Visual part.
- 60 Available.
- 61 Audio-visual presentation
Can use at own convenience
Not too long
Good presentation
- 63 Can be used at my convenience
Fairly up to date
Fairly practical
- 64 I could use the system at my convenience - could repeat records and film strips.
Subject material was selected quite well.
- 66 Generally speaking it presented a lot of factual information in a short time and maintained my interest quite well - (changing records etc., keep me awake).
- 67 -Time to utilize the project could be scheduled at my convenience.
-Material is condensed to most practical content with elimination of extraneous material.
-The combination of audio-visual methods appear to reinforce memorization better than just visual.
- 68 None
- 69 Combined visual and oral media.
- 70 Brevity, stress of most important points; ease of taking time for minute of concentrated review - a busy GP has to compromise in the demand that he know all things about all things; otherwise, he would become a most frenzied and frustrated individual.
- 71 New information in limited amounts (could have used a bit more) presented quite simply and effectively.
Not very time-consuming.
- 72 It most nearly fit the audio and discussion aspects of personal contact.

No.

- 73 It was somewhat a forced program which was good.
In general, presentations were good.
- 74 I was acquainted with some of the materials - but the
improvements and refinements in techniques over the
past 15 years was either new or I had forgotten some
of the material. I especially like the review
characteristics of the things and subjects I use
constantly. I was able to use several MIP lessons
with nurses and at hospital staff meetings - they
were well liked by both groups.
- 77 Clearness and concise presentation.
- 78 Simple, concise, and makes use of both audio and
visual senses.
- 79 Current
Practical
Clarity
Useful now
- 80 Concise programs - can choose time to study them.
Visual as well as oral programs help in understanding.
Very informative and timely.
Once a week programs such as these would be very
useful.
- 81 Combined audio-visual teaching.
- 82 Choice of time to devote; single topic covered.
The requirement to participate, i.e. respond to
questions.
- 83 1. Practical programs
2. Mostly clearly presented
3. Good comprehension
- 84 Audio-visual approach.
- 85 A combination of seeing (visual), hearing (audio and
memory training, answering questions).
Leave a more lasting impression - could be programmed
at my own convenience and repeated.
Information seemed authoritative and well organized.
- 86 Combination of audio and visual education.
Easily utilized.
Can be viewed at any time.

No.

- 88 Well presented with practical information; could be used at convenient time; offered method of follow up study and could be referred to if needed at later date - eliminated need for notes etc.
- 89 It forced me to spend some time each month.
- 90 Very little.
- 91 I like having the slides as well as the lecture.
- 92 No complaints.
- 94 Available, re-viewable, concise and good material (usually).
- 95
1. Consider it at my leisure.
 2. Usually very informative, concise.
 3. Easily reviewed.
 4. Although I did not use it thus, it could be used for patient education.
- 96 This is an excellent educational technique. I liked the fact that the subjects are presented both audibly and visually.
- 97 It was a good review which could be utilized during my free time.
- 99 Ease of use-
Material was of value in general practice.

What were the least useful aspects of the MIP system?
What did you like least about it?

Physicians Comments

No.

- 00 I had no choice of material or subject matter.
- 02 I disliked having to change the film strips and records so often.
- 03 None really - I like it.
- 04 I actually didn't look for any non-useful aspects. The material - audio and visual, and presentation - were superb and to be commended. If a doctor wants further details he knows what he is looking for and can write for more information or look it up. The incentive is there after program is completed, and the subject discussed.
- 06 Too impersonal.
Time inadequate for subjects selected.
Too didactic.
- 07 Can't think of any.
- 09 No comment.
- 10 Paper work in connection with strip questions.
- 13 Graphs
- 15 Hauling machine around.
Storing machine.
Filling out critique.
This booklet.
- 16 Cannot choose what subject I want to view.
Some are very impractical.
Some are too downgraded.
- 17 One of the least useful aspects is also availability which is so good that there is no enforced time or place factor, so that in my case I tended to put off the lessons. The entire impetus or real availability is on the student or practitioner, and being human we tend to procrastinate when the lessons arrive. There should be some degree of compulsion worked into the program to make it advantageous to do the program on time.

- No.
- 19 Time-consuming.
Limited to subject matter.
- 20 As in any programmed information some is going to be not applicable or useful to you.
- 22 No comment
- 23 The non-professional, and rough and crudely done portions of it. The visual was practically worthless and should have been a great source of learning. It was not tailored to me: that is about five per cent was actually useful material. The rest was merely re-hash of what I've been hearing in refresher courses for years.
- 24 The fact that it is impossible to review a portion of the program - if something requires clarification the entire record has to be run through again.
- 26 Turn table.
- 29 Frequent changing of film strips and records. Questionnaires!!
- 30 It was inflexible in that I would have preferred to be able to replay a paragraph or phrase as many times as I wished, without having to go back to the beginning of the record.
- 31 The irregularity in receiving materials.
32. No comment.
- 33 Long wait between projects.
- 34 Presentation of subjects unrelated to my geriatric practice - e.g. Pediatrics and obs.
- 36 Many of the presentations were too superficial and not presented on a level of instruction commensurate with my experience and knowledge. I felt too often that I was "being talked down to". The film strip method is difficult to adapt to demonstration which in certain instances is non-useful.
- 37 In tranquilizer lecture, would have been better for me if brand names were used in discussing various drugs. GYN lecture more suited for medical students.

No.

- 38 Time-consuming.
- 39 I didn't care for the audio-visual machine. You can't stop the machine at any point or pick up something you missed without going back to the start of a record - this became a waste of time for me. I would like to have had a brief written summary to follow and keep as a permanent record without having to go back to the records and photos to pick out any small point.
- 40
1. Not specific enough on some points.
 2. Too many questions about how I like the program. Seems like you were looking for testimonials.
- 41 Although consuming moderate time it did not seem that things could be presented in much depth - therefore the most help was in review of items already understood but half forgotten yet recalled with review; and new information could not as well be presented - to do so meaningfully would have required background and applications too time-consuming for one program and too boring for those familiar with it.
- 42 Relatively bulky apparatus, along with the necessity almost to take things in order from start to finish.
- 44 Not long enough.
- 46
1. Many aspects may be unanswered or unclear.
 2. The audio was not as descriptive or complete as necessary for thorough understanding.
 3. Visual unclear or not entirely appropos to audio.
 4. Much of first few programs was well known.
- 47 Occasionally the program was unrealistic. For example, treatment of fungus infections of the toenails for 6-12 month with griseofulvin at a cost of \$15/mo.. My patients won't buy that kind of treatment, at least none have yet.
- 48 None.
- 49 Screen too skimpy (small) to share material with a group. A written lecture should accompany each strip for references.
Headlines easy to pick out for reference of material.

No.

- 50 The only troublesome aspect is the lack of opportunity to ask questions on the spot such as one would have in a lecture. By and large there were no real bad features.
- 51 If it had all been very instructive the time spent would have been of relatively high value. Some of the information was so basic as to be not useful.
- 52 Feeling of being possessed by a machine!! Not really, but more so than a movie, discussion group approach, etc. This not serious however as "1984" in only 15 years away! Actually the machine concept used was good, and for once a new gadget did not require repairs! Basically no real important aspects I did not like.
- 54 Visual picture - small.
- 55 I liked least the paper work - I am fully aware that this goes along with such a program and would be minimized in future educational filmstrips.
- 56 At times it was hard to find the time during office hours to follow the program through without some interruptions -
But as for the MIP system as given, I find no fault, except I would have liked to have had one on some of the aspects of coronary care unit and procedures.
- 57 Coverage of subject, little too brief.
- 58 Much information too general.
- 60 Limited scope covered by program.
- 61 Poor subject material.
Very little new or practical material.
- 63 Tended to be too elementary and slow moving.
Pronunciation very poor.
Inability to replay part of record without playing whole record.
- 64 Carting the machine around and signing for it as government property.
- 66 At times the color or photograph was not really good - I thought the charts and drawings were quite excellent.

No.

- 67 Superficial treatment of some subjects in an attempt to cover too much ground. Also much of the material was very elementary and should have been well known by most practicing physicians.
- 68 None.
- 69 No feedback-
Large equipment space required.
- 70 Shortness of programs made sufficient detail difficult in considering various subjects as in "Hypertension". Subjects not in a related sequence of topics (I realize the experimental nature of the project.)
- 71 Much of the material was not new to me. I was rather annoyed by mispronounced words in almost all of the records.
- 72 It fell during an unusually active period of my life. I am always active, to my wife's pride (and disgust) but this past six months have been like none other of my life.
- 73 Most of the information was a review and sometimes too general but realize a short time element involved.
- 74 Sometimes difficult to find a quiet half hour in which to sit down and be able to concentrate fully. The courses and subject material were excellent.
- 77 Much of material was too elementary.
- 78 It took time (80%) on things I already knew to get 20% information I could use. Some of the information was not appropriate to my practice.
- 79
1. Trying to find a quiet moment to sit and listen.
 2. Machine did not always work well.
 3. Slides and spoken words did not always match up.
- 80 I am afraid I have no objection to these programs - they have been most useful and informative.
Not enough programs per month.
- 81 Too much time spent turning records and inserting film strips. Difficult to repeat short areas of information.

No.

- 81 . Too much time spent turning records and inserting film strips. Difficult to repeat short areas of information.
- 82 Inability to choose topic; coverage of material already known.
- 83 1. Sections of some programs were too elementary.
2. Necessary interruptions during viewing some programs broke the chain of thought, i.e., the whole program had to be viewed at one sitting.
- 84 Some of the subject matter too fundamental and not diagnostic or treatment oriented but this was rare.
- 85 Couldn't get "instant playback" for something one didn't quite follow. Means replaying entire record again - I felt a tape would offer better control of audio. Sometimes left wondering if all of the ground was covered in so short a program.
- 86 I liked the program - all phases were of interest to me.
- 88 Could have outdated information and could present already known material - no problem if material were frequent enough - 1/month.
- 89 Too much time spent for the amount of new material presented - a good review.
- 90 Time consuming and really provided very little information that I was not already familiar with. If the course had been designed to add knowledge into what we already knew the course would have been excellent - these courses seemed to give only basic information.
- 91 I really enjoyed all of it!!
- 92 None written.
- 94 Can't ask it questions.
- 95 1. Probably expensive machine.
2. These programs were usually too limited for the subject.
3. Authority of the program not identified.
- 96 I don't have any objections to program.

No.

- 97 Little new material presented.
Hard to go back to hear something over.
- 99 Use of "brand"names together with generic names.
Example, match tranquilizers. I never was able to
learn names of all drugs mentioned.

What specific recommendations would you suggest for improving the Medical Information Project audio visual system?

Physicians Comments

No.

- 00 If programs could be prepared and catalogued so that I could obtain information most useful and interesting to me it would be a great improvement.
- 02 Combining the film and sound such as a movie projector (cassette etc.) but keeping the feature of being able to stop the film and sound at any point. Also - if the material could be put on a cassette for use while driving (without the visual portion) "double duty" could be made of this system.
- 03 It could be a little more specific about clinical applications in some cases.
A different device utilizing a filmstrip and L-P record so you wouldn't have to change records and strips so often.
I'm sure that if I had to buy such a device I would think 2-3x about the cost in relation to the value of the information received.
- 04 More detail in some fields - as blood gases and treatment in the program inhalation therapy.
Would not want any change in the presentation and audio-visual and material used - only more detail in some subjects.
When these were presented to hospital staff - interns and nurses - excellent response was obtained.
- 06 The visual portion could be just as well presented by pictures on cards or in pamphlets.
The audio portion would be more acceptable in easy to read pamphlet form.
- 07 None.
- 09 None.
- 10 Longer presentation in terms of time and depth with no required responses and testings to be returned.
- 13 Condense it and put more practical material in it.
- 15 No comment.

No.

- 16 Make subjects more difficult - or deeper.
Give choice of material desired - or
Send questionnaire in advance and pick subject most
desired by most participants.
- 17 1. Build in some incentive or reward feature that would
tend to compel to a non-offensive degree the prac-
titioner to study the lesson soon after it arrives.
- 19 1. Shorter elective programs;
2. Increased range, variety, choice of subject matter.
- 20 One thing that I could think of would be, programs that
would amplify a given subject if you were more inter-
ested in it. This could be done in tape programs. I
believe they were very good. Note comments in eleven.
- 22 I feel the project is good and adequate as is.
- 23 Have it done 100% by good professional-medical per-
sonnel!!! Study us a little more. You fed me a lot of
stuff but never did you ask me what I knew and what I
wanted to know. I would not buy this program nor would
I whole-heartedly recommend it to my colleagues. It
behooves you to find out why I wouldn't. This of course
you should have done before you started the course: I'm
not going to buy unless you have something of interest
for me and I'm darned hard to please after twenty five
years of exposure. The machine is miserable with its
built-in stop-start backup, and hold pictures. My mind
isn't a machine geared to click-clak.
- 24 1. Some way of backing up the record or getting to a
particular part without having to repeat the whole
thing.
2. Have a physician narrate or give the lecture (pre-
sent the material). There were rather numerous
mis-pronunciations which I do not think a physician
would have made.
3. Perhaps the clarity of the photography could be a
little improved.
4. I found it very difficult to study the Graphs and
listen to the Speaker at the same time.
- 26 Suggest tape audio for better review of this aspect -
or redesign turn table.

No.

- 29 More information on most of the subjects presented - If possible more on each record and each film strip. Specifics in diagnosis and procedures in therapy are important to us who have been out of school for many years and even if we remembered now all that we were taught then, we would still be extremely deficient in the requirements of present day medical practice. Any medical information, be it new or a review of the old with specific and reliable facts is gratefully (and needfully) received by me.
- 30 An adequate supply of programs should be available, possibly on a rental basis, and with an option to purchase if desired by the user. Provision should be made to permit re-playing of any small portion of any program. The user should be able to lease or to buy the audio-visual machines. This could be a useful and worth-while medium for maintaining competence in practicing physicians.
- 31 I was frustrated to the point of withdrawing from the program by the disorganization in getting the program going and the irregular supplying of the material. To me, material of this type should be scheduled and released in a predicted time interval. I began to think the program had been discontinued at different times due to the long intervals between programs. The lack of organization is typical of governmental participation in medicine in all forms.
- 32 Access to full length T.V. medical programs on an individual pay basis (I realize that this would have to be subsidized).
Comment re Journals: AMA to which we pay substantial dues. Has much too many ads and these dispersed between the occasional practical good paper. Please advise if it's a fair question, what AMA really does with its tremendous income from all the ads it has.
From my observations and experience, the GP of today is the one who needs the most help in trying to keep abreast with accepted and best medical practice. I think a T.V. or film program with the most common ailments should be available (or for hospital showings)... Topics such as Hypertension; Congestive Heart Failure; Allergies in general; Bronchial and Cardiac Asthma; and nervous ailments, especially major neurosis vs. minor psychosis, etc. In surgical field: from T and A's to hemorrhoids - also - Inguinal Hernias; Umbilical Hernias and common surgical procedures. The newer techniques, etc. should

No.

- 32 cont. be covered so that the G.P. can have some idea as to which specialists (consultant) is doing the best for his patient on the specific referral.
- 33 The visual area can be improved especially when topics appear over light background so it is difficult to read. The project was basically good. Now that it will be over it would be useful to have a projector to review filmstrips unless these too have to be returned to you.
I have some of my projects at:
Medical assistants monthly meetings
Hospital - for IPPB (inhalation therapy dept.)
- for newborn care - and Rh babies.
These programs could be used by hospital in educating or orienting new nursing staff.
- 34 Presentation of programs that relate to each physician's practice, as no GP works in all fields.
- 36 1. Better selection of subjects.
- 37 Confine the project to practical applications to improve the standard of general practice.
- 38 I honestly can't think of any better system.
- 39 I believe a regular filmstrip with record or tape would be better so you can go back and forth. It would also be much less cumbersome. I used these in giving courses to interns, but moving the machine each time proved to be a handicap. I would also have a very brief printed outline of the material with each subject. Otherwise it was an excellent course.
- 40 1. Need repair instructions kit. The record and the slides frequently do not jive. Trips to the repair shop takes two to three weeks in Denver.
- 41 Except for review, where it is helpful in stimulating recall of a wider background in a shorter time, and where it can hold attention despite being repetition of known knowledge, it would need to be presented in greater detail and depth to be a very sound background for new knowledge and programmed instruction may be more efficient here.
- 42 I don't know that I have any. IT is an interesting media; probably more amenable to group instruction than to individual instruction to very many individuals.

No.

- 44 1. Director efforts toward the practical use of new information.
- 46 1. If possible continue to improve least useful aspects listed.
2. Avoid the commonplace or obviously well known and avoid the very unusual or complicated subjects which might be of interest to only a few specialists.
3. Additional programs on dermatology, gyn - cardio vascular - causes of eczema, etc. would be of general interest and valuable to all.
(The program on hematology of new born was excellent.)
4. I felt the Medical Information Project has been well worked out and programs generally were excellent. I can note no further suggestion for improvement.
- 47 I like the system.
For the most part it moves too fast for good comprehension and retention with the equipment operating in the standard manner. This, of course, is overcome by stopping the filmstrip manually until its contents had been digested.
I find summaries quite helpful. Perhaps a summary would be helpful for other students.
Having the program available for review, is a big advantage.
Occasionally I have wondered if the programmer has been too much research oriented. I'm sure the programs would be presented best by the man who has had practical experience.
- 48 None.
- 49 Enlarge Screen.
Adequate Reference Outline.
More emphasis on principles of treatment.
If this is set up in hospital library it could be very helpful.
- 50 I don't believe it could be improved much. I would like to see it become a regular activity of yours and other institutions. Perhaps it could be made available on a free enterprise basis. I would be glad to pay a reasonable fee for the program.
- 51 To teach in greater quality of material or information. Somehow I left each study with the idea that we had begun a lesson and only gotten to the freshman year of the course.

No.

- 52 Disregarding the question of cost (and this seldom seems to be of concern these days) a larger sized screen - to enable small group participation.
A projection type onto screen - still with some audio correlation and "tests" available for each of group.
I'm thinking mostly about use in hospital staff groups, study groups, nursing groups, etc.
I'm certain the educational aspects of this approach are sneaky, sly and get psychologically effective.
- 54 Better visual method.
- 55 I felt that the project was well presented. I would subscribe to such a program were it available in this form.
- 56 As previously stated in the preceding paragraph.
And in giving the presentation more specific drug therapy - dosage - etc. for specific conditions that arise. Less use of the generic drug terms or give both names of drugs.
- 57 More length and detail to program.
- 58 Smaller topics and discuss in detail more frequent use of trade name drugs.
Concentration on fields where the visual aspects are important such as skin lesions tumor, etc.
Picture of machines (respirator, etc.) are of little or no value while the difference in principle would give me a better understanding.
- 60 To be most practical there should be a completed course of programs - which could be used like a lending library - and also a method of having a dialog between practitioner and source of knowledge.
- 61 Presenting material that is new, controversial and/or practical.
- 63 Punctuality-
Method of selecting parts of records.
Faster moving.
Fewer slides used as window dressing, i.e. bottle of wine sitting on table.
- 64 Have no helpful suggestions.
- 66 Improvement in photography or reproduction thereof is about my only criticism.

No.

- 67 Treatment in greater depth of some subjects and not attempt to cover too wide a field in one program. A more sophisticated approach with emphasis on information presented a higher level of professional skill than was done in some of the programs. Technical quality of the program was outstanding and little could be done to improve this. Most programs should be reviewed at least once to obtain maximum retention of material presented.
- 73 More specific information; more stress on methods of treatment.
- 74 Have a sheet at the end of the program - looseleaf type that would fit into a pocket notebook with short summary of program. Some of the photography was not as clear as it could be (poor contrast on the film). Regular spacing of sending out the programs would have been appreciated; at times some came two weeks apart - others over a month. I sincerely wish to thank you for being asked to participate in this wonderful educational program. I'm sorry that there wasn't a course each 2 weeks during the year-perhaps it would be wise to have it 9 months - have during the summer months.
- 77
1. More depth to discussions.
 2. Some treatments.
 3. Longer discussions.
- 78 None.
- 79
1. Improve items on #12.
 2. Reduce mechanics if possible.
 3. Make viewer more dependable.
- 80 More programs per month - one per week. Being in general practice I would like to see a continued variety of programs. We are out in country where other type programs are not available. Including education T.V. programs. So our source of media is monthly magazines - tapes and this visual program. May it become part of the life of the general practitioner. I have enjoyed very much participating in this very outstanding program.
- 81 Use film strips of greater length. Use tapes instead of records. Improve photography.

No.

- 82 Doctor selects programs he wished to receive.
More detailed quiz on content.
Improved AV system
e.g. 12" recording or roll film strip.
Maintain library of programs.
Rent-lease or sell equipment.
- 83 1. Offering a general practice audiovisual course with a list of diverse program subjects allowing the participant to select from these subjects the programs he felt most interested and/or need in.
2. Presenting the entire program on one record (or automatic record changer) and one tape avoiding interruption of program.
3. Presenting as last film of one chart, pictorial and/or word, demonstrating the salient points of the entire program.
- 84 Broadening its subject matter, i.e. course on Ecg's, etc.
- 85 1. Record or tape which could move forward or back.
2. An index of subjects to be presented.
3. You asked us some good questions but we sent them back - it would be very helpful to have many more questions at the end of the lecture - this would reinforce the memorizing of material much better.
4. Source material for each subject should be sent as a reference - also helps us in questioning the author.
5. If the next program could be sent on receipt of the old one. This would help one to cover the entire program at one's own speed, e.g. twice weekly or twice monthly.
6. If costs are reasonable I predict success for MIP.
- 86 I really can't think of any recommendations for improving the MIP system - I enjoyed the subject material - it was educational and diversified enough to be quite helpful in my practice.
- 88 Technically none - continued care to present useful information.
- 89 1. The machine itself requires too much maintenance - my particular machine required servicing twice (one time for nearly 3 months.)
2. The machine should be able to handle all four strips and record without requiring changing.
3. The subject material was probably not sophisticated enough - a little too basic.

No.

- 90 Stop providing basic information and deal with more difficult aspects of subjects.
- 91 Make available an inexpensive filmstrip projector, as I suspect the present machine would be quite expensive.
- 92 None written.
- 94 More direct review of instinct of physician. Somewhat less pedantic approach to the material - most doctors aren't too slow to learn (I hope).
Better color to the slides would have helped - some of them were difficult to make out.
- 95
1. Less frequent changing the records and the strips. Make a larger record and use a longer film, such as a flexible film strip.
 2. I would like a quick means of finding a specific part of the program without going through the whole record - like the old reel tape recorder, fast, forward and rewind; or a short return like on a dictation machine.
 3. Identify source of information and/or give various viewpoints.
- I have enjoyed participating. I have in mind "talking books" available to more people than "legally" blind-on records or on tape. Radio stations should present LOTS more reading of books and stories.
Medically-radio and TV medical programs are good in this favored area.
- 96 They could be made longer and more in detailed. The program has been instructive and beneficial, and thoroughly enjoyed. I am very grateful for the course.
- 97 I feel that TV tapes offer the best form of teaching available at this time. These can be used at home for a modest investment and during one's free time. Audio tapes in the car are very useful.
- 99 No recommendation - all in all enjoyed program, and think it would be of value to about any physician.

SELECTED COMMENTS

PROGRAM 1: CARDIOPULMONARY RESUSCITATIONPositive

For my convenience it is a good system. I can utilize this method at my convenience, especially in the early morning when I am not tired and in a more receptive state to learn. Also I can go back and review as desired.

I feel I have definitely been benefited by it. This type of emergency occurs more than once a year in a busy general practice. I expect to face the next episode with more confidence than otherwise might be the case, since I feel that my information is authoritative and current.

Excellent teaching vehicle due to clarity, brevity and organization.

Cardiopulmonary resuscitation was well presented. Whoever put this package together did an excellent job of editing out a lot of excess material which would have weakened the impact of the presentation.

I was favorably impressed with the format, the information dispensed and the mechanics of the presentation.

Much of the information I knew. Some of the vital points of cardiopulmonary resuscitation I have not known. This program has organized my knowledge of the subject. The pictures are clear in mind as on the film--shouldn't be hard to illuminate in an emergency situation. Also--good fun!

This program is excellent. It taught some important information which I need in my practice. It corrected some erroneous impressions I had regarding CPR.

Have been thinking of keeping a small hand respirator in my house-call bag. I will now get one!

Rapid, clear, unredundant presentation of important material. Available at my convenience, and with ease of application.

I personally felt a need for this program. I felt it was logically and concisely presented, well illustrated and did not leave a lot of unanswered questions. There was only a minimum of extraneous material.

Well covered subject of a very important subject. Basic principles well pointed out. Would be an excellent program to present to all medical personnel faced with this problem.

SELECTED COMMENTS

PROGRAM 1: CARDIOPULMONARY RESUSCITATIONNegative

Felt the visual product could have been better with more emphasis on techniques--i.e., positioning, jaw control, etc. and not so many pictures of apparatus.

I don't believe it would be as good as a medical film because the continuity and flow of information is interrupted by pauses for change of slides.

Good program for first aid class, nurses training, ambulance drivers, etc. Necessary information for physicians could have been put on one filmstrip and one side of record. Program much too simple and basic for physician level.

At level of Boy Scout training. Excellent for them. Good presentation and valuable information. In 20 years I recall the need for this only once.

It took too long to present a small amount of information--otherwise reasonably well presented.

Material presented at a very elementary level, actually at verbal level of laymen unversed in medical terms. Program would be suitable for instruction of anyone interested in basic first aid techniques prior to hospitalization. In this sense, I believe this program to be of a sub-professional level of technical information.

Program was excellent, but the topic in my particular case was one I already had read about, seen a film about, and attended a workshop about, so it was nothing new.

Program was elementary and I have almost constant exposure in emergency room of hospital. However, information was clear and understandable.

Over-worked subject. Inability to easily refer back is a handicap.

The presentation was excellent, but for a practicing doctor I feel it was too basic. Additional information such as monitors, IV support, etc. would add greatly to this program.

I was well aware of all the information, through presenting the movie

film on same procedures to first aid groups, but this audio covered it equally well, but not as well visually. It was excellent.

PROGRAM 2: VAGINITIS

Positive

This program was useful--I had ideas reinforced and picked up new aids. It gives a systematic approach to the subject which often times is quite aggravating to the physician as well as the patient. I think the program is excellent because I can put it to use, probably today, and my patients will be getting better care.

Very practical. I see cases of vaginitis every day. We make a hanging drop and can usually identify trichomonas and often monilias. If monilias is suspected and not found, we do a saline culture at room temperature and recheck at 24 and 48 hours. However, we have not been diagnosing hemophilus, so this program is of value. We plan to do gram slides when necessary.

I like it because, as a refresher, it showed me what I was doing in treatment was correct most of the time; but also that since I last had any formal instruction, certain changes in therapy are now recommended based on a classification of vaginitis to include an additional type (Hemophilus).

I felt that it was well presented and helpful and appreciated the use of generic and trade names which are often lacking but very helpful to an isolated GP.

Excellent program--very useful in general practice. Had a couple of new points, e.g., in mixed information to test husband, also with tetraeyeline.

I received this program with marked enthusiasm. The information presented was a well organized approach to a subject which until now had never been presented as an overall subject. The relationships of the various forms of vaginitis was never as clearly presented to me before as in this program. I am sure I can do a better job of diagnosis and treatment as a result of this presentation.

Good presentation--brings out the important facts without extraneous trivia.

This program presented one of the basic problems in general practice in a clear and concise manner. Much of the information was already known,

but it made thinking clearer and more organized.

Excellent! It was well organized, relatively brief review of the subject. I am liable to become enthusiastically in favor of this audio visual plus writing plus examination technique of teaching.

Negative

Presented a review of what I consider very basic knowledge--I feel my intelligence was insulted a bit.

The information was generally well known information--very little new was learned and only a small aspect was considered likely to be of any future value.

A good program. Not very original or new information, but a very good review. I, for one, am interested in a new and challenging program.

Good presentation, but material again rather simple and basic. I can truthfully say that I gained no information that I don't already know.

Good program and well presented; however, the information was rather elementary and already possessed, I would suspect, by most good G.P's.

Covers the subject well audibly and visually. However, this is a subject usually quite familiar to anyone doing general practice or gynecology. A good review although not new or different.

Information clearly and accurately given; some gaps in knowledge of sources, epidemiology, psychology and psychiatric and other problems related to these diseases could be dealt with profit.

The subject matter was fairly well known to me, but was a good review and there were one or two new ideas derived. The presentation was very good with the possible exception of several mispronunciations by the narrator which makes me feel he must be a professional announcer but not a physician.

Again audio excellent, but the visual--ugh! Poor photographs, only slight resemblance to true clinical picture. Material in visual redundant, repetitive, poorly thought out (or none?). Obviously done by a non-medical technologist, thus of no interest to me. After 20 years we learned to shun this type of horse manure. It taught me nothing! The visual drags and if you are ever going to put this method into general use, you must improve the visual. You won't have many takers with the present.

SELECTED COMMENTS

PROGRAM 3: T. RUBRUMPositive

This program, being more detailed than the first two, presented a useful subject in an interesting manner. After running it through the projector twice I felt well-informed on the subject and compliment you on your effort.

This program was well chosen because of the neglect clinicians have for the condition. Perhaps I question its practicality because of my own failure to get patients to take long term therapy for a nuisance problem. Since it was well presented, I will be stimulated to attack the problem anew and see if I can't persuade some patients to get rid of these ugly nails and scaly lesions.

Forced me to reconsider, re-evaluate and refresh myself on subject which I have too often neglected, ignored or summarily referred when perhaps I could have taken care of the situation, saving the patient the necessity of fairly long trip for consultation with a dermatologist.

Clinical differentiation will still be difficult in my hands, especially borderline cases. However, the KOH preparations should be a help in differential diagnosis.

This program was well presented and provided useful information, some of which was new or was a clarification of material with which I was familiar only in rather hazy terms.

I like this program. A very well discussed subject that GP's are concerned with. Well presented. Important information that I may have known but had forgotten about.

The content was very good and presentation was very good. This subject is too frequently skipped over lightly and missed by many of us.

Excellent presentation. As a GP I found this presentation extremely useful in day to day facts.

Very good. It took one aspect of dermatitis and covered it as thoroughly as necessary for my needs in general practice.

Perhaps skin is of secondary interest, but after viewing the program, I found it excellent and with considerable information.

Excellent program; well presented; easily understood.

Negative

Too much time on too little information.

The program was too long and time-consuming for a topic of such minimal importance. All the information was known prior to this program and if not, it would not have been so bad.

A dull subject--well presented. A rather poor attention-getter. Comparable to classifying the cracks in a sidewalk.

Overall quality was good, but visuals left something to be desired in terms of clarity and sharpness in some skin slides.

The program was not technically as good as prior programs--chiefly because of poor illustrations. Also feel verbal continuity was confusing.

This program was well done, but due to the very small percentage of my practice to which it is applicable it was not worth the time.

Required about 45 minutes to set it up. Could read in illustrated form the same information in about 10 minutes. The voice is clear but too mechanical--tends to cause my concentration to wander.

Very helpful review of this portion of dermatology. My only criticism is the poor quality of visual reproduction.

An interesting program. Some of the photography of the milder cases did not come through well. It would be helpful if the machine could be stopped and backed up a little rather than having to start at the first of the record or slide--interruptions, e.g. phone calls, make it necessary to rerun often.

The photography is poor, especially for dermatological conditions. Subject matter is good and logically presented. Continuity is somewhat amiss, and I maintain that a small movie projector with accompanying sound film would be superior and probably easier to mail.

Since so many other related skin diseases are mentioned--more treatment of these other diseases should casually be mentioned also.

SELECTED COMMENTS

PROGRAM 4: FAMILY PLANNINGPositive

This represents a timely topic. The information presented will greatly help in explanations to patients. The quality of my prescribing will improve.

Though I was familiar with most of the information in this program it clarified or corrected my knowledge on a few points (e.g., relative frequency of uterine perforation with insertion of different types of IUD's). It was well-presented. I would like to have had more information included as to choice of relatively higher or lower progesterone-vs.-estrogen content in relation to side effects of oral agents.

A good practical review of statistics and methods of contraception. It was concise and practical, especially in relation to hazards involved in some methods and adverse effects so important in the selection of these for some patients.

This program is worthwhile because it emphasizes the importance of the problem to the couple hoping to practice family planning and the more detailed role of the family physician in helping the couple with their plan. This also furnished me with some information which I accept as authoritative as opposed to what a detailman may say. We had a 29-year old patient on pills suffer a CVA.

A timely subject as this subject occupies approximately 1/4 of my practice. It reassured me on various methods of control, effectiveness, side effects, harmlessness, etc.

I thought this program was a good review of all the modalities of contraception. It presented some new material to me on IUDs. In general, it was informative time well spent.

Clear, short, concise explanation. Good illustrations; slides and voice easy to correlate and follow. Excellent material in comparison of methods in short, easy to follow lesson.

I thought this program brought together several methods of birth control and evaluated them briefly and yet adequately.

Again very practical. Uses all modalities of learning--graphs, demonstrations, and is frank.

Good topic. One that bears regular review. Material seemed up to date. Illustrations easy to follow.

Negative

The information was well presented. Most of it was already known and subsequently lacked challenge.

Information of almost common knowledge among professional and lay people.

Repetition of too much well known facts.

Generally good. Information generally quite well known--and experience in the subject led me to some disagreement between myself and the subject content presented.

It was a complete waste of time--all the information was already known. Had I seen this for the first time on the subject I believe I would have rated it "very good."

Interesting, but already well known by most physicians.

Program good as to informational content. The presentation was too rapid, and for me, difficult to follow and digest all of the material as presented because of this rapid presentation.

Again, it contains information that is common knowledge to most physicians and, therefore, not very informative or interesting.

The pace of the program seemed to drag--perhaps this has to do with the need to change strips and records.

The information was quite well known to me. The graphs in the audio-visual presentation were not very useful as it was not possible to study them without losing out on what the speaker was presenting. Program was not very useful to me.

Not too valuable because it covers information in which I was quite well-versed.

It contains information that is common knowledge to most physicians and therefore not very informative or interesting.

The type of contraceptive most commonly used now is "The Pill." An entire program should be used just on that subject. The rhythm, condom,

foam, jelly and diaphragm are well-known methods and too much time was spent on that subject.

I feel that this program contained excessive quantitative figures for practical use.

PROGRAM 5: ROUTINE GYNECOLOGICAL EXAMINATION

Positive

Excellent presentation--difficult to improve. I have no criticism. Excellent program as academic or as a review.

It gave me new information regarding exams, and pleased me by confirming some of my present procedures.

I thought this program in general was an excellent review of the things to be considered in a gynecological exam. The material was well organized and the illustrations and photos were generally good with the exception of a few of the color slides.

I think it is an excellent program--a good review for breast and pelvic exam--early detection of cancer in either area can be of considerable help to patient.

The pelvic exam as shown here is an essential part of a physical. The breast exam technique was clearly illustrated. Both of these exams were well demonstrated in this program.

Very good refresher-review, and good informative teaching aid to office sides.

The program is good. It took you from the simple facts to a more detailed area and also added some things that one does not usually think of.

This is a fine program. It reinforces and renews information for a complete gyn. exam. It also presents some information I heretofore had not used, but will incorporate in my examinations.

So good I'm having my office assistants see it so as to better understand (and answer patient questions voiced to them) the purposes of each step of the exam.

Program quite helpful. It proved that my exam is incomplete. I have not been examining the pendant breast. I rarely aspirate cysts. I have not been particularly concerned with outlet tone and sexual function.

Gave an excellent review of breast exam, and also reminds us to continually include pelvic exams in our physical exams and to do routine pap smears at least once a year.

I felt the program was very informative and interesting as the female exam constitutes about 60% of my practice.

Considering time involved, I would say this is very profitable.

Negative

Good for medical school. Waste of time for practicing physicians who have done hundreds of pelvic exams.

Subject well presented. Material is well-known; not particularly useful to me.

Well-presented and very clear, but information too commonly known and used in daily practice to be that valuable.

I think your time and effort can be better expended on more useful topics.

Good program, but not geared for us GPs. Again, for the beginning practitioner or intern and resident. All this material I was very well acquainted with and aware of.

Poorest of programs presented so far because it serves no need. Such information must already be thoroughly mastered to be a competent physician.

This would be suitable for medical students.

Important subject, but it did not present new information of use to me.

I felt it was somewhat disjointed and did not cover the subject completely. Maybe it should have been longer.

Nothing new or of any value in everyday individual practice.

This would be OK for a 3rd year medical student, but most of it is old hat to those of us out in practice.

I did not feel the photography was very clear. Also felt the subject was not gone into with very much detail. It was OK as a review, but nothing new was developed.

Good basic review of procedures that were taught in medical school. Subject is important and I suppose review of it is in order, but I think the time could have been used for more valuable subjects.

Not new--material was learned in medical school and practiced since.

Some of the slides are of very poor quality, photographically, and, therefore, poor for diagnosing pathology.

PROGRAM 6: ASSESSMENT OF MATURITY
AND ENVIRONMENT OF THE NEWBORN

Positive

The 3 classifications of small infants was a revelation to me. The facts were stated rapidly and I will have to review the program to fully assimilate the content. Excellent subject matter!

As stated, the information here was new (largely) as I am ill-informed in neonatal care. Excellent program--well presented. Very informative for me--though perhaps very basic to others.

I was greatly impressed. Much material was presented. Several areas of emphasis were given to aid greatly in patient evaluation. This is easily the best presentation to date! It gives more information and presents it well.

Outstanding program in a very important and forgotten unknown field. In general practice we are confronted with newborn problems constantly--this is a great aid!

One of the better programs. As a GP in a small town, I do not see a great many prematures. This is a good review of information and therefore useful.

Exceptionally good in providing me with new information. I have felt a need to be up-dated, but never seemed to find the time for textbook study. This is just what I have been needing!

In my practice, I must evaluate new-borns 50-60 times yearly. The program presented new and very useful information to me, in a manner which should make it easy to remember.

This program was good and timely because it dealt with a problem which is frequently faced but for which we are given little information from other sources.

I thought this program considerably above the level of some previous ones in regard to content. Most of the material was new to me and of considerable value in my practice.

As a GP doing OB, I have to take care of newborn, be it premature, dysmature or undergrown. This program reviewed very well these problems and "refreshed" my experience.

An excellent program because it is audio, visual, requires participation mentally and actively and tests to evaluate results.

Negative

Too brief. What was presented was clear and concise.

Program was well presented. However, for a GP the usefulness of the information may perhaps be forgotten as he is now gradually seeing less and less of deliveries and thus less premature-dysmature infants; but it gives us a good review.

Tried to cover too many details in too short of a program.

Very good, but since I don't treat such cases, I don't have much use for it other than as general knowledge of medicine. Am in group practice and the pediatricians take care of such cases.

I found it hard to concentrate and separate the classifications of the three.

Non-pertinent since obstetrical and newborn post-hospital care is minimal in my practice.

Program developed first part too rapidly with no time to digest material, esp. statistics.

To be of more benefit in this area would be to give some specifics in how other specialists handled feeding and care of infant. The diagnosis and classification was good, but the most important is the feeding and environmental aspects of care.

The photography was quite good. The audio portion was not long enough and did not go into sufficient detail on the subject. Only the high points were hit.

New material, well-presented--wished for more detail and additional material.

I think this program was well-presented and would be of great value to pediatricians and obstetricians. I do not have occasion to use the material presented so was not initially interested in the topic.

All new information. Sometimes, not enough time to absorb information from charts.

PROGRAM 7: SKIN TUMORS

Positive

Excellent program of vital importance to any physician. I appreciated the thought to treat the "whole person" in dealing with skin malignancies.

Like program--good practical problems we meet each day. Very worthy program.

Excellent choice of subject matter; well presented in almost ideal conditions. Very applicable in private practice.

The information keeps the physician posted on new developments and certain reviews for us the importance of this phase of medicine.

I think it is of great practical value, easy to understand and reasonably through with no excess "chaff", no fillers.

Some new information for me and an excellent review of the remainder. Simply and precisely presented, factual and not speculative, but easily holding the viewer's attention.

It was a reminder to the G.P. of the needs and importance of biopsy of skin lesions--suspected of being malignant. Good audio; good photos.

A good program--helped me to classify and diagnose better. The basal cell and squamous cell differentiation was particularly clear in visual and lucid in audio.

This is a well planned and presented program. The entire program is a valuable one in general practice. The photography and presentation are excellent.

I thought this was an excellent review of the various skin tumors with an additional review of the latest thinking on treatment.

This program covered well the "high points", the important aspects, of office-encountered skin lesions--stressing important points well.

A useful program well presented visually and orally. Very "meaty", no wasted words. Required more time to complete than others because of the amount of material.

This was a good program because it adequately met a need.

Negative

Attempted to cover too much material in time allotted which allowed only a superficial treatment of subject material. Possibly an in-depth discussion of limited topics might be of more lasting value.

Good quality program. Not a new subject. Most GP's should know this material well.

Good quality color photography with good sound except for pronunciation which in some words was different than I had known.

More emphasis on the early appearance of melanomas and differentiation of benign nevi would have been helpful. I am sure many of these malignant lesions are perhaps unnecessarily and wrongly punch biopsied.

The topic was excellent. More detail could have been used for methods and techniques of biopsy.

For a student--I would assume this a good program. For a GP, nothing new and time-consuming information.

Format was good with comparison teaching put forth and satisfactorily described. Needed some additional basic surgical approach to these lesions if could be included.

For skin lesions there are obvious reasons why a photographic presentation is superior. A greater variety or more examples of the skin lesions would have been helpful.

I was bothered by apparent lack of supervision in word pronunciation. Program organization was good. Visual program is only effective teaching method to demonstrate skin lesions. Program format could extend to differential diagnosis.

A good program for one beginning practice. However, with experience, by actually dealing with these conditions, one gets reassurance that he is doing as could be expected.

Information cleared up several points for me. Time-consuming for information obtained.

Program was good. Narrator had problem with words "keratosis" and "seborrheic."

PROGRAM 8: OB EMERGENCIES

Positive

Although I do not do deliveries, there is always more to learn and you never can tell when an emergency delivery may come up!

Practical topic. Largely review. Some excellent points.

Excellent program. Reviewed the obstetrical problems that face us frequently and need to be handled correctly. A refresher course in problems we should all be acquainted with and know how to handle.

This was an excellent review. It reviews the more common delivery problems in obstetrics.

Doing obstetrical work in a rural area, this program is excellent. It is also a much needed review, as I have not had a good review at any of the courses since I left medical school 15 years ago.

Well-organized, well-edited, well presented.

Excellent program. Very important information presented in an interesting and easily understood manner.

Program was very well organized, dealt with the high points, etc., especially when you consider some of the variable circumstances in obstetrics.

Excellent refresher for practical diagnosis and treatment.

A good program dealing with a subject that needs clear thinking on part of physician when these situations arise.

The material was excellent for use by any GP doing obstetrics and was a good review of the material.

Excellent--clear and much excellent information I did not know before. Especially liked the drawings.

It clarified my thinking on these problems, so that I should be able to approach similar situations with more confidence.

This program was so full of concentrated, important guidelines for the management of obstetrical emergencies that digestions and assimilation was difficult without repeated "re-runs"!!

Negative

It was an excellent review of a subject which is becoming foreign to me. Not very good for my needs as I do not do obstetrics.

It would be very good if I were doing OB. I am quite out of practice in OB but this program was good to refresh my previous training and limited practice--just for information. However, for my needs it was brief.

Is helpful information and nice to be reminded of this, but probably 80-90% was already known to me.

I would prefer a more detailed coverage of this program which covers the subject more in depth.

Too basic. Program OK for 2nd year medical students.

Again, too basic and would only be of interest to someone who does not practice OB. If you do OB work and don't know this material, you and your patients are in trouble.

No new information. No aid in treatment.

Since fetal distress is such a difficult determination, I think this program should be up-dated, and some hope of better early diagnosis presented. Perhaps the newer techniques are still too controversial.

This type of program would be excellent for medical students and interns. However, all practicing physicians doing OB should have this information. The review is good for everyone and should make the physician more sure of his treatment.

As stated, of little personal value (no OBs in practice) but of general interest.

Excellent review of these OB emergencies, but perhaps too brief. Topic should be expanded to two programs.

A little confusing, should review it several times. It would be better if visual was tailored to fit in better with audio and done in same caliber as audio. As it is, repugnance is the eventual reaction of one expecting a high caliber teaching experience and getting only poor graphs, meaningless, unrelated pictures, and downright absurdities.

SELECTED COMMENTS

PROGRAM 9: JAUNDICE IN THE NEWBORNPositive

I regard it very highly. It required close attention because of the compactness of it. The repetition was right on the nose, making it easier to retain more of the information.

To a GP doing OB this program, I think, presented an everpresent problem of the newborn--the use of "photo therapy" I found very revealing and interesting.

The program concisely presented material very important to those of us who care for newborns. Although I actually knew the material presented, the program brought it into sharp focus, and should improve the quality of medicine I practice. I consider my time well spent and intend to study the program further.

For me this program was excellent. The presented material gives me much better over all picture of this problem than I have ever previously had as well as correcting some misconceptions.

This program was one of the best of the series. This audiovisual method lends itself well to such subjects; giving a student plenty of time to study the detailed outlines and graphs.

Best of series--very good presentation of accumulated knowledge of subject presented uncluttered by myths, old concepts, etc. and yet adequately presented latest established theory, methods of diagnosis and treatment.

Best program to date both in content and method presented. The material was very well organized and presented and much of it was entirely new to me.

Best program yet. Seemed to be crammed with detailed and pertinent information.

Jaundice in the newborn has been inadequately approached by me. This program corrects the inadequacies and will provide me with greater self confidence.

This program is timely and excellent information needed for anyone doing OB and pediatrics. I usually have to review this type of information each time I have an acutely jaundiced infant. This reinforces and adds to my knowledge on the subject

Very good, especially part on phototherapy.

Negative

Too much listing of factors and confusion arising from "do's" and "don'ts" presented.

I think the program would be fairly informative to one who was interested in this subject. It was not interesting to me, as it presented highly technical material which I would never use, in an uninteresting manner.

Program highly condensed, concentrated, and therefore difficult to follow without several sessions.

The program was well-presented and fairly easy to follow. More so than others in past; there is still the problem that if any point is not completely understood, there is no way to go back to this area on the records--must run the entire filmstrip and record through again.

A good program. However, aside from diagnosis, therapy is usually assigned to a pediatrician.

No pediatric or OB practice in 23 years. I will probably never have occasion to use this information. However, all medical information is valuable, indirectly, and this is a well-presented program.

An important topic dealing with information, some of which was foreign to me. It was sometimes hard to follow because of the amount of information given and difficulty keeping up with both visual and audio simultaneously.

Important, but parts were not clear and graphs needed more clarification.

Of more interest to the pediatricians. The conditions are most uncommon and most GP's would refer to pediatricians.

To increase its benefit, would be better to lengthen it and add a few more detailed ideas.

Audio and visuals were not synchronized at times.

The staccato voice, speed and amount of material are just too much. Well-prepared. Probably a second or third review would be profitable.

SELECTED COMMENTS

PROGRAM 10: TRANQUILIZERSPositive

Very outstanding, useful and practical. Very well presented as to content, usefulness, types of drugs, indications, side effects, etc. We all need this program because of the overwhelming use of these drugs today. I'm presenting this program to the nurses and interns of our three largest hospitals. I was very impressed with this program.

It was timely, clear, easily followed. Helped clear up the confusion caused by the drug brochures.

Presented information which I need because of the extensive use of the medications discussed. Also the knowledge of these drugs that is common in the lay public makes it important that the physicians have as much facts as possible. More information could have been well included.

An excellent condensation. The subject has become increasingly difficult for me, especially with the advent of combination drugs. I value this presentation greatly.

The principles presented in this program were basic and conservative. This was to my liking. In my practice I have considerable opportunity to utilize this material, and I am better informed in the subject for having viewed it.

Tremendous as to its presentation, new material concisely presented and germane to our age of psycho-therapeutics.

It confirmed some of my suspicions of drugs and their effectiveness. It gave an honest critique of medications commonly used; such a critique is lacking in almost any other source of information.

It fills a pertinent need for stressing important facts in the use of tranquilizers in medical practice. I find the busier I get in the office, I find less time to keep up and review important information needed in the practice of medicine.

I have a general type of practice. Many patients have symptoms discussed in this program--to me it was very enlightening.

Subject matter very appropos. Detail given was in the right degree.

There is such a confusion welter of drugs and information, and this succinctly puts it in perspective.

Negative

Too much covered in too short a time. Hard to identify drugs since I know them by trade names.

Not very adaptable to audio-visual technique.

Fairly good. The statements made are open to some divergence of opinion and were not presented in this way.

The information was too basic. Would be good for medical or nursing students.

Much material presented in a didactic monotonous manner with presentation of long lists of symptoms, etc. Several opinions presented are probably just that and represent impressions of author of text and not definite facts supported by experimental evidence, especially concerning the use of minor tranquilizers.

I thought it was a timely topic though treated somewhat superficially.

I objected to the avoidance of use of trade names. The slavish avoidance of a trade name is best relegated to university centers.

I seemed to feel that the author had a strong dislike for any minor "tranquilizers" other than barbiturates. I think all drugs have their use in special occasions.

Material is not new.

This program failed to clarify and detail "trade name" drugs with generic, tranquilizer classification; practical usage seems to demand a clearer identification of drugs as tranquilizers, usage and categories to which they belong.

The audio was OK but as noted previously, the visual was a flop. I find that without a good text the programs are just about a complete loss as far as permanent use in my practice. There is no place to readily refer for details such as dosage. They have represented something useful in my education, but there is something radically missing in their permanent usefulness in my practice of medicine.

I thought it was good, but visual hard to follow.

I need some thought organization on this subject. The information presented is useful but presented too rapidly for me to get it.

SELECTED COMMENTS

PROGRAM 11: INHALATION THERAPYPositive

I liked it. We use inhalation therapy both in the sick room and the physiotherapy clinic. The information here gave me some points I did not know, such as related to volume limits, and pressure limited ventilators, concentration of gases, and we have been guilty of bedside guessing as to need. Also, I shall henceforth be more explicit in writing the orders.

Good program from standpoint of newly utilized equipment for the patient with chest problems.

I think that it provided an interesting and informative, simplified look at this aspect of therapy. It is of value to anyone doing general practice.

The program pointed up my deficiencies in diagnosing the need for inhalation therapy. It also was very useful in manifesting principles of treatment. I should do a better job for having seen and heard the program.

Excellent, clear, concise--filled a vital need in my knowledge of inhalation therapy. I will use this before returning it.

A new approach. Seldom presented so succinctly. Reviews most important facts of therapy.

I think the program was presented clearly, very understandable and easy to follow.

It is a neglected subject in my practice because I turn this over to a specialist. However, I am interested and should be more experienced; this program was a good start.

I think it to be a valuable program. It was very concise about directions in a field which has generally been dealt with rather loosely.

Important subject for all doctors, as too few are well acquainted with this type of apparatus.

This is a good program, especially because of the recent knowledge about inhalation therapy. Fortunately at the hospital where I take my patients they have a very good department and have had 2 programs at staff meetings. New equipment is introduced to staff and uses discussed. This program reinforced many of the things already known. However, it is very reassuring.

Negative

The subject was much too broad to be covered in this one program.

This program did not hold my attention as much as many of the other MIP programs. The technical elements (photography, charts, etc.) were well done but the presentation itself was luke-warm.

Program good but I probably will not use the information in my practice.

I am not certain of retaining this information. Perhaps it was insufficient in depth.

Too complicated for a GP to digest.

It was difficult to cover this subject in very much depth by this approach. Hospital or class seminar with demonstration would be better. Perhaps more filmstrips would improve the presentation.

Not specific enough on treatment.

No new information was presented on equipment presently available in my hospital. I was interested in seeing what material would be presented on mechanically assisted respiration, equipment for which is just becoming locally available, but the information given was too incomplete, with my limited present knowledge, to be of any value.

Seemed to cover too many machines; subject matter too broad to be specific and useful.

Program is superficial. It is too non-specific, i.e. equipment-medications and indications for use.

Basically good, but most of us need more information on just how to order for say: (1) pneumonia, (2) asthmatic bronchitis, (3) variations of chest disease.

Not up to standard of some previous programs as the material was presented in superficial way and did not leave me with information I could apply in a practical way to specific cases.

Audio OK although bits of information were thrown out helter-skelter and I had to listen over to catch them. The visual was a real distraction with its lack of useful information, and I was pleasantly surprised at how the caliber of the program rose when I turned off the visual.

SELECTED COMMENTS

PROGRAM 12: HYPERTENSIONPositive

Very well presented--good subject matter--practical and useful. More on treatment would have been of value. This program will be presented to the interns in Oct. at our two largest hospitals. I was very pleased with the overall subject matter and presentation.

It served the purpose of arousing enough interest to make one "go to the books" to find out more.

This was an excellent concise review of the diagnosis and categorization of types of hypertension.

A concise explanation of certain basic aspects of an involved and complicated problem.

Excellent because it is a subject that I encounter every day.

We in GP are frequently confronted to work up routines for a particular problem. Routines are time savers for the doctor and money savers for the patient. Only last week we discovered a routine for work-up of the hypertension. This program adds to the effectiveness of our work-up.

A very common problem seen in general practice. Condenses information for diagnosis and treatment in this important area.

Good program. It hit high points, is practical.

Excellent program--clear and concise.

The subject matter and presentation excellent.

One of the best of the series.

Concise, brief review of an important topic. CVA auscultation new to me.

It was important because of its appropriateness and wider everyday application.

Useful information and gives good outline for diagnosis of hypertension.

Concise evaluation of hypertensive patient was covered.

Negative

The subject was too broad for the length of the program--only highlights could be touched--it would have been better to choose one category of the subject of hypertension and cover it thoroughly.

Very little new information. It needs to be followed with some idea of clinical application.

This program presented material already well known and understood at a level of a sophomore or junior medical school level or as would be presented to nurses.

I think this program was excellent with one exception, the organization of the material presented tended to jump from one subject to another and then back again to the original subject. ;No definite follow-through on one subject before starting another.

Good, but on such a subject more should be said on various areas--continuing to elaborate in subsequent programs would be good.

I felt it was good but did not do much more than scratch the surface of this subject. Also, some of the tests recommended and procedures advised were gone over rapidly and require review and the machine is limited in that it is not possible to turn back to review.

This subject has been presented in seminars, GP programmed material and many activities in the literature, and though important, I did not feel that it presented anything useful to me. The narrator was objectionable.

Difficult to evaluate as my machine audio is poor, records do not coordinate with slides. Last time machine was worked on it took 2-3 weeks to get back. Machine failure may be one of the problems with this type program. I've had machine problem during 4 programs.

Subject matter was at medical student level and of no practical use to the average practitioner.

Poor commentary--fair pictures--not particularly useful.

I thought it was too brief--would also have liked something on treatment.

Too juvenile.

Portions too rapid for easy assimilation, e.g., urinary tests.

SELECTED COMMENTS

PROGRAM 13: ASPIRATION OF THE JOINTSPositive

I see many cases of joint diseases or injury. This program serves as a memory refresher. The overall presentation is excellent, the information concise and usable with least loss of time. There appears to me to be minimal deadwood and with a little better perspective in illustrations it is excellent.

I think this was the best program in the MIP series. It did not attempt to cover too much subject material...it was concise, directly presented and very useful and interesting.

This topic lends itself well to the audiovisual presentation. The privilege of being able to re-run the strip is especially good. A medical film on this subject seen recently was good, but moved a little too fast for good comprehension.

I believe this will be of value to me in my future practice.

This program is useful because it can improve my techniques of aspirations and I will feel more competent in aspirating other joints. It also, through the use of the charts, should improve my diagnostic ability.

This program has been the best so far insofar as new and useful material is concerned.

Important information which I can and will use. Very well presented.

Program covered material well. It was above average in content. Only criticism would be to show needle angle on model not on skeleton. Distance of photographing the joint on skeleton made them of little value. Additional information about steroid injections seems indicated as part of series. I liked the stress on diagnostic testing of fluid. Very well done.

Excellent-interesting program. Useful information.

Very helpful and well done. One of your best presentations.

Presented useful information. Inclusion of the printed tables was very helpful.

It was an excellent review of the subject in a concise and easily understood manner.

Very practical and useful in treatment and diagnosis.

Negative

Good review, but I seldom aspirate a joint. Record stopped too many times-- a nuisance.

Very impractical for a generalist. OK for a rheumatologist.

Much of the information was quite elementary and a great deal of time was spent in describing technique of joint aspiration which should be obvious to most physicians. Almost most of the fluid tests described for aspirated fluid would be very time-consuming in a busy office, and in my opinion would not yield information of great value.

I deal daily with these problems. No new thoughts were advanced.

Nothing presented that was new or different from techniques used.

This was a very poorly put-together operation.

Not very clear.

This program was the first time the audio synchronized with visual. Perhaps it was a very new machine, but although the quality of the visual wasn't too much better, at least it seemed to fit into the audio better. By the way, the machines have a long way to go. My new machine arrived with the lens loose in the box.

Good, to the point, but not all its demonstrations were of top quality.

I do not usually do joint aspiration so this was a good review for information I should have. It seemed the information was a bit brief, but how can you enlarge upon "I am lateral to the tip of the middle malleolus" so that it sticks in your mind? This is probably better taught by working with someone where actual palpation fastens the idea in the mind.

I think more information could have been presented and more details given.

Joint aspiration is a "fixed" stereotyped procedure commonly done at the office.

SELECTED COMMENTS

PROGRAM 14: ANEMIAPositive

Good program, required more attention and stimulated greater interest to again study the problem of anemias.

Very interesting and well presented. Practical and useful in office and hospital. The method of diagnosing was made very simple and easy to understand. The subject matter was excellent review and not too deep. The manner of form of presentation was excellent.

Vital topic well arranged and condensed. A minimum of microscopy was presented and this I appreciate as I haven't seen a blood smear in 28 years and may never see another. Also a minimum of lab procedures and mathematics aided in holding interest.

The program afforded me a better understanding of this common problem, and should be a definite help to me in diagnosis and treatment. Every man doing general medicine would benefit in some degree by seeing and hearing it.

I consider it excellent because it presented information that I needed and reviewed and clarified important details.

Program well synthesized and presented. Practicality level was excellent.

I thought this program was very good in that it acted as a refresher course on anemias and also gave more recent information which I was not aware of. It took much of the mystery out of recent articles I have been reading.

Good program. I tend to let the consultant carry the load. I would be smarter to know, too. Well-presented.

New information; concentrated; refreshing; stimulating.

A clear concise well presented basic outline of the work-up of an anemic patient with emphasis on laboratory findings. Best of the program series!

I thought this program to be excellent. It gave me a new viewpoint in regard to my anemic patients.

I needed the information in this program. Judging from the mistakes made on this questionnaire, I need more programs on anemia or blood studies.

Excellent program; valuable information; good review of old and new material.

Negative

Good, but at times I found it difficult to follow.

Hematology is a difficult and involved subject to be presented in such a short format.

Just fair. Not complete enough with discussion.

All very good, but it is a complex subject and presenting it in such brief form left a lot to be desired. A doubling of this program on this subject probably would have been better. At long last you have started giving us good stuff.

Charts and graphs are difficult to absorb and follow.

Went rather fast from one important point to another.

Program rated as only fair in that it reviewed fairly basic physiology and although useful, did not present new or necessarily information that needs frequent review.

The approach to the problem was excellent. The logic of making conclusions was made obvious. The subject was well-handled. The scope of the problem as seen in practice was not complete. Did the author run out of time or interest? A subject of this type would be of more value to me if handled from the point of view of newer diagnostic tests and their evaluation. I liked what was here, but it was not enough.

Too basic.

Technically well-presented; however, a little too basic.

PROGRAM 15: EXAMINATION OF THE BACK

Positive

Program good value to physicians who see back complaints, particularly the malignant test.

I thought this program was excellent in that it presented a logical and simple, yet very thorough means of intelligently examining a back. It is the first time either in medical school or subsequent seminars that I have ever received such information in toto.

This program presented needed material in a clear, succinct, well-illustrated manner.

The photography was excellent in that the configuration of the back was well shown--particularly as regards curvatures, etc.

Very well-done; examination methods excellent; I have become sloppy in my examination.

Many patients seem to have back-aches and back problems. I had only a vague idea as to the correct type of examination and evaluation.

I enjoyed it and it will continue to benefit me in my practice.

Many practitioners are overwhelmed by low back pain (58 different causes!) This helps in elimination and diagnosis.

Excellent program; presented clearly informative useful information.

Very good. A simple demonstration of practical examination often not done well by the GP.

The explanation along with illustrative photography were excellent.

This was well-described, covered the material thoroughly, but not too rapidly.

Very interesting information. The program points out things I thought I knew, but actually did not know.

I thought it was very good, as it showed the practical applications of diagnostic methods.

I found it interesting and of value to review and clarify the sort of examination I do frequently.

I thought it was one of the best programs of the series.

Negative

Well done; but not useful in my practice. Questionable audiovisual value.

Information good for student, but too basic for practitioner.

Fair review; disappointed in level of commentary.

Excellent presentation, but material not new. Good review.

Excellent for student demonstrations only.

Very good, but rather elementary.

Good review of examination of normal back. Did not deal with diagnosis or treatment.

Specific areas could be pointed out in dealing with differential diagnosis; this would continually help physicians become aware of other possibilities.

Well-illustrated and well-organized. I wish some suggestions for treatment were given at least in the common case where there is no evidence of x-ray pathology--only the "back ache" is present.

Very good for the time given. Film would take more time, but cover more ground.

Too basic.

All material presented was good, but I think some principles of treatment should accompany.

Was very nice. My audiovisual machine does not work well, so this was very frustrating to give proper attention.

While the subject is frequently dealt with, I felt only portions of the program were of real use to review.

This program presented material that I knew well, but it is well organized and a good review of principles of diagnosis for low back disorders.

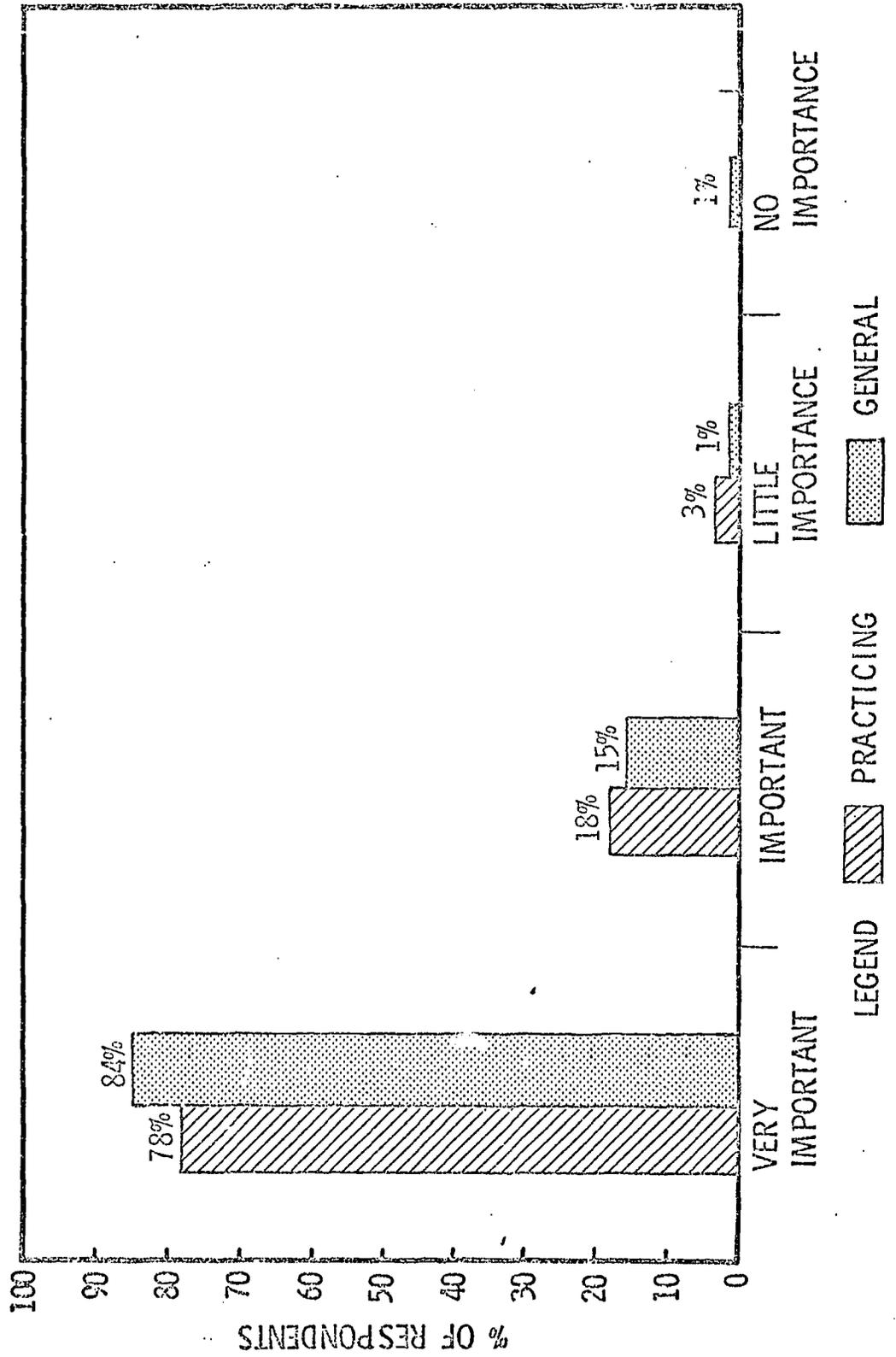
Not enough detail on test.

APPENDIX IX

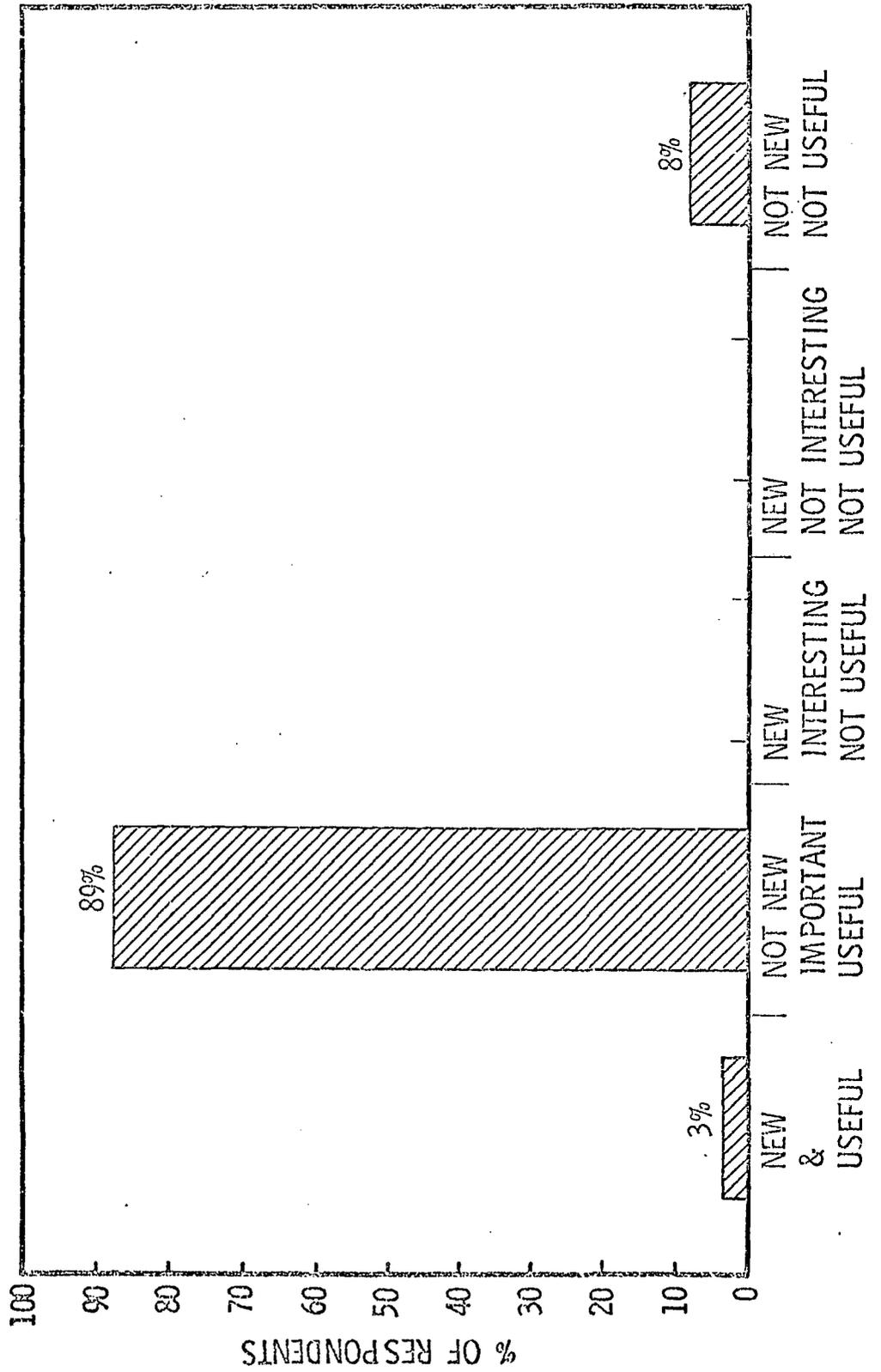
PROGRAM EVALUATION FORM DATA

PROGRAM 1: CARDIOPULMONARY RESUSCITATION

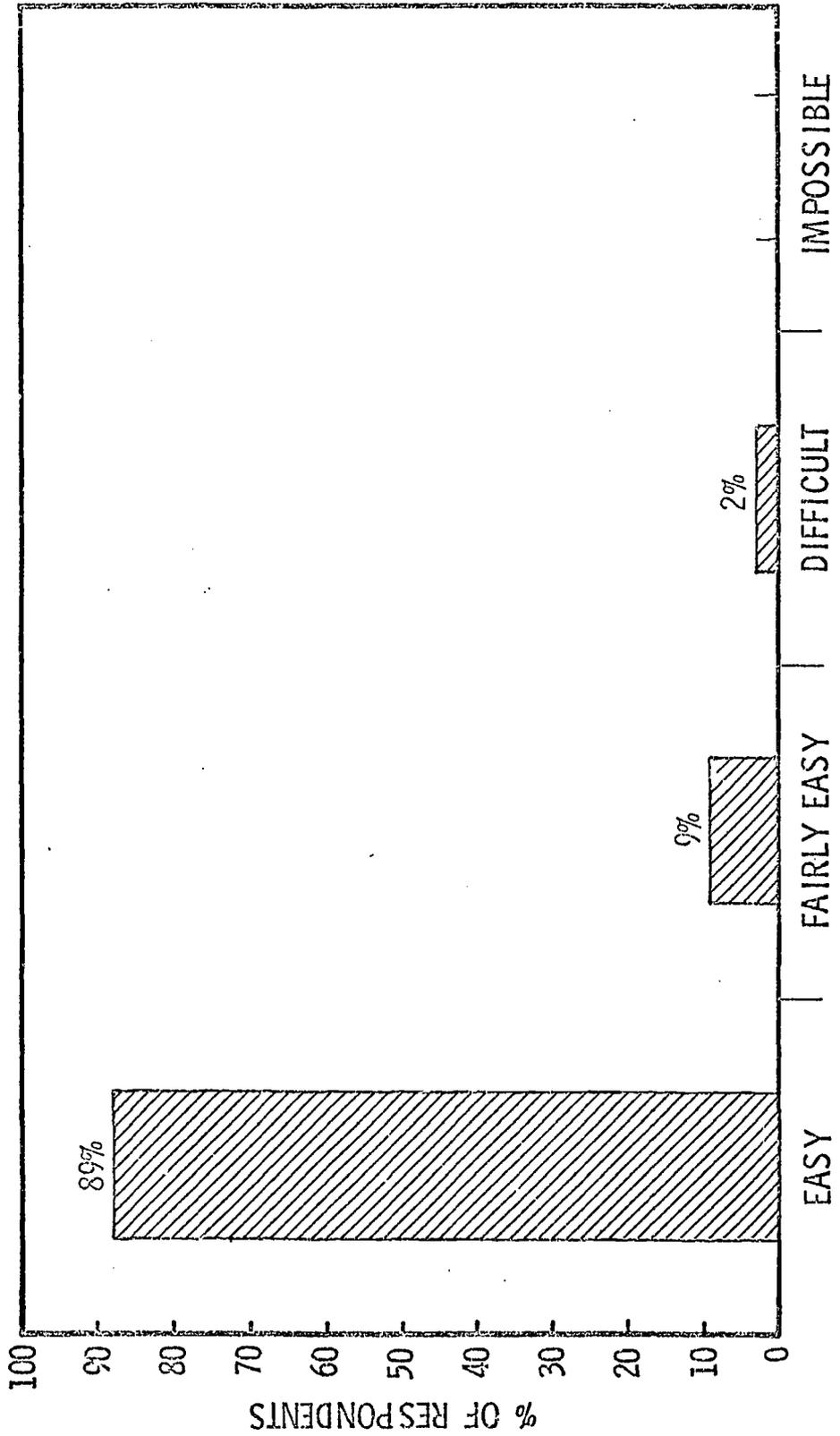
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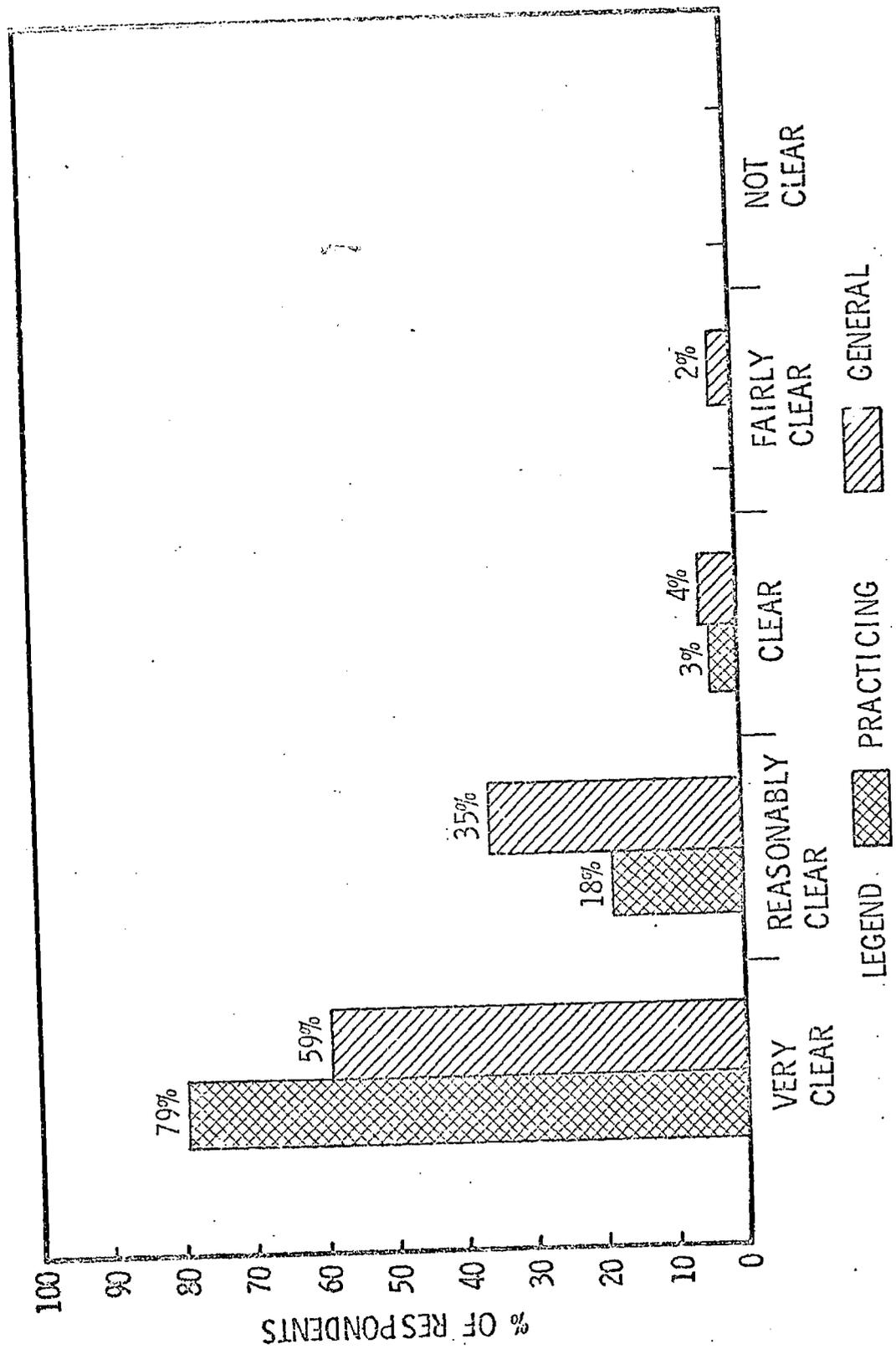
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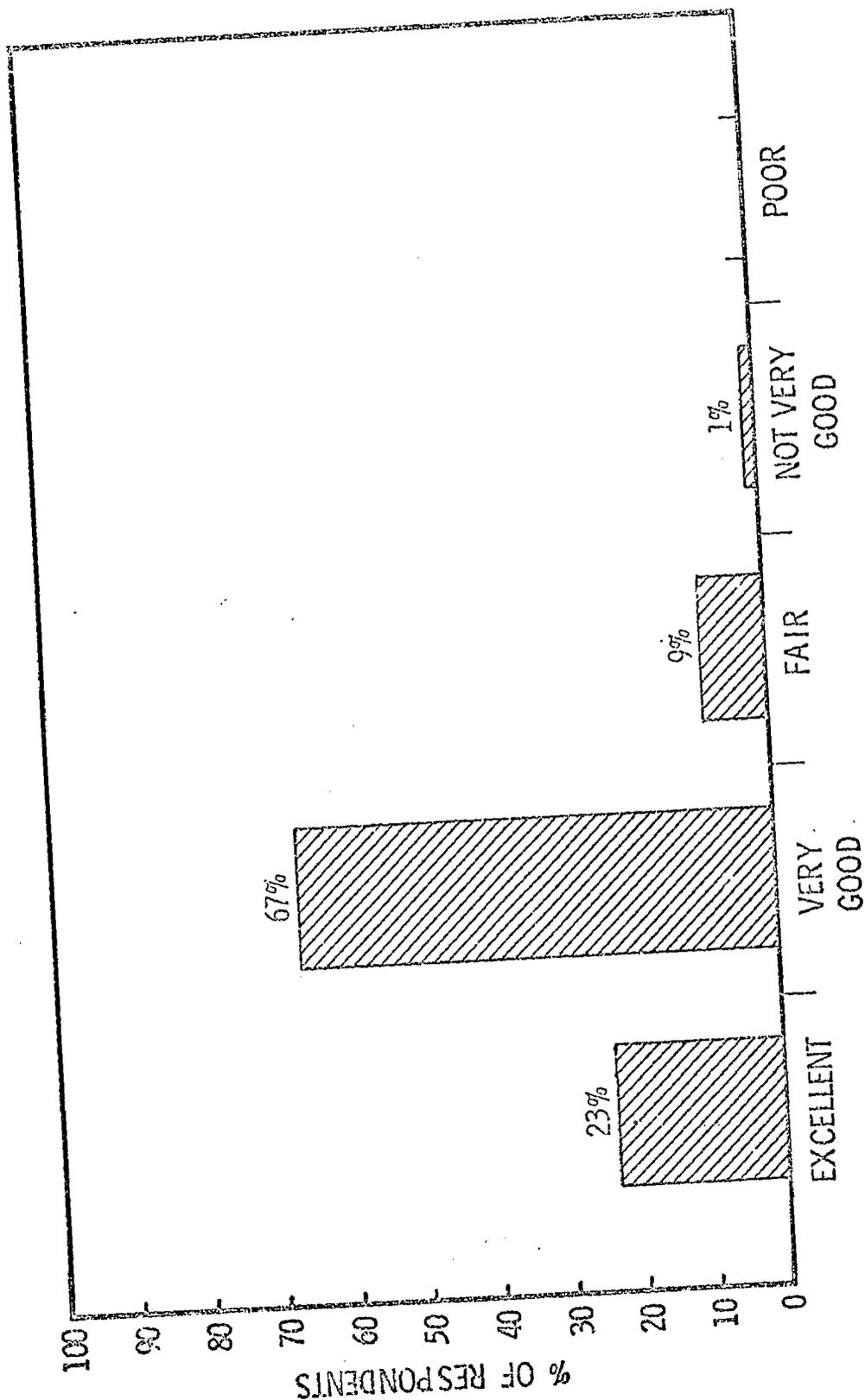


COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS



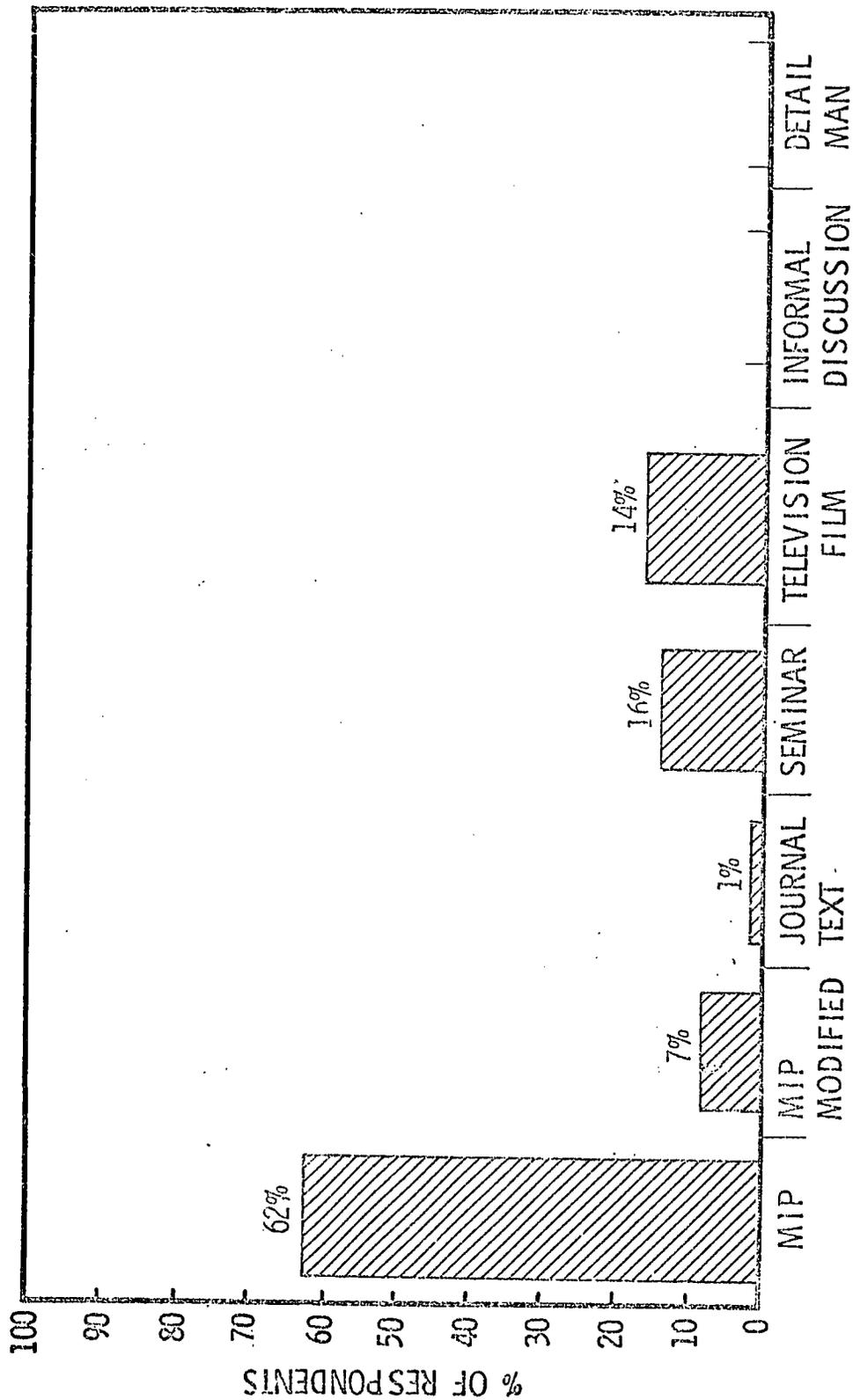
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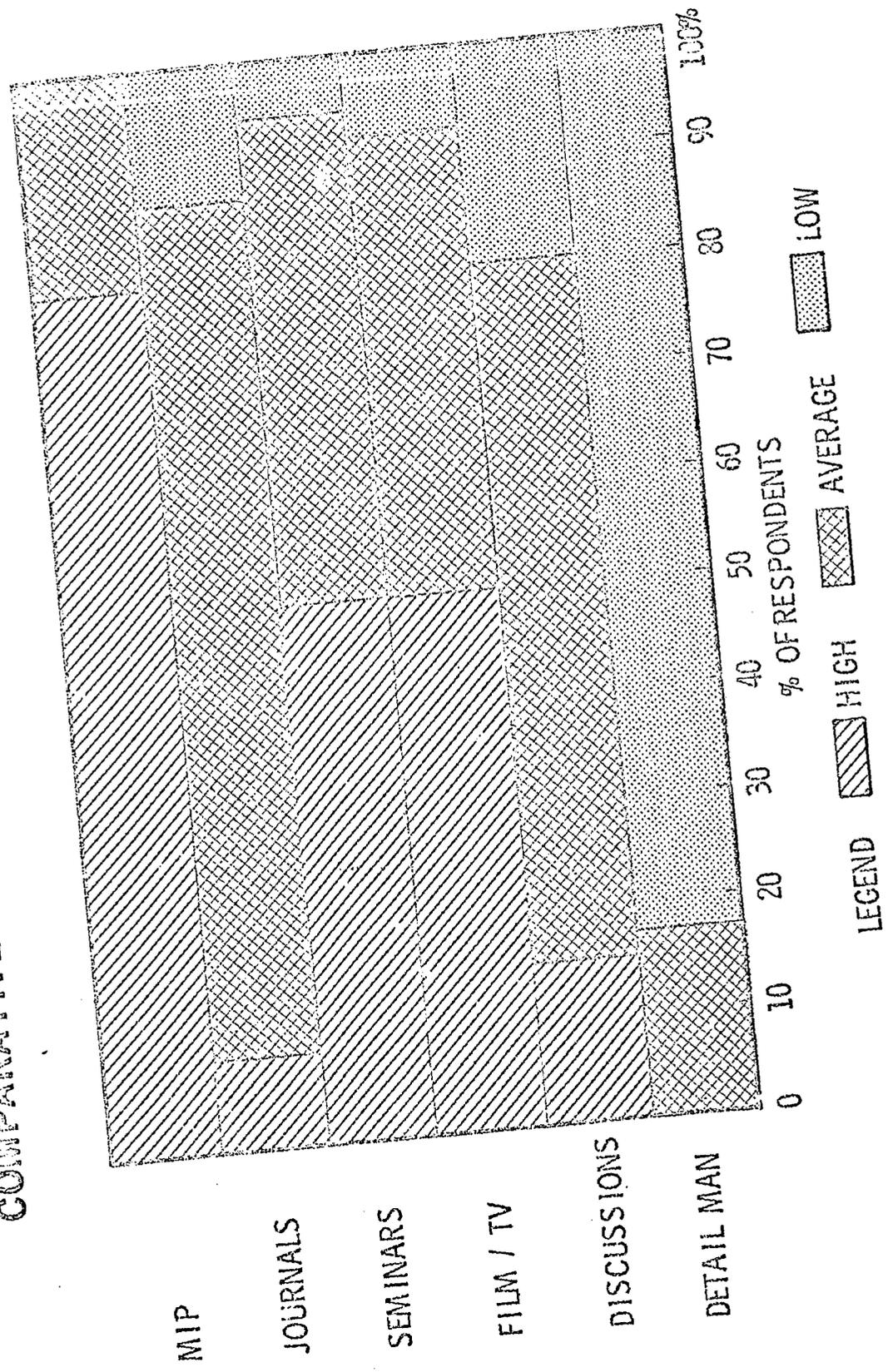


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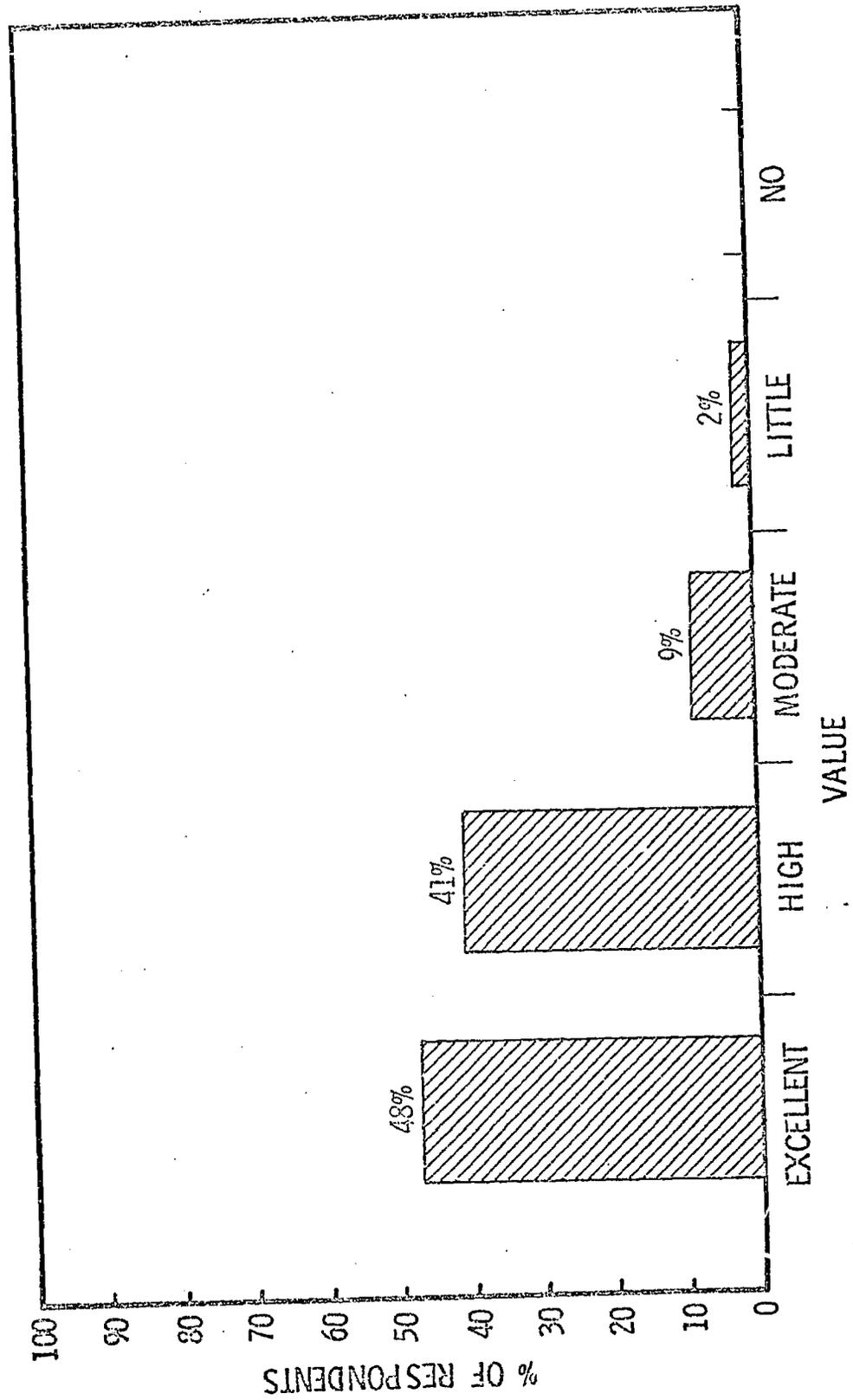


COMPARATIVE RATING OF INFORMATION SOURCES



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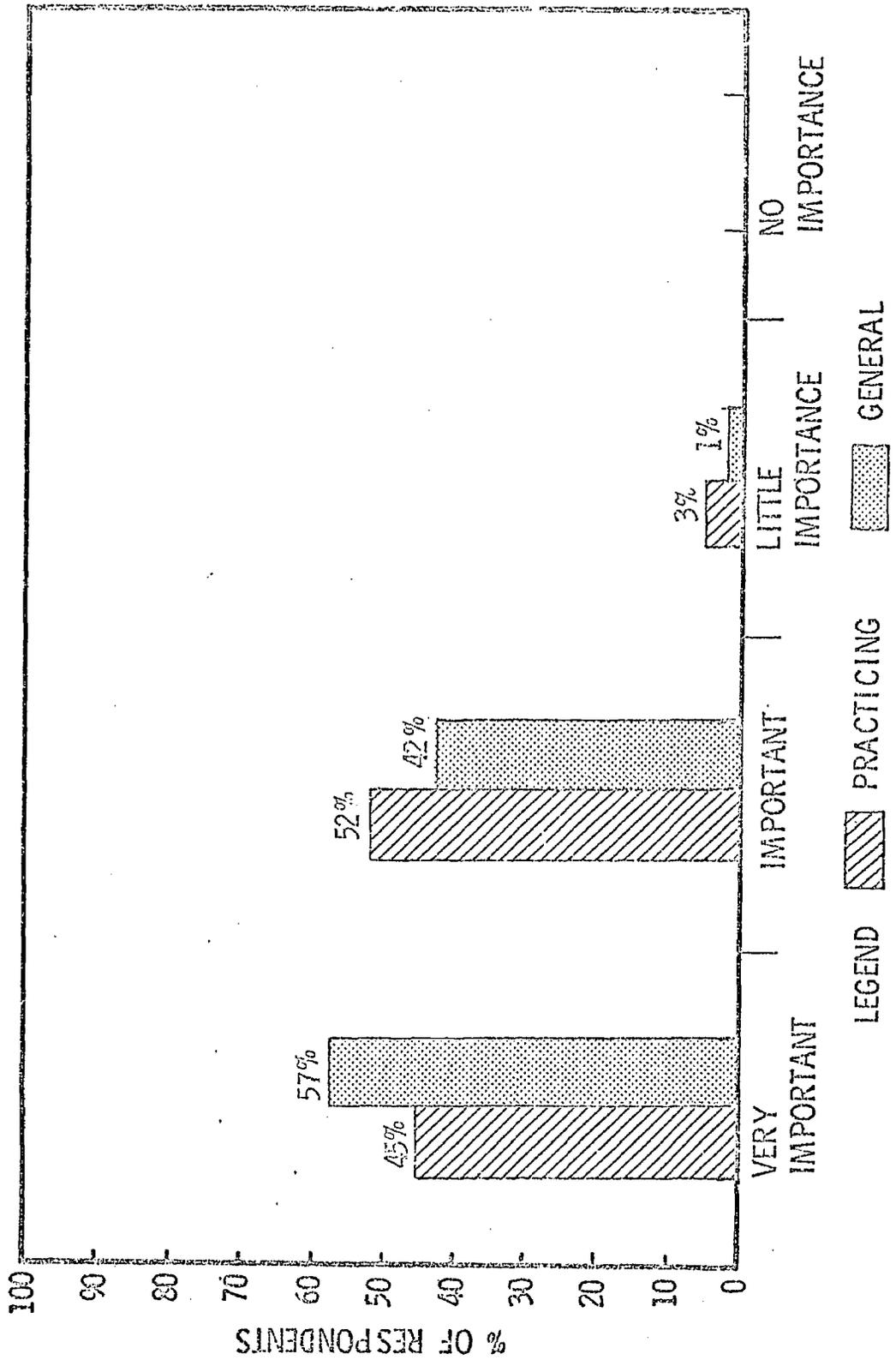
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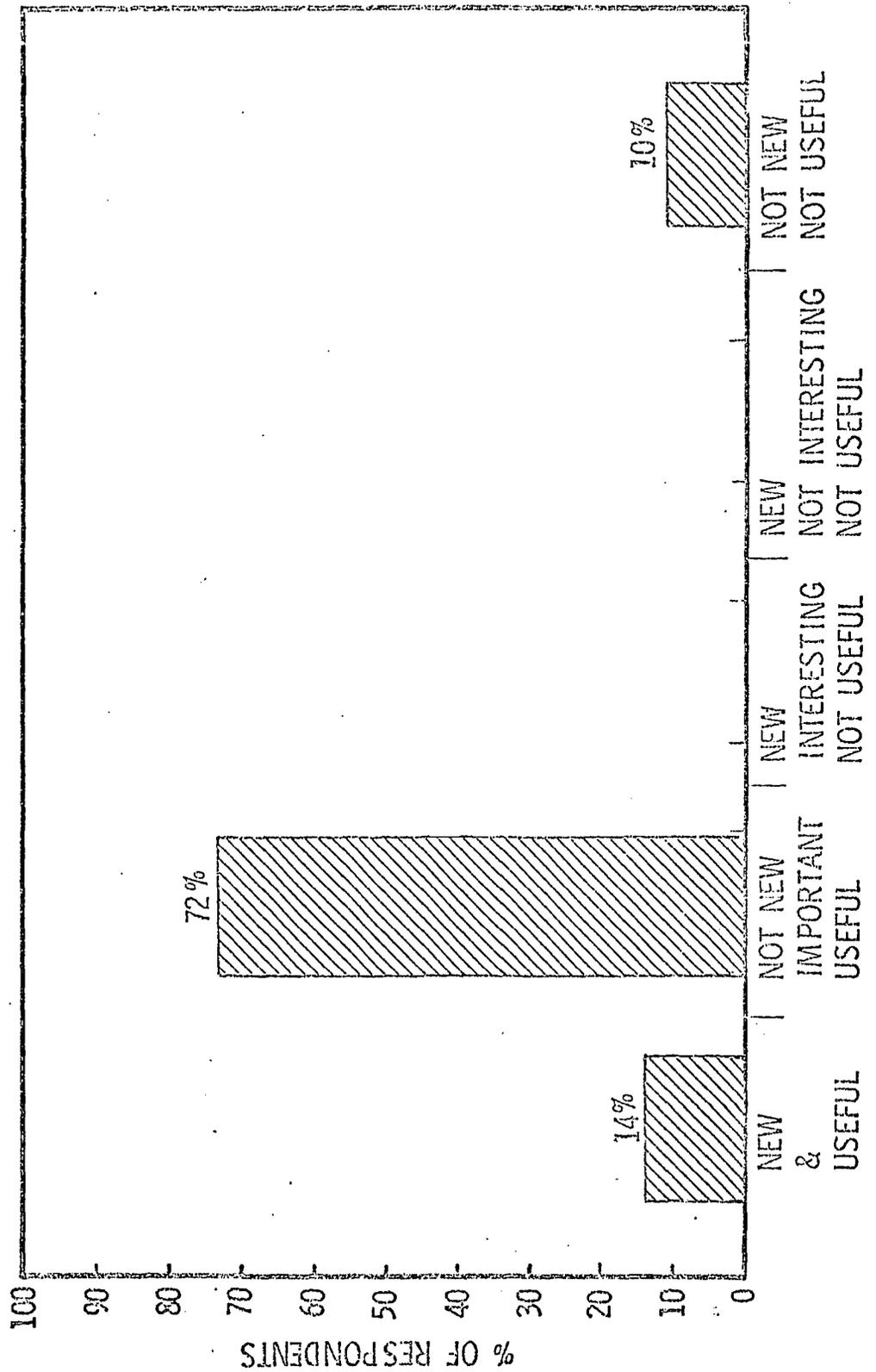
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RATING OF INFORMATION

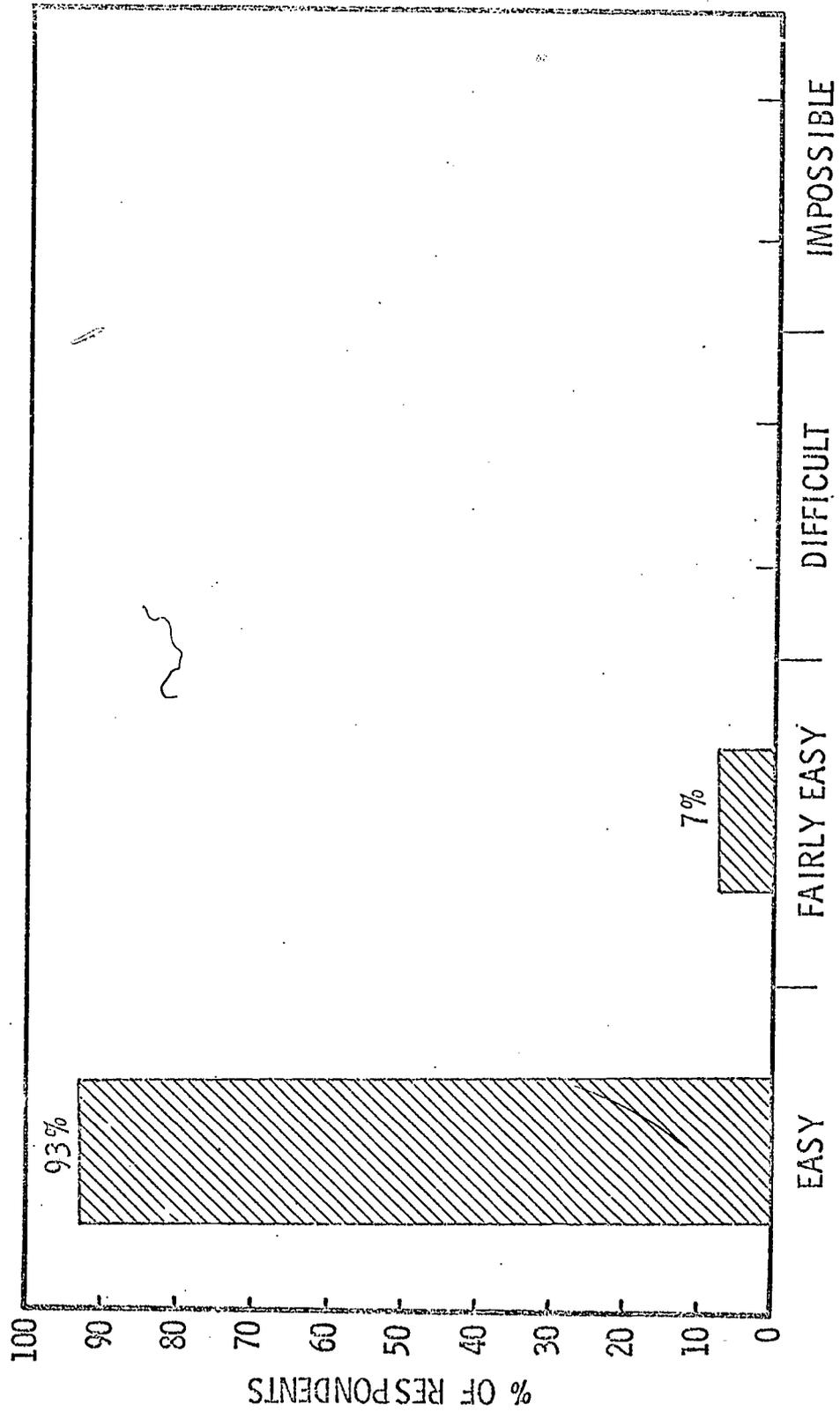


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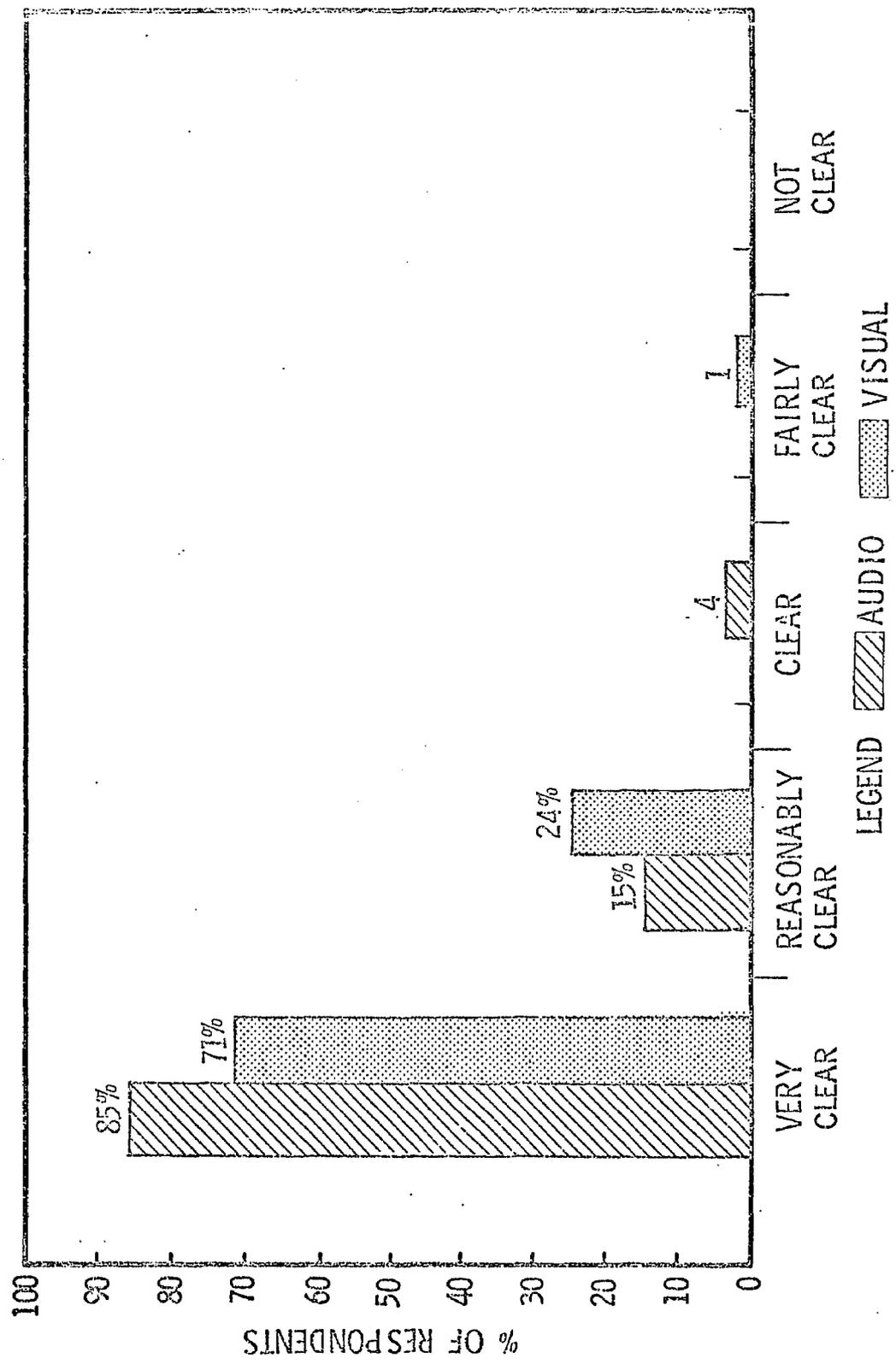


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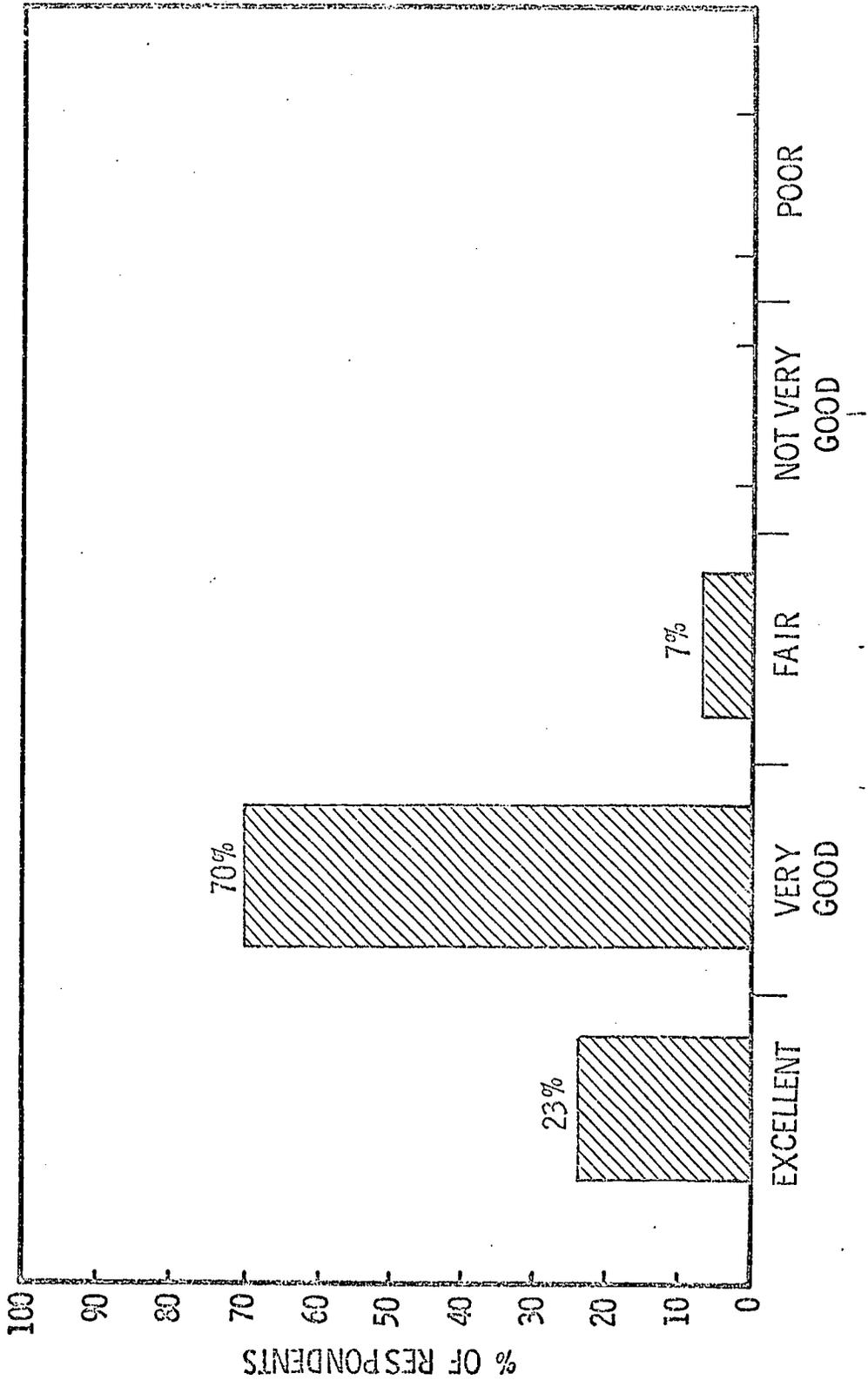
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COMPARISON OF CLARITY
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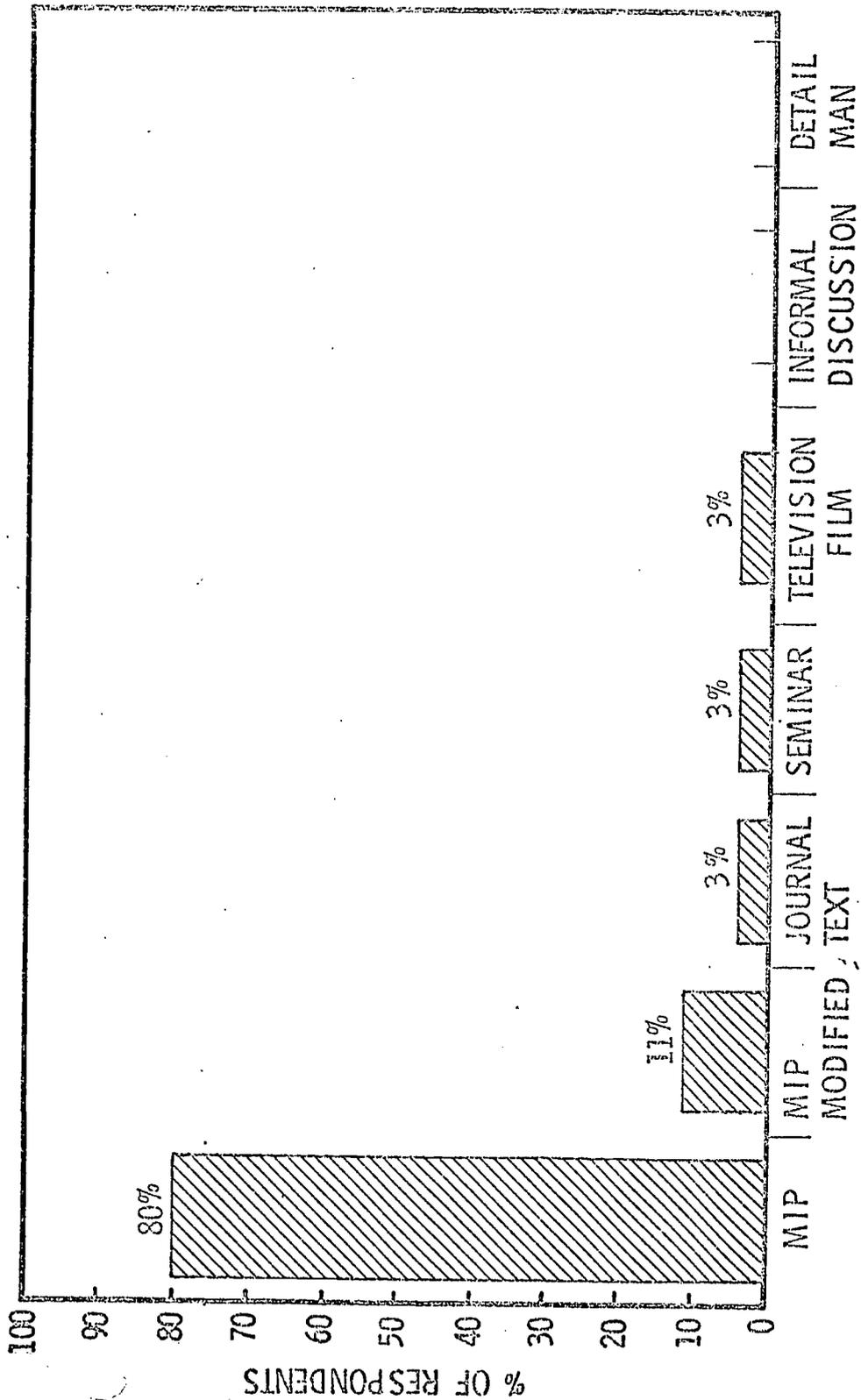
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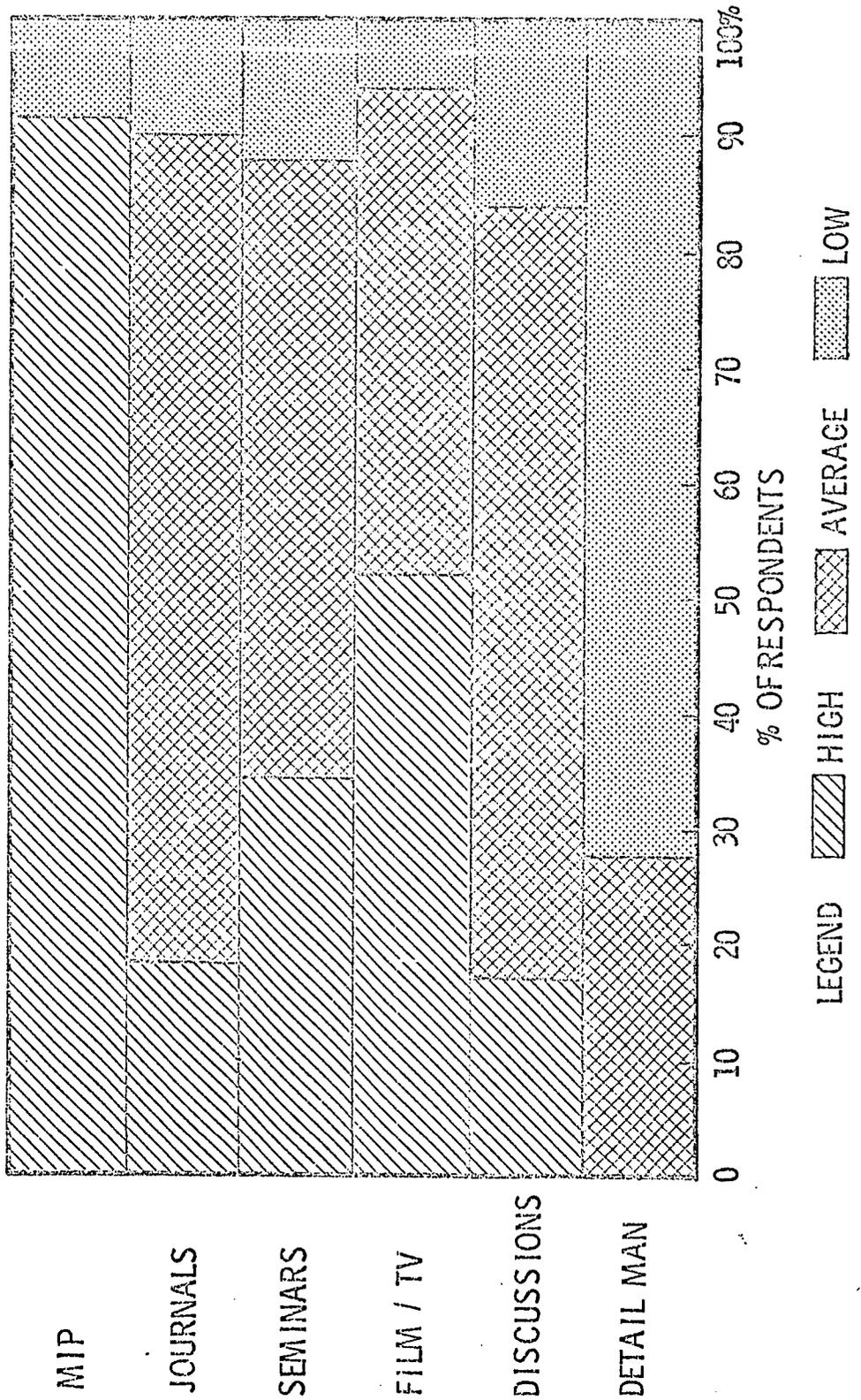
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RANK ORDER OF INFORMATION SOURCES



285

COMPARATIVE RATING OF INFORMATION SOURCES



MIP

JOURNALS

SEMINARS

FILM / TV

DISCUSSIONS

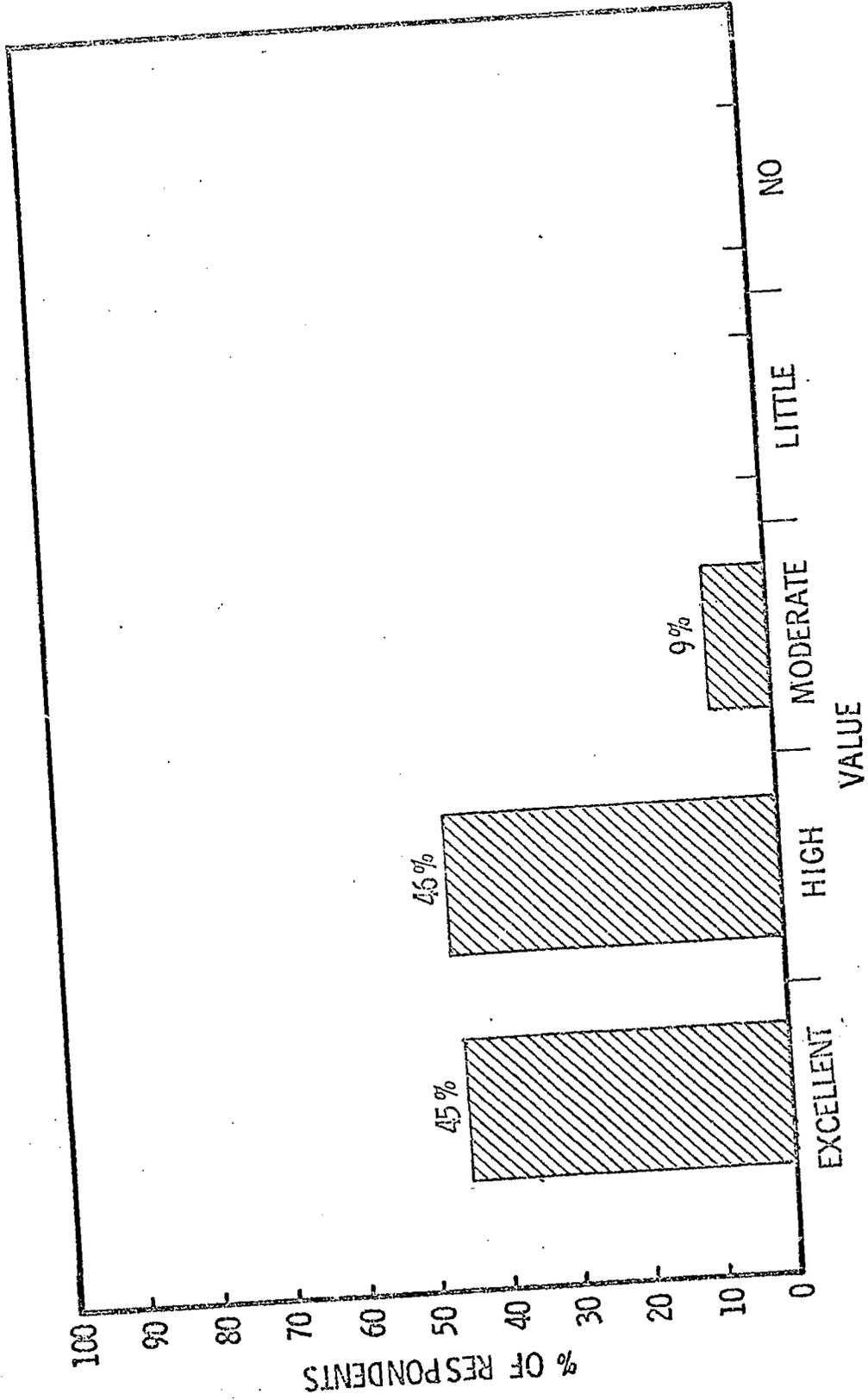
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% OF RESPONDENTS

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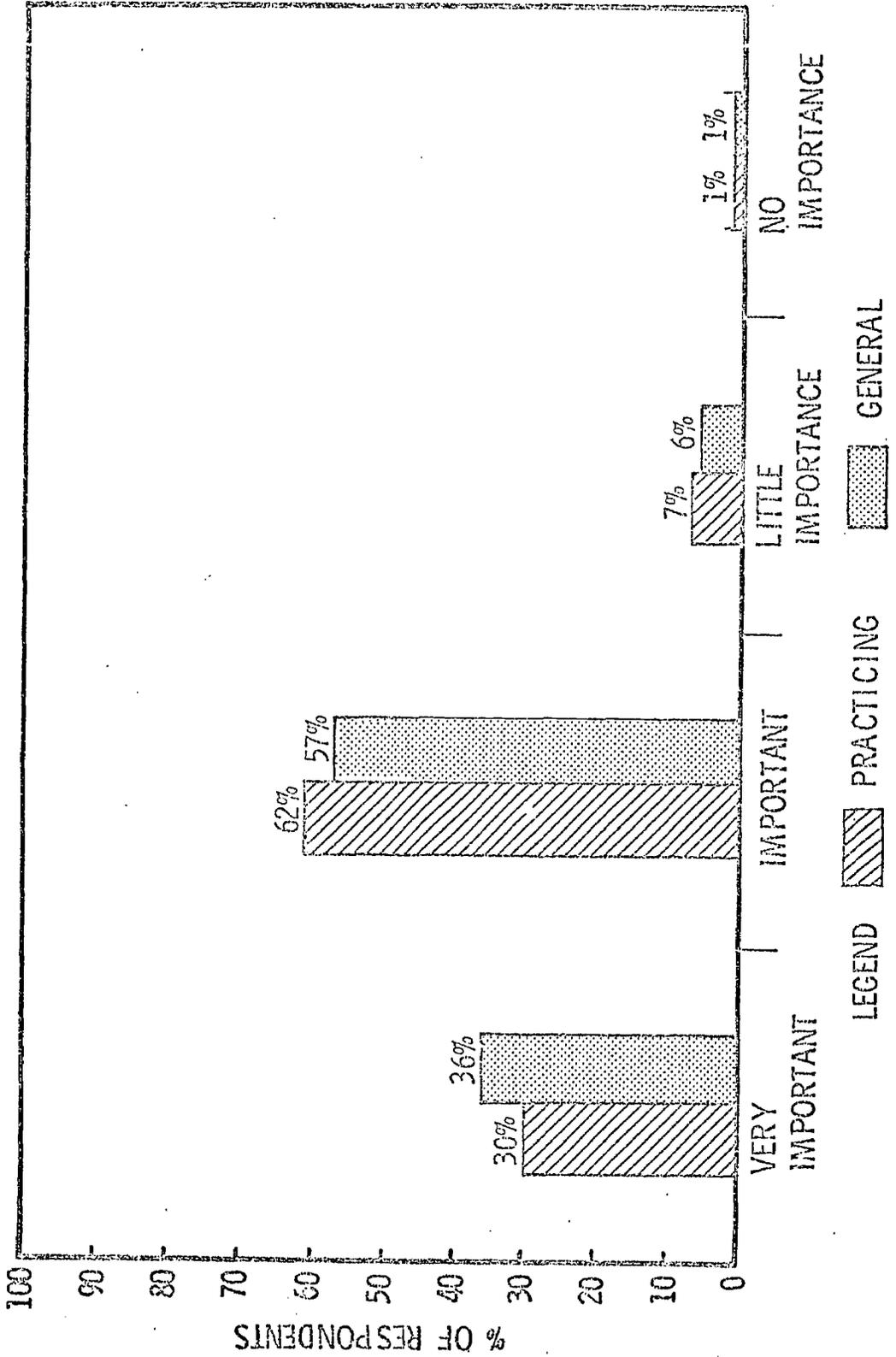
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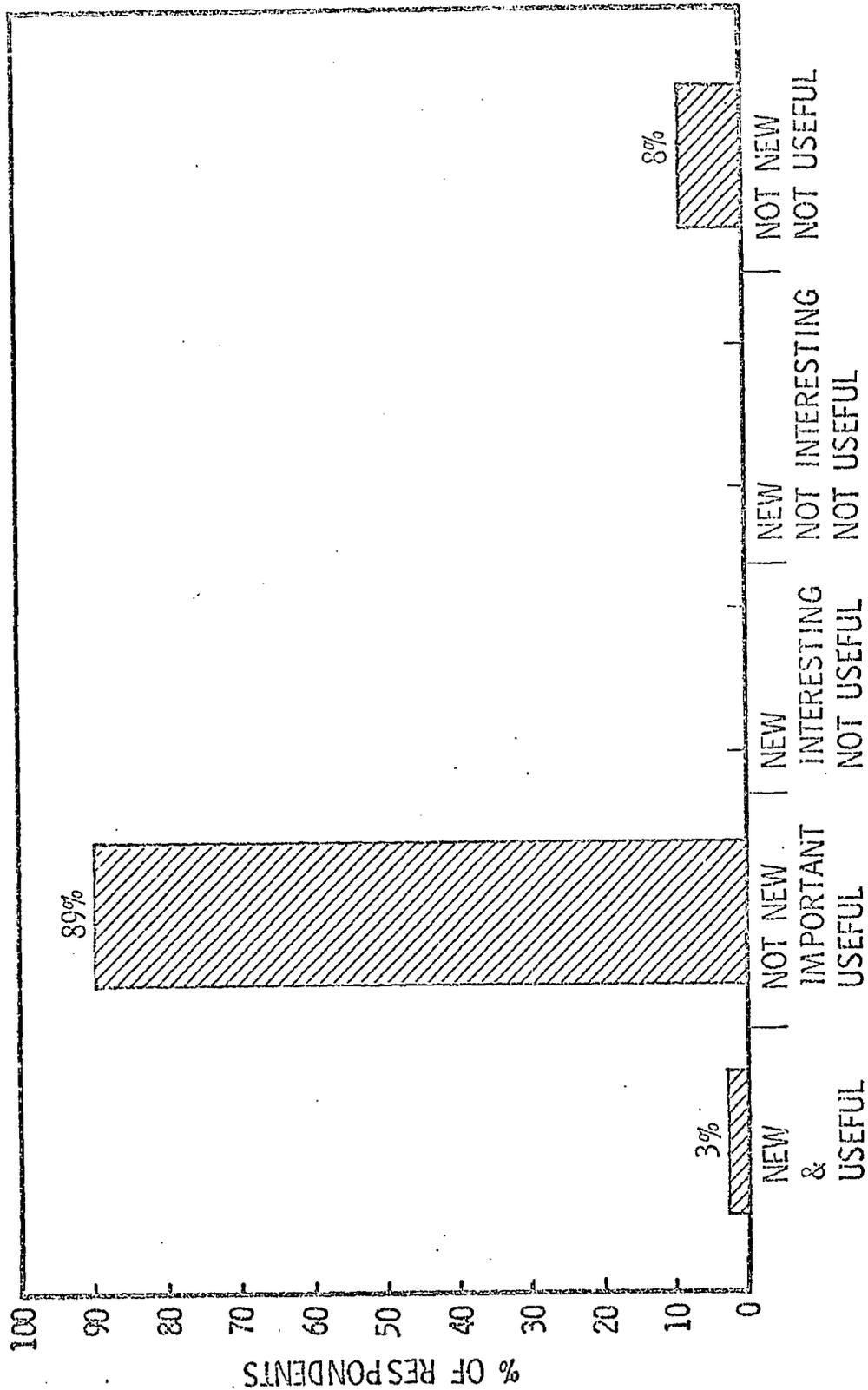
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PROGRAM 3: TRICHOPHYTON RUBRUM

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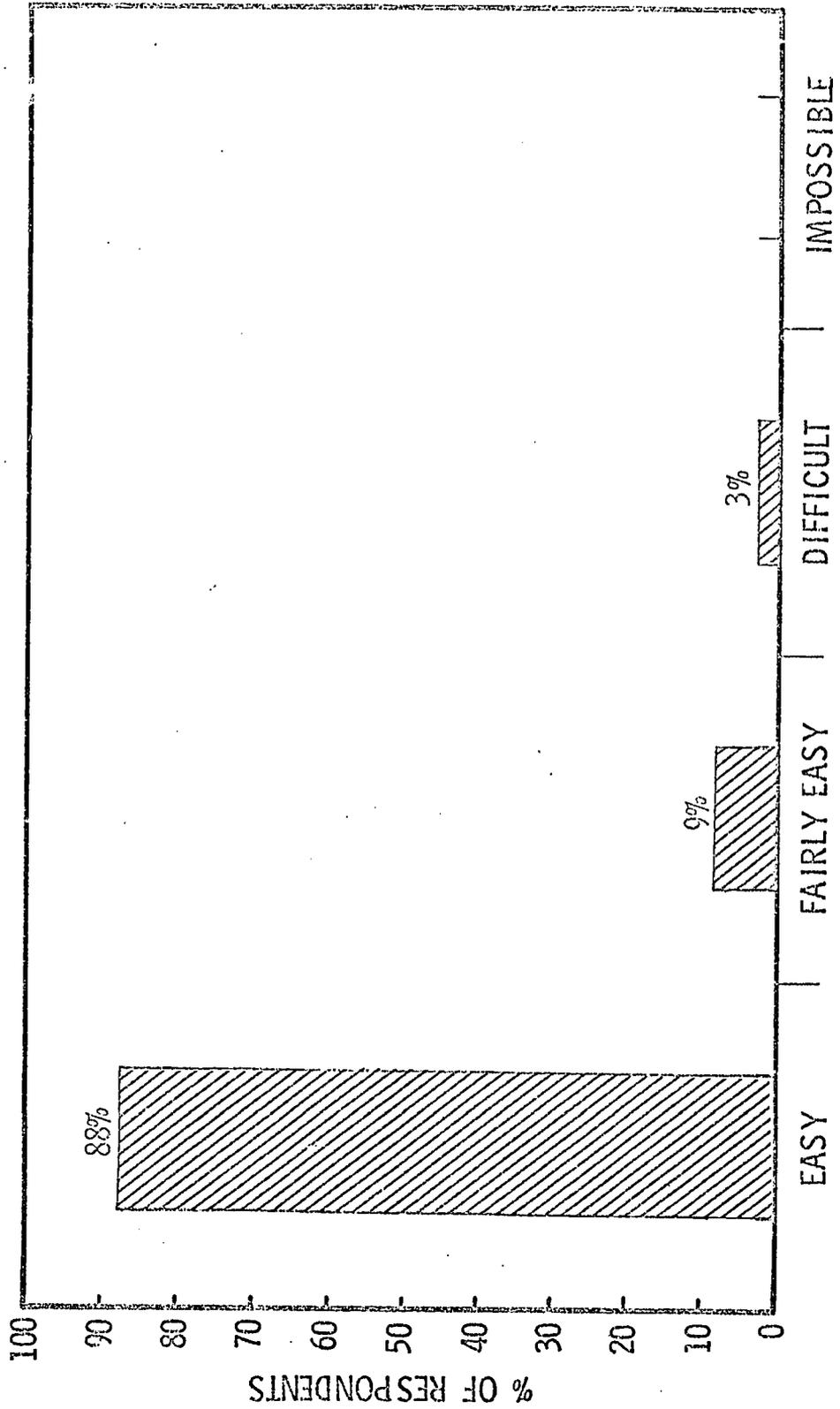


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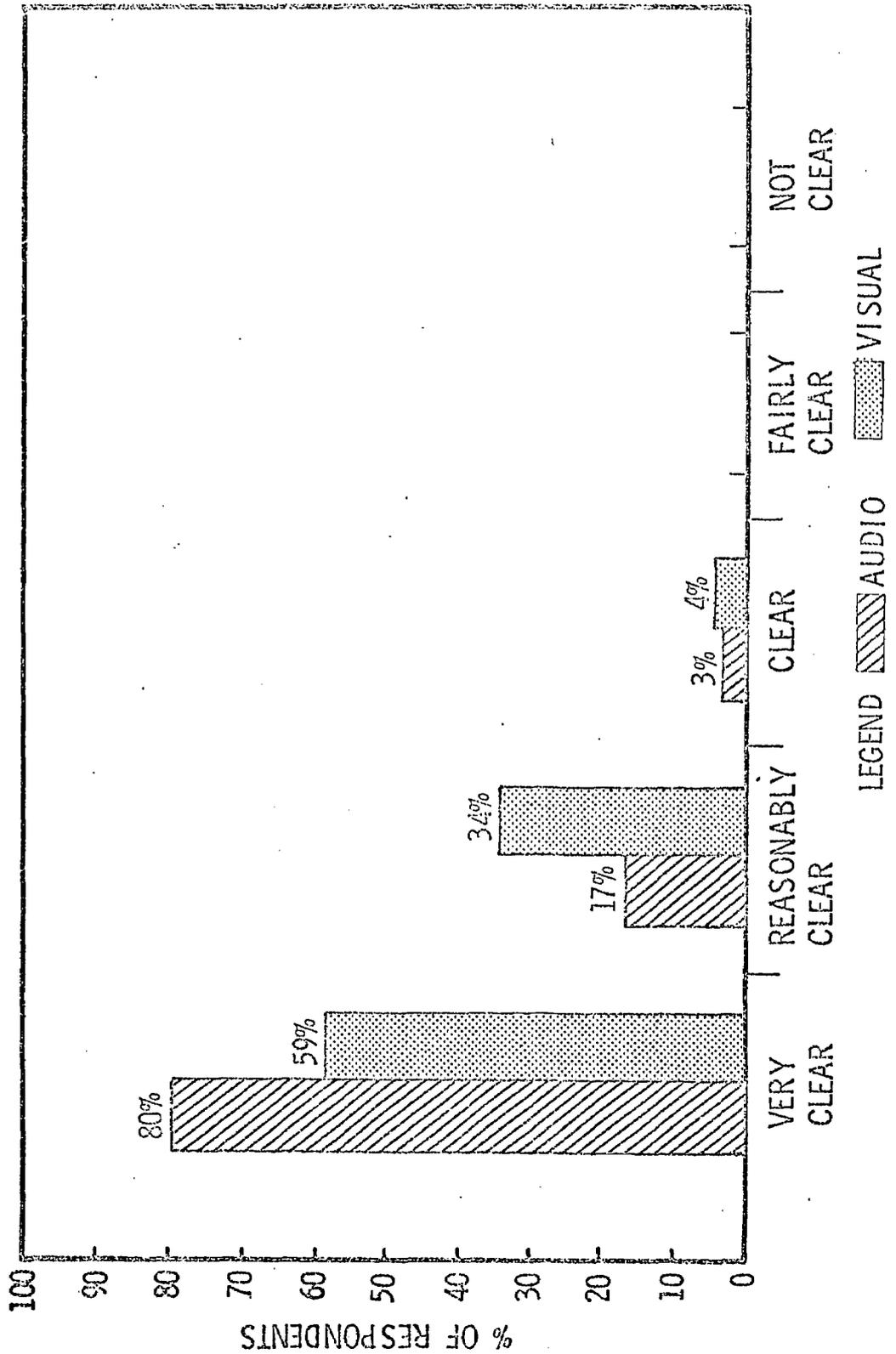
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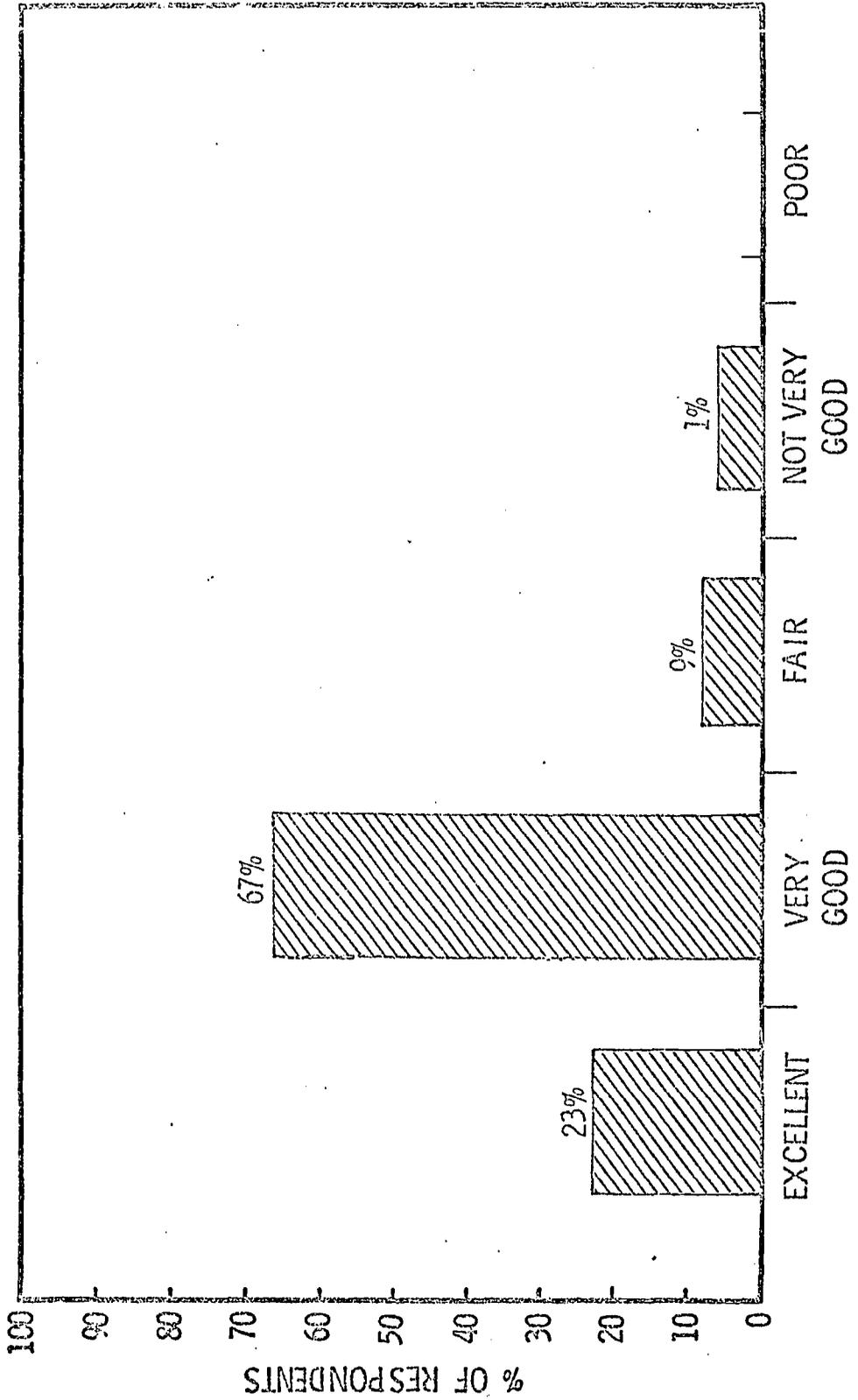


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COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS

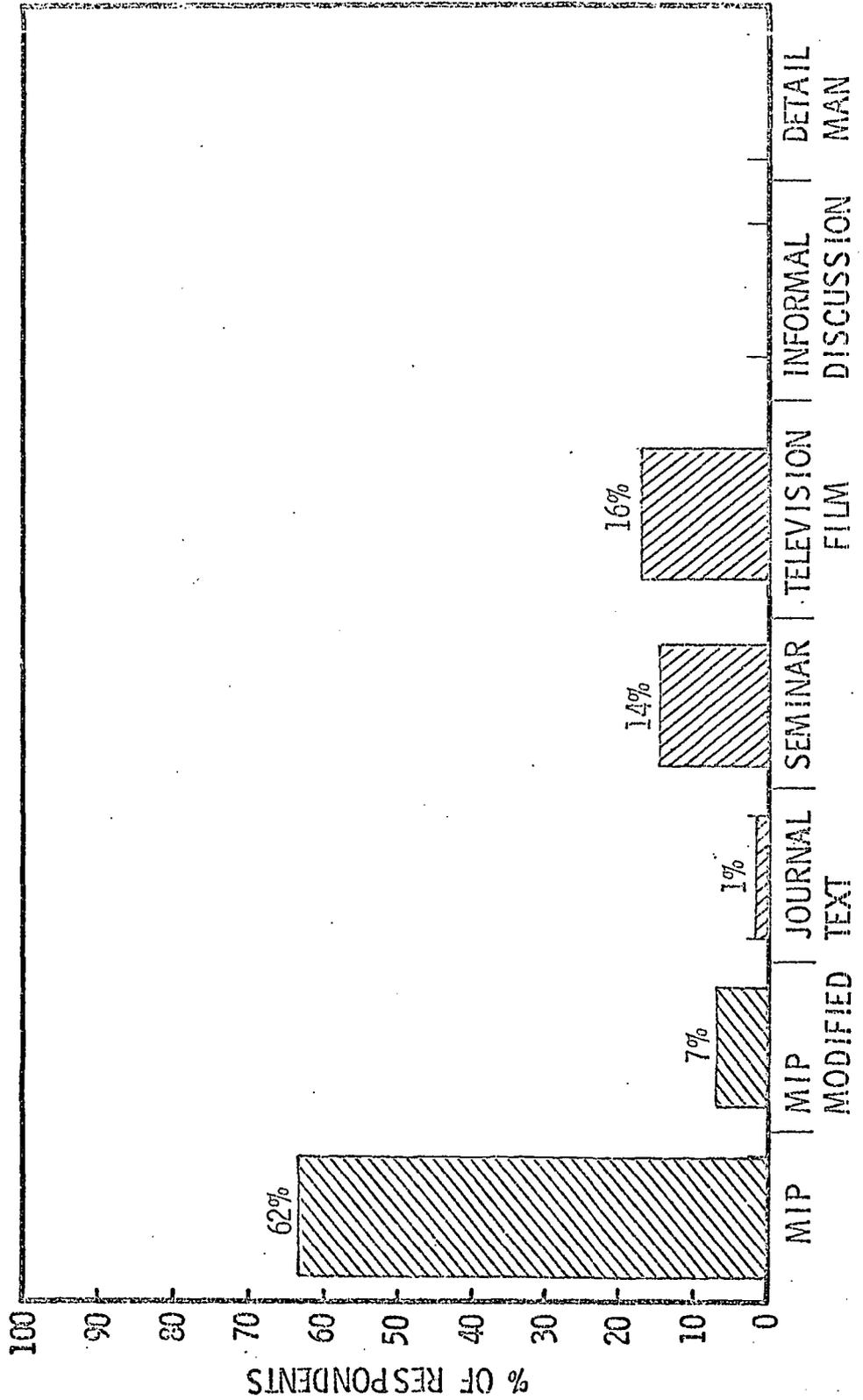


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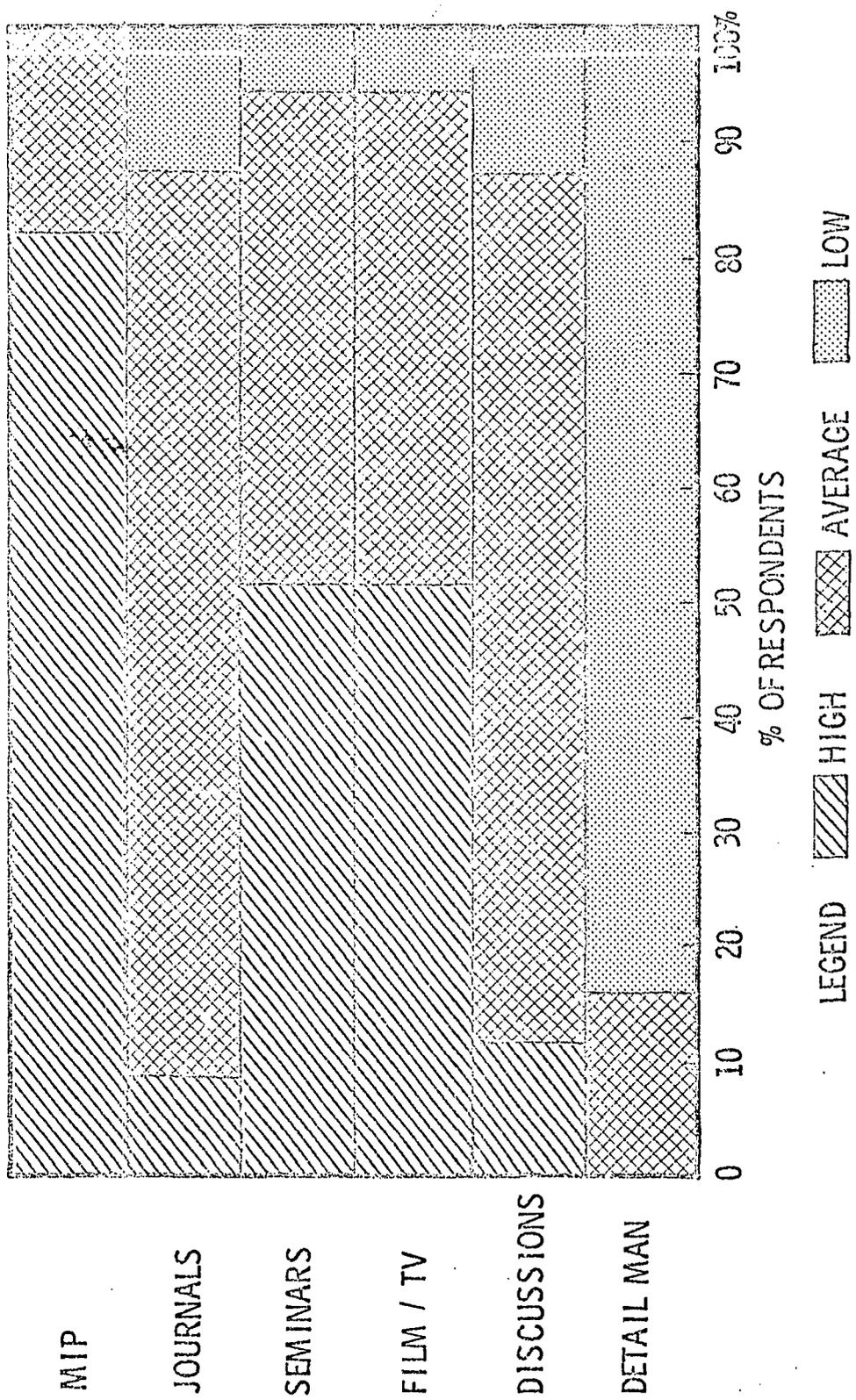


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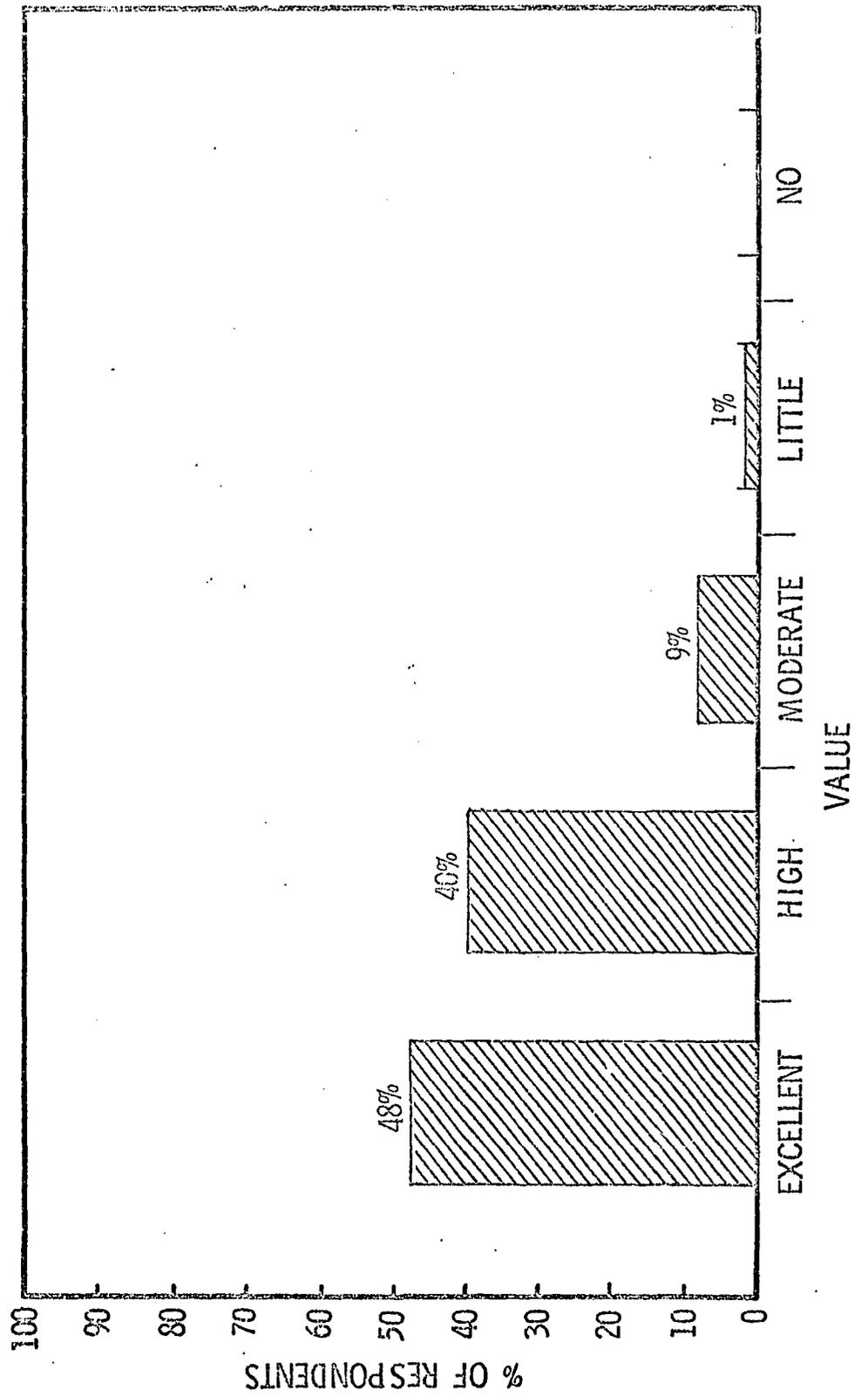
RANK ORDER OF INFORMATION SOURCES



COMPARATIVE RATING OF INFORMATION SOURCES

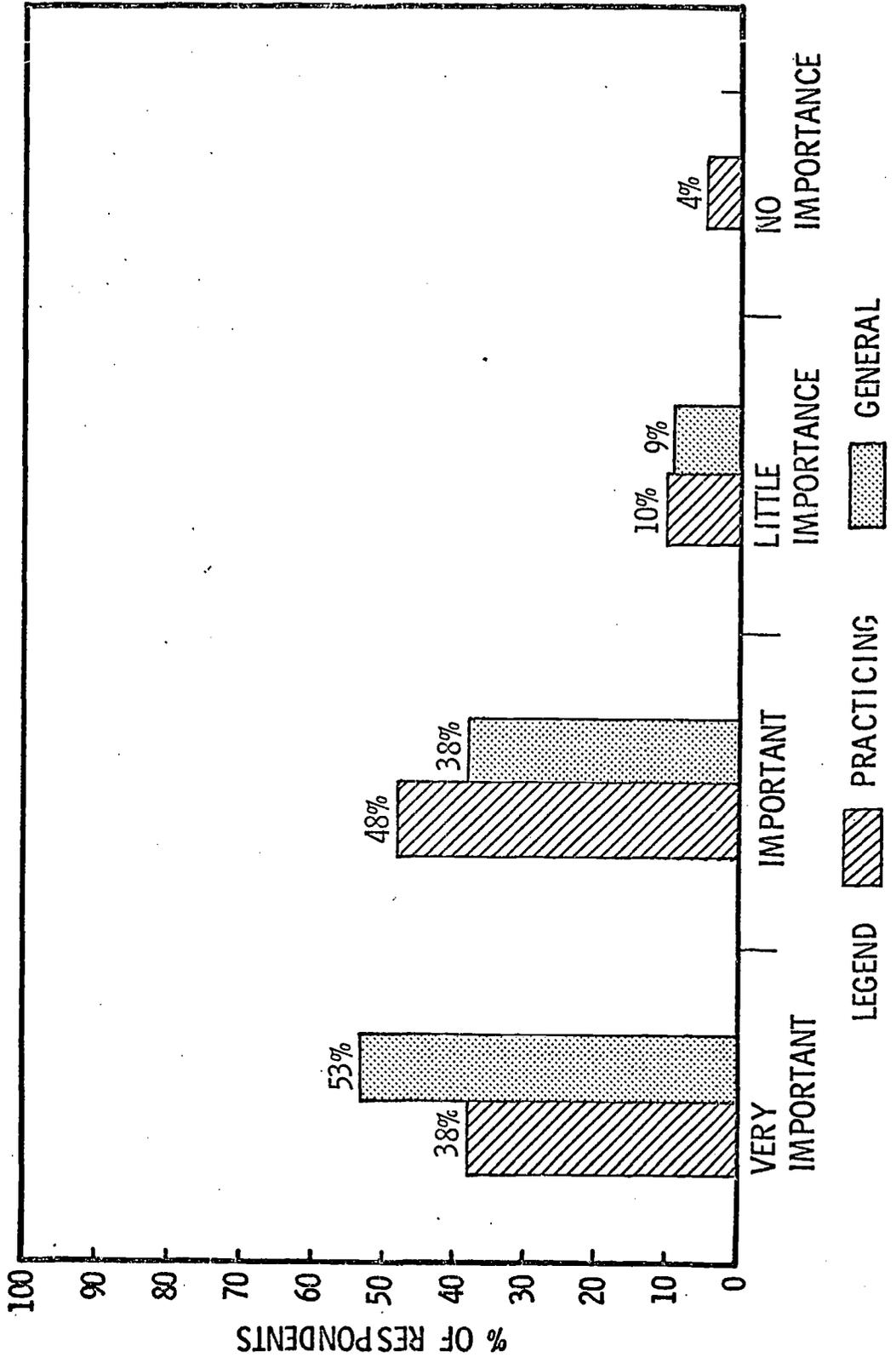


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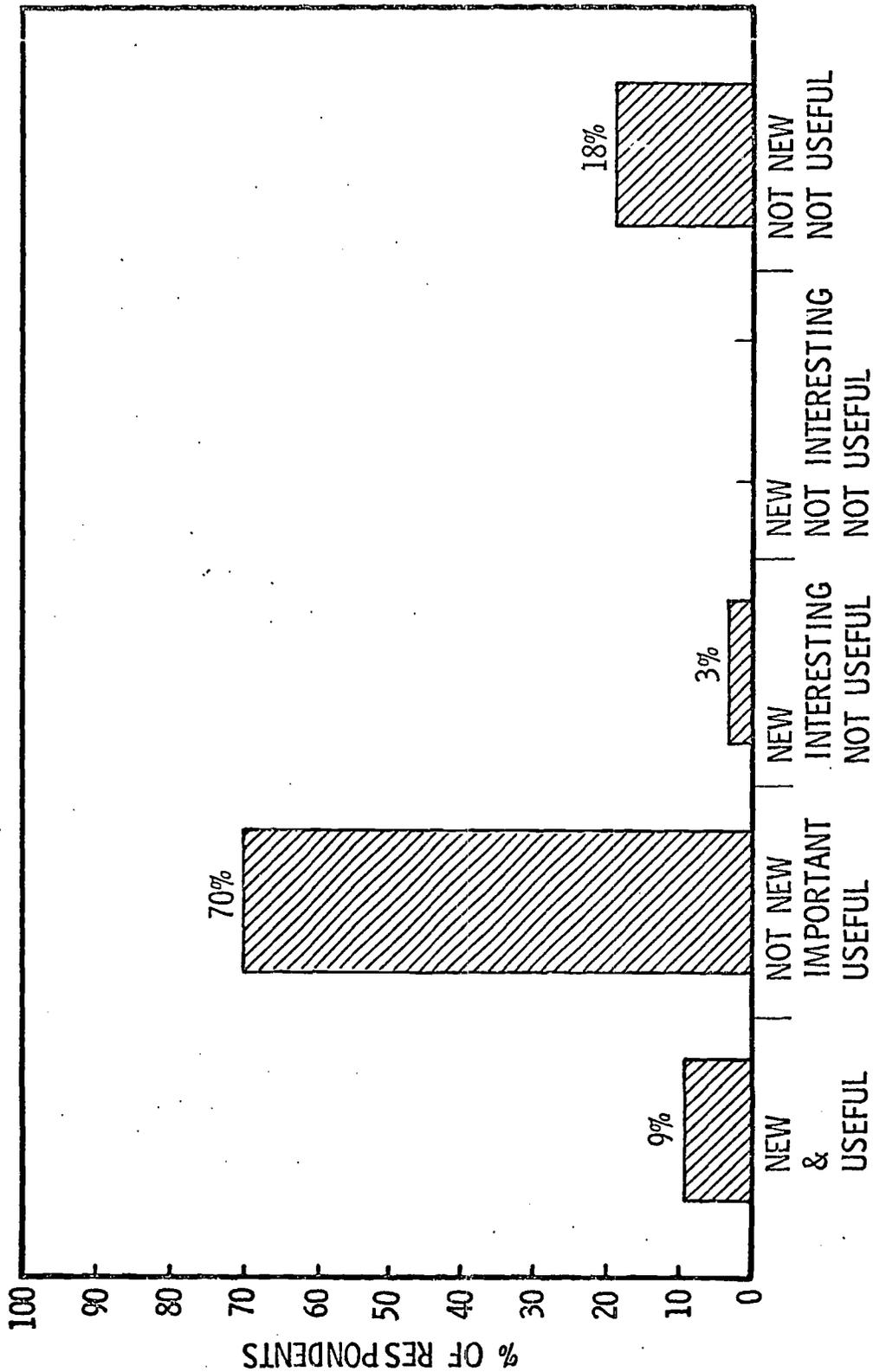


PROGRAM 4: FAMILY PLANNING

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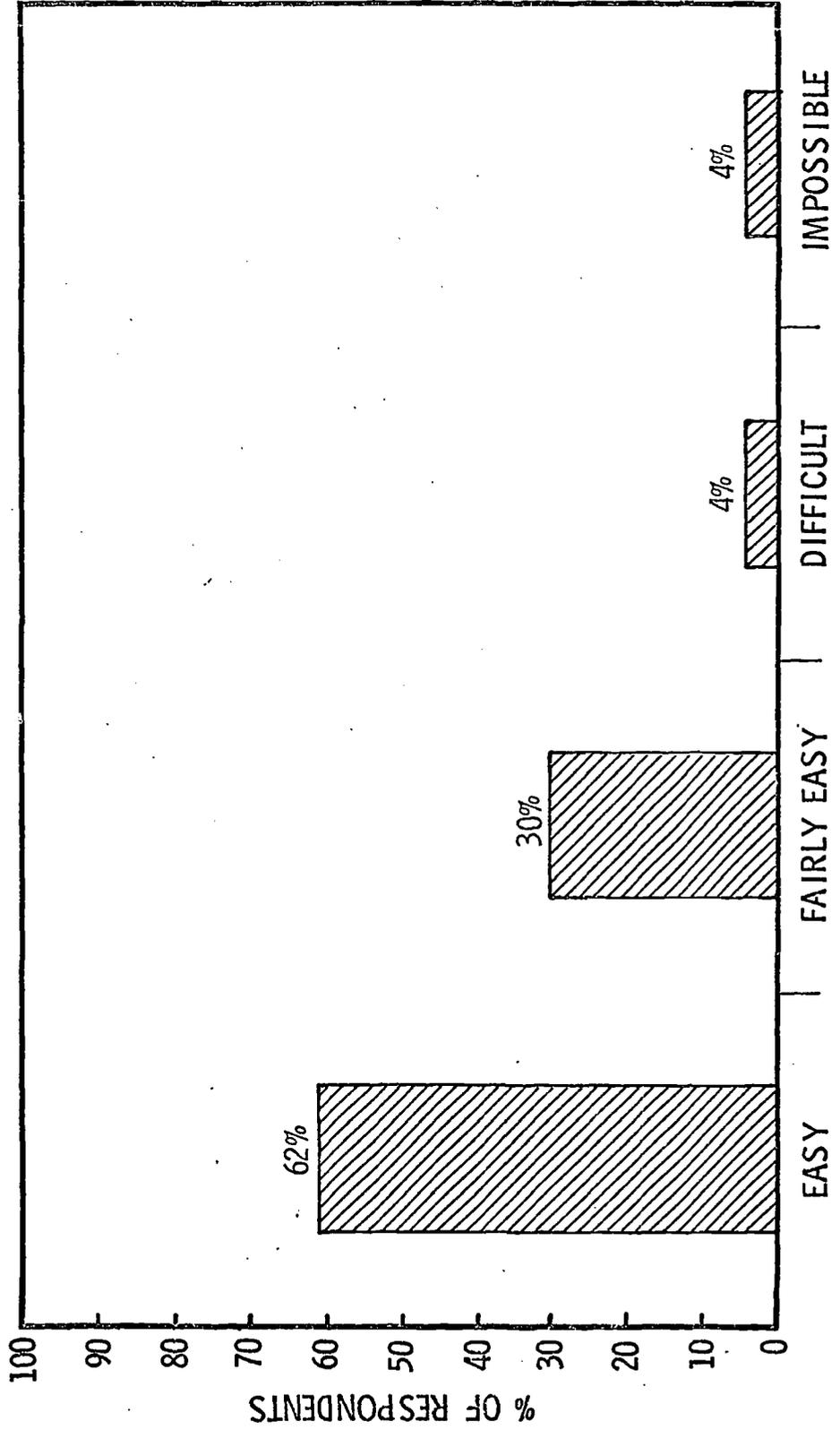


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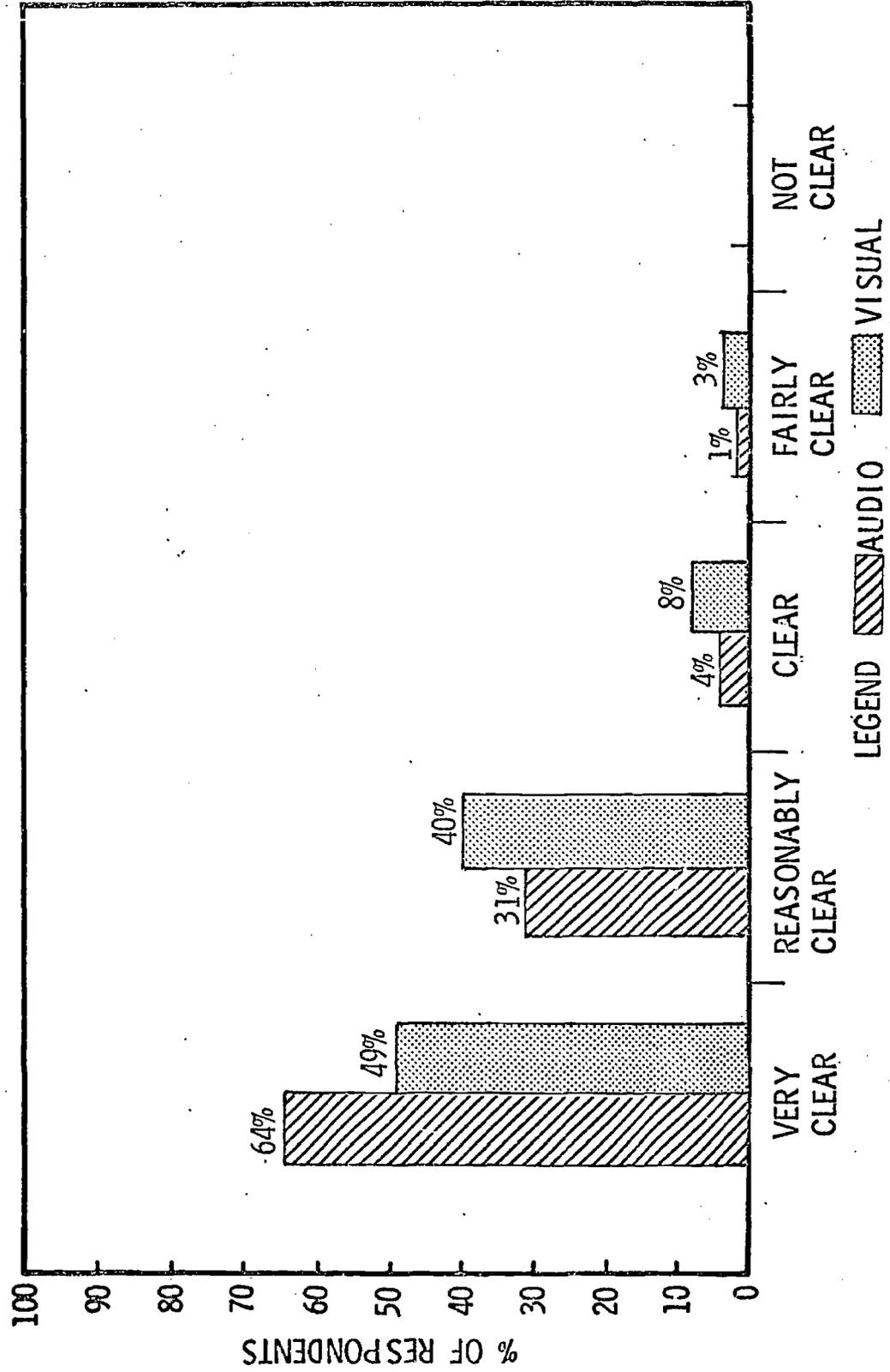
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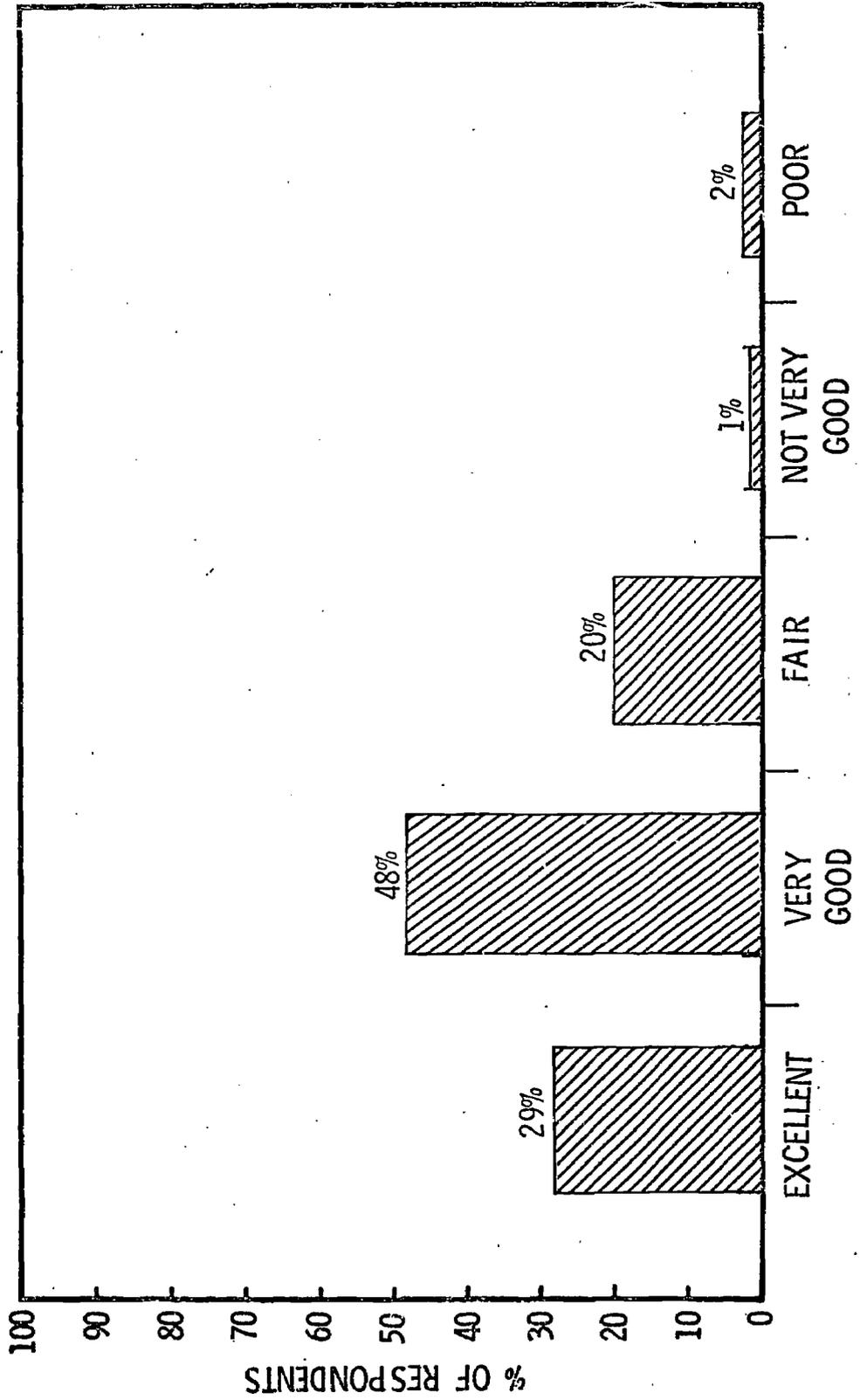


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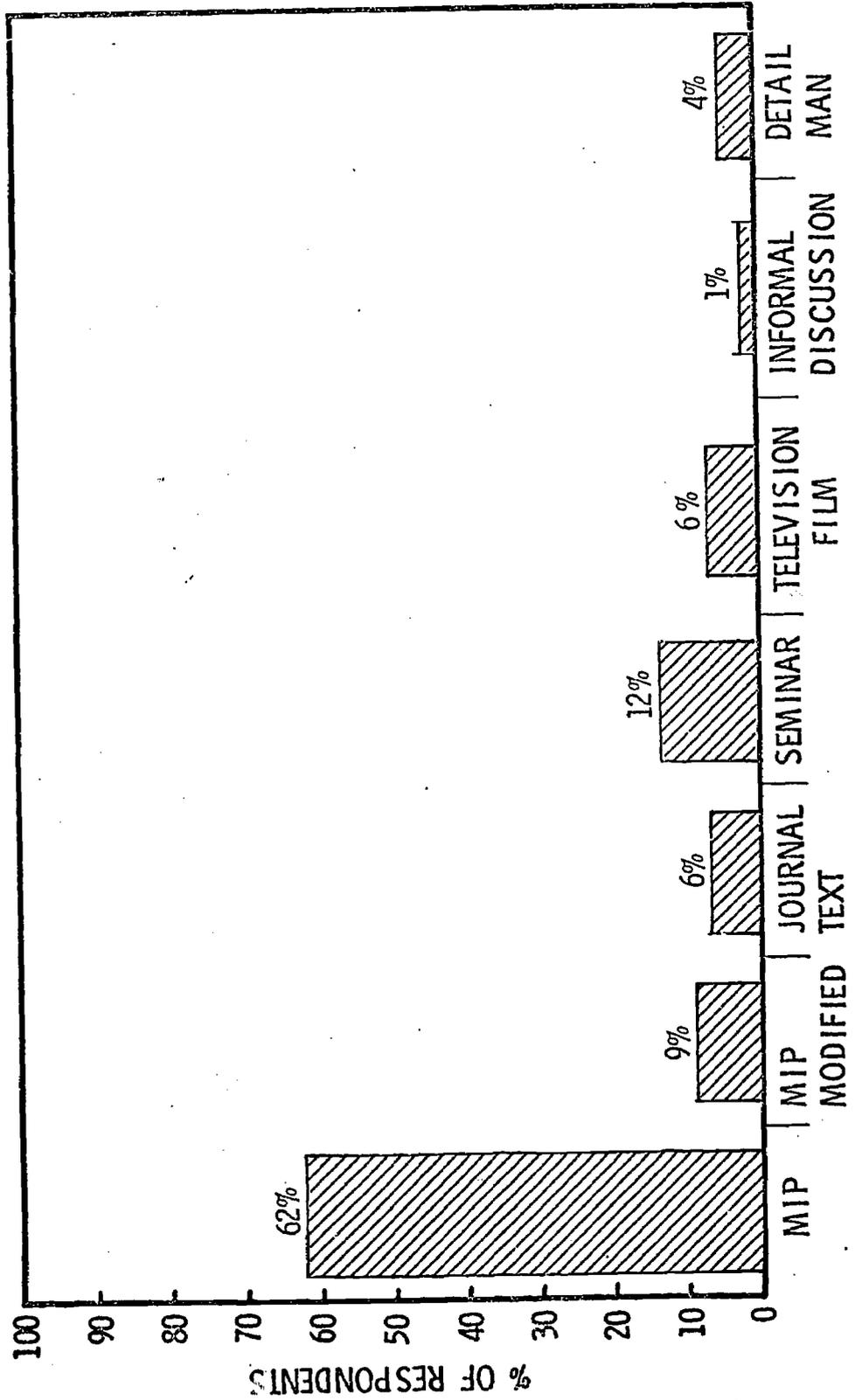


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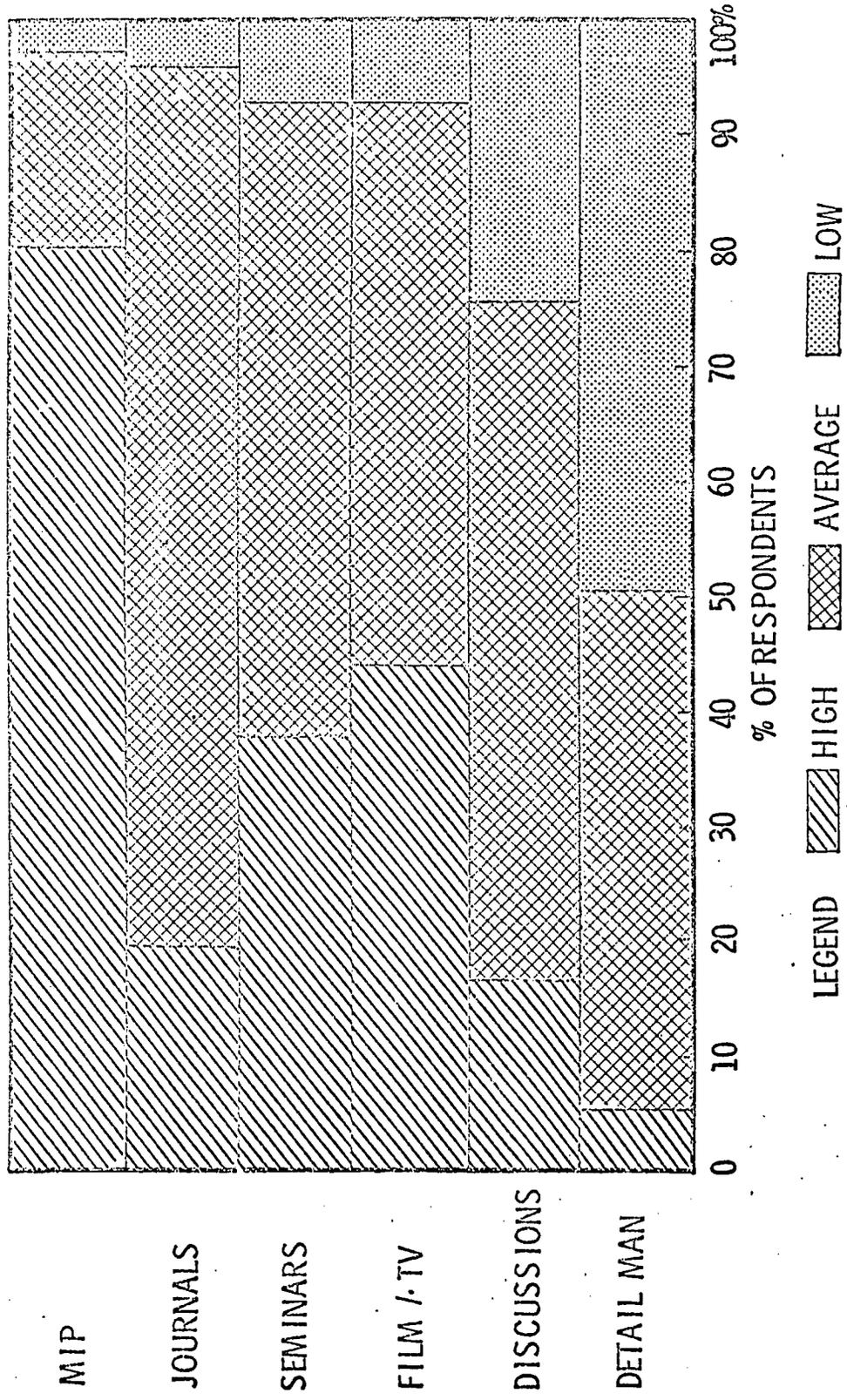
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303

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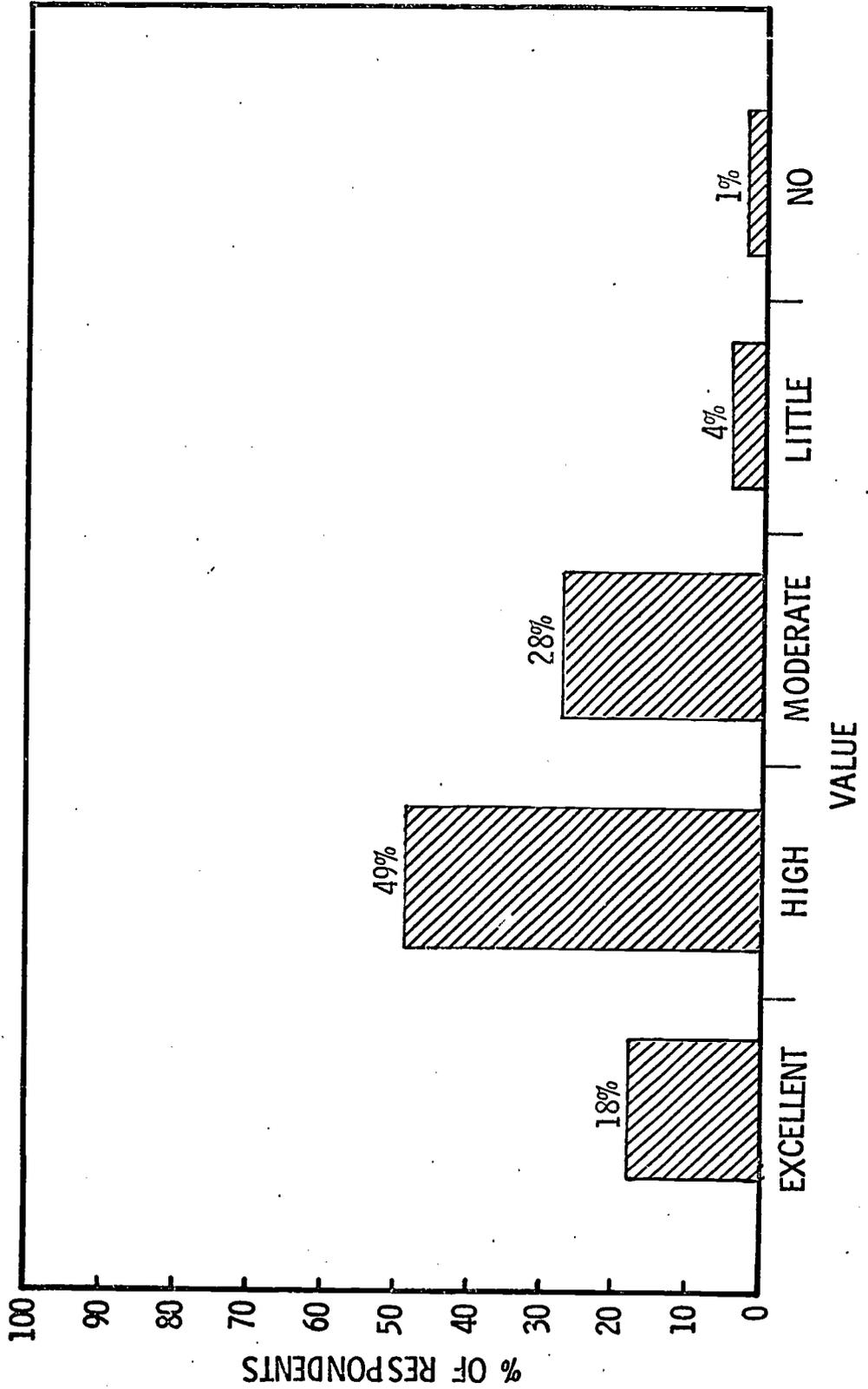


% OF RESPONDENTS

LEGEND HIGH AVERAGE LOW

304

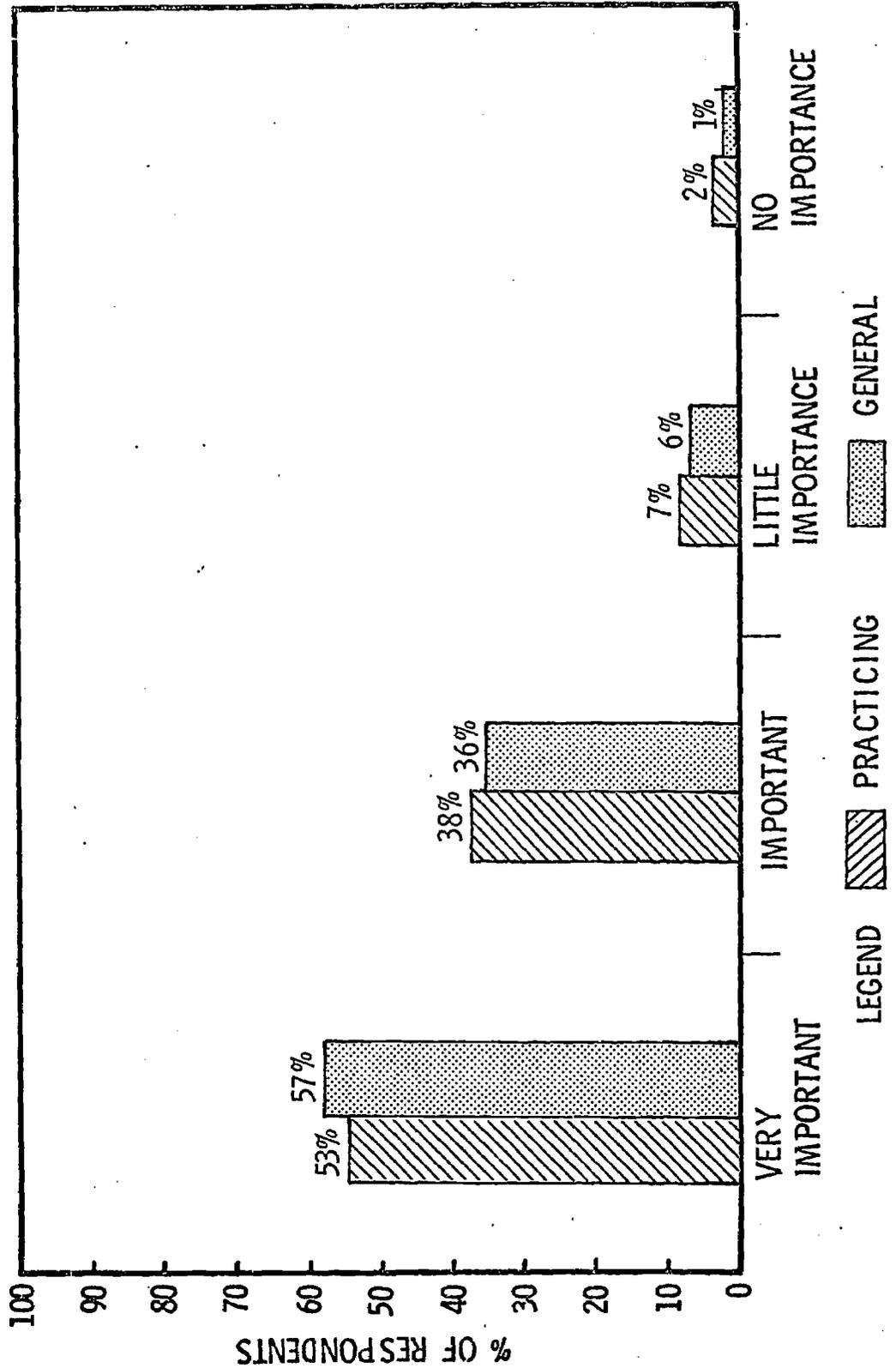
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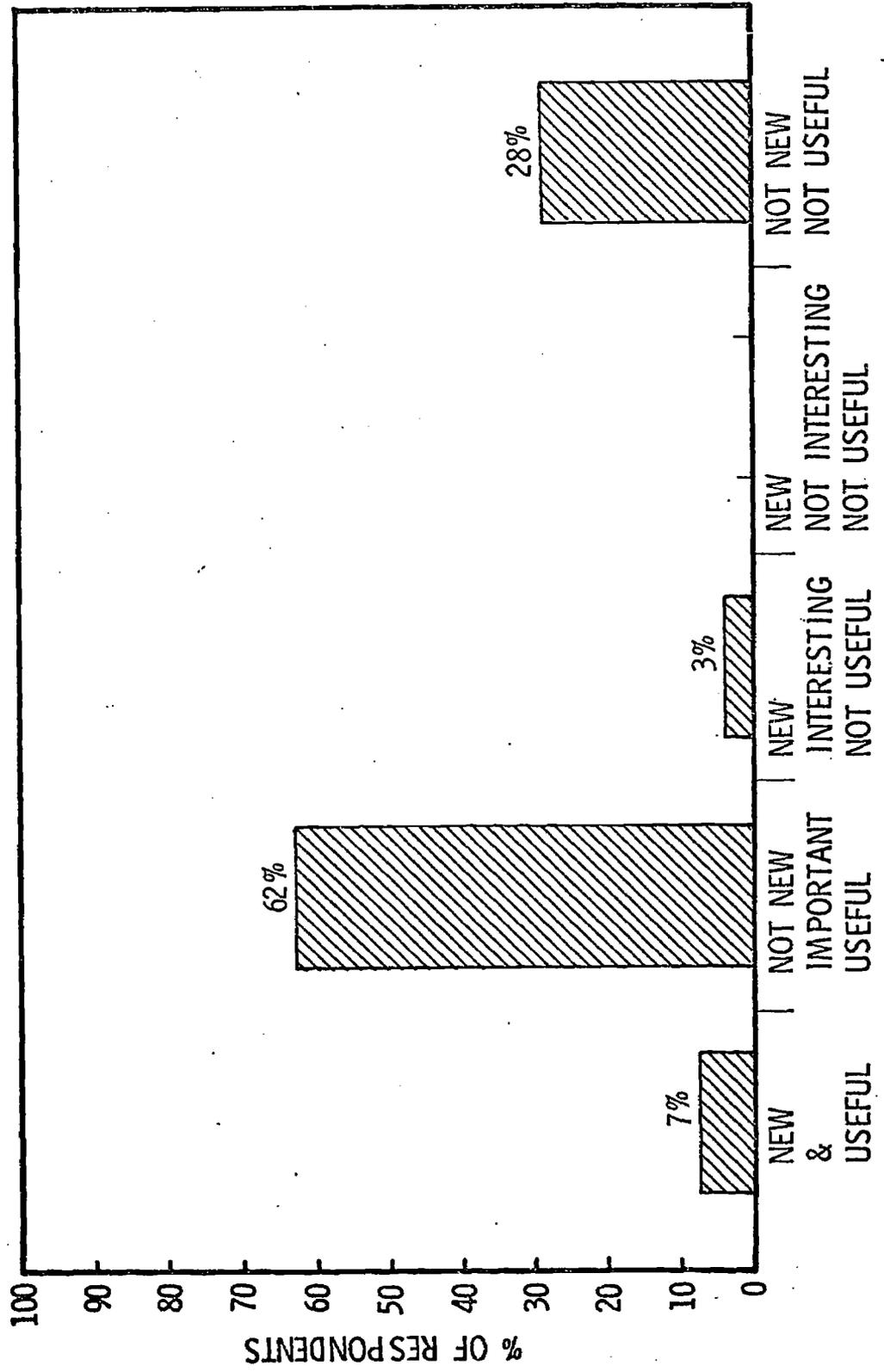
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PROGRAM 5: ROUTINE GYN EXAMINATION

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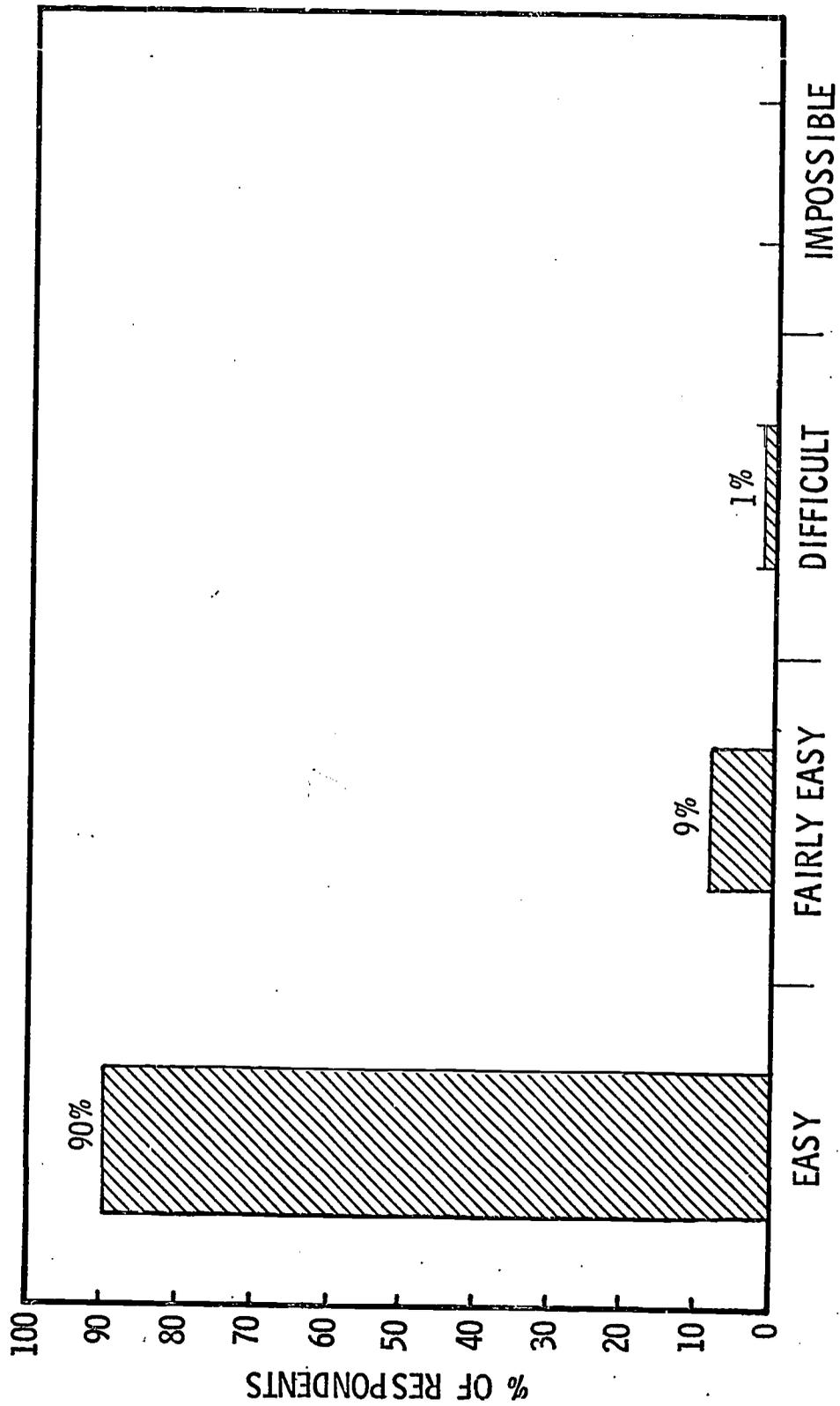


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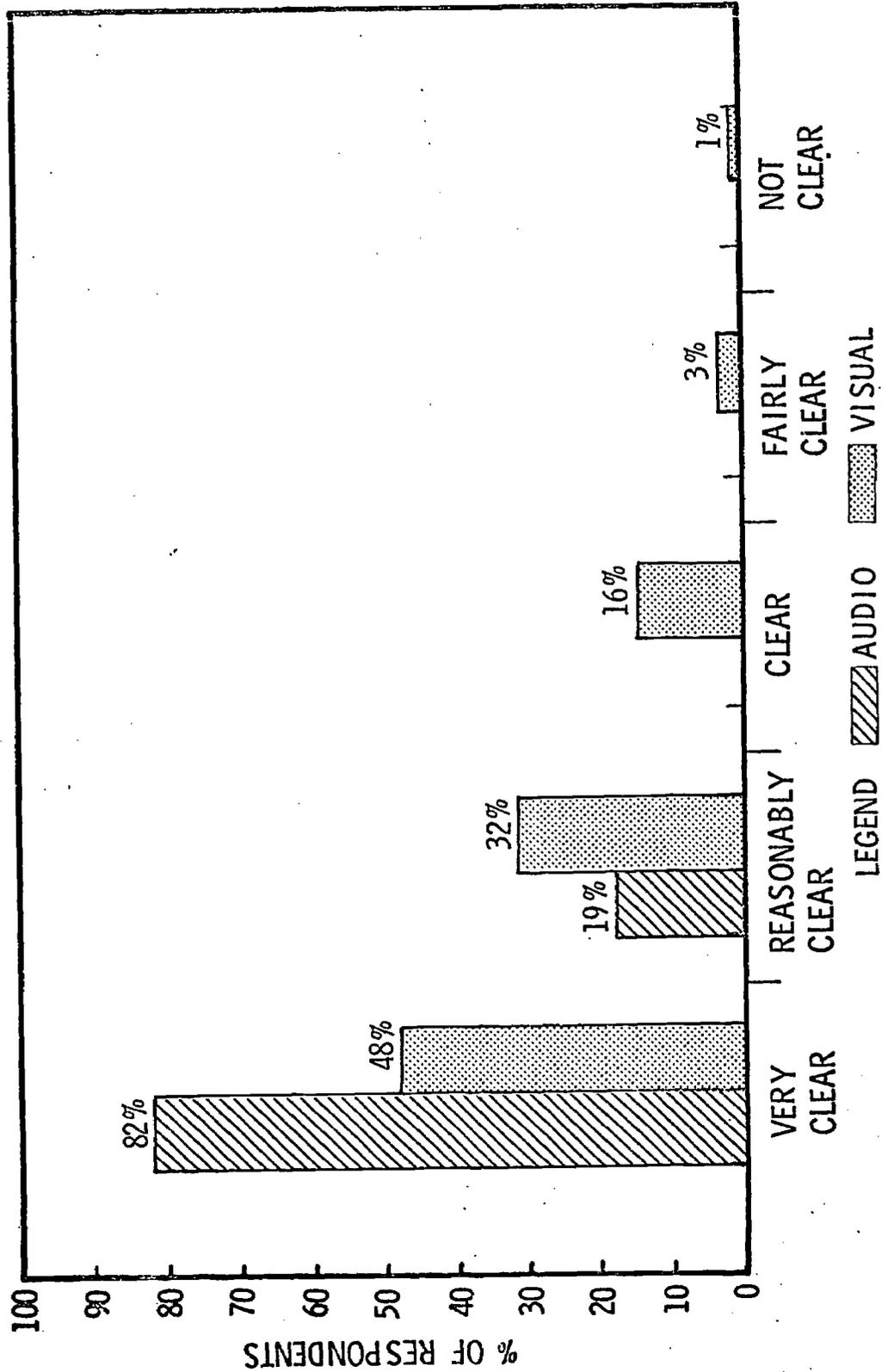
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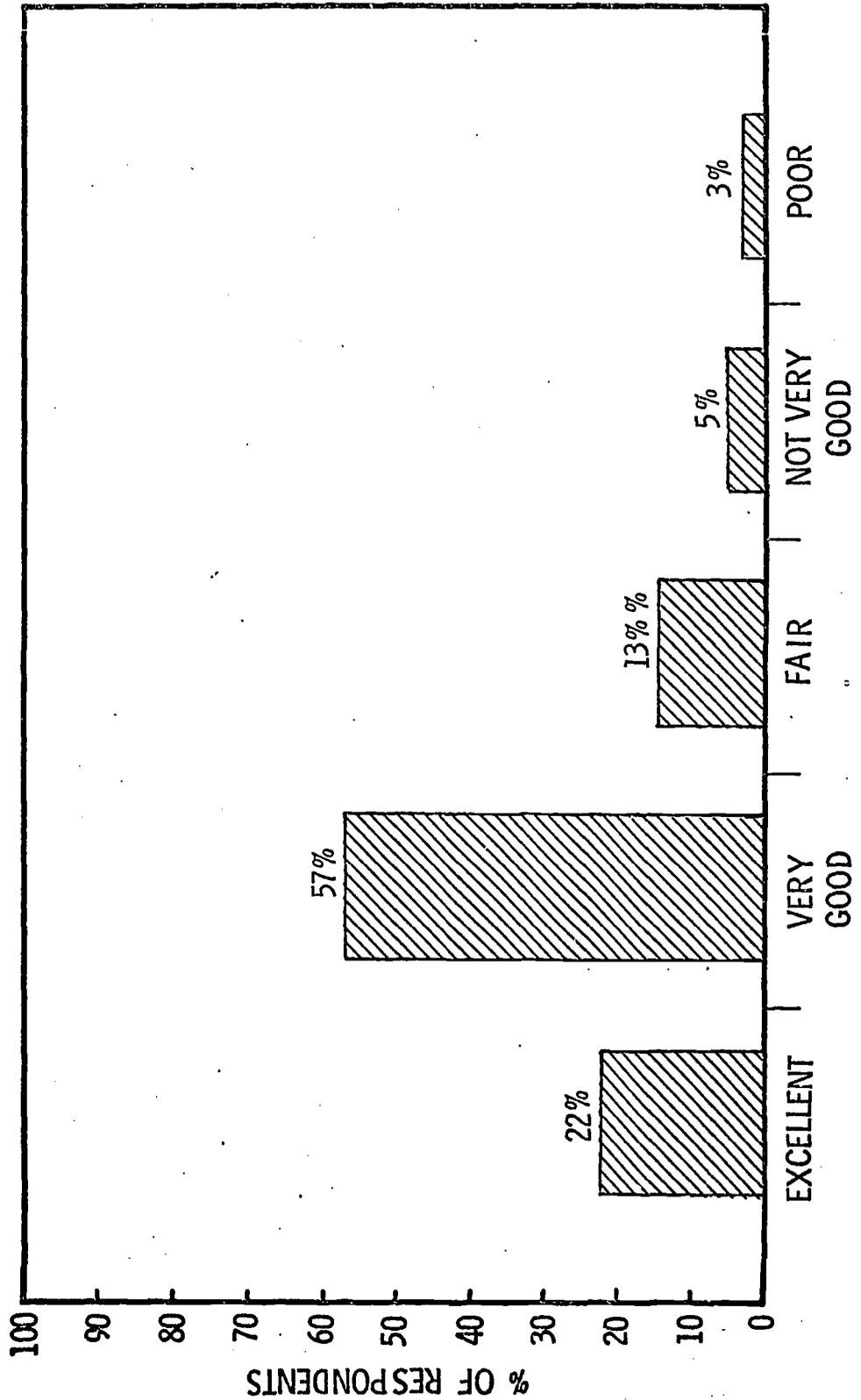
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COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS



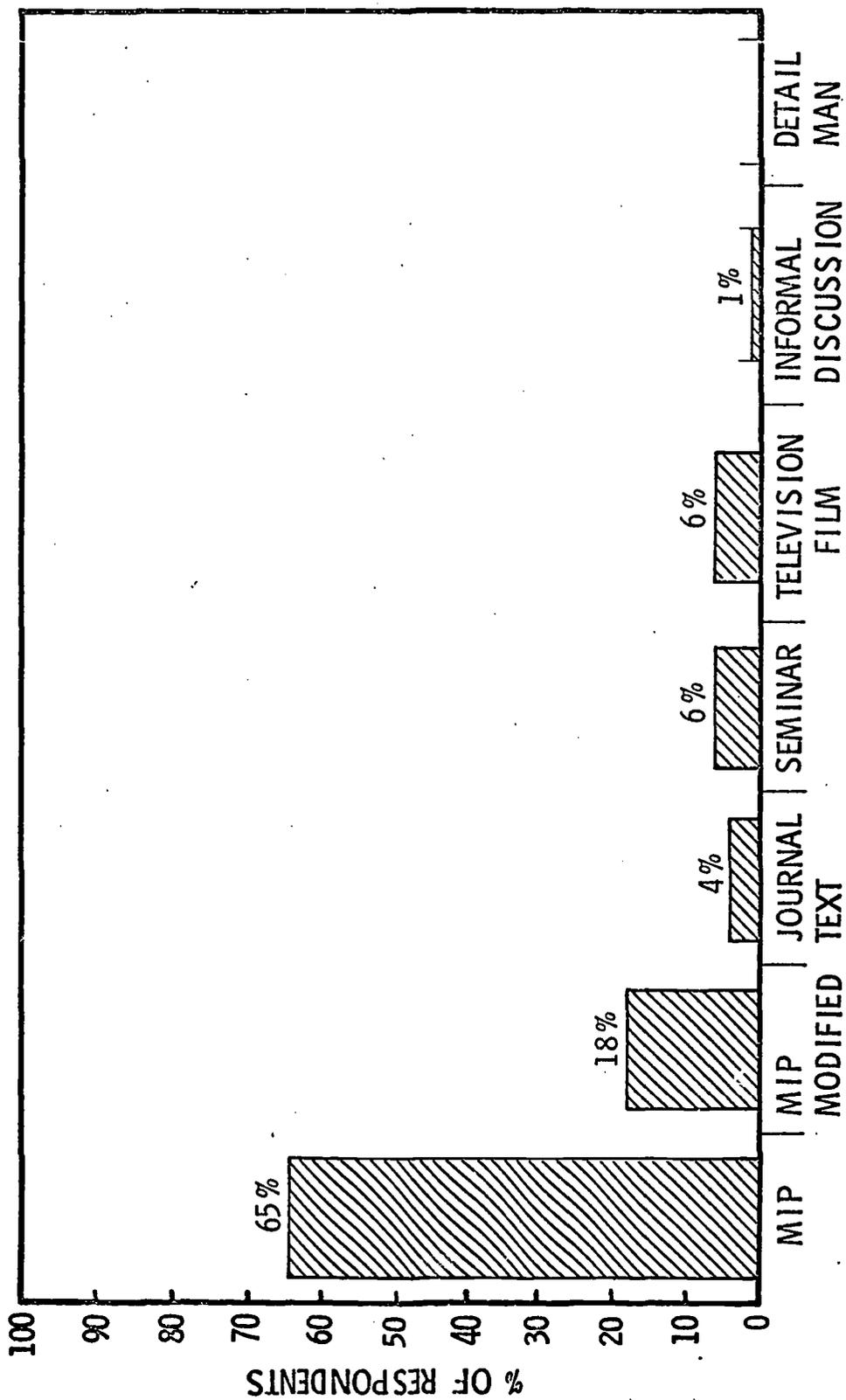
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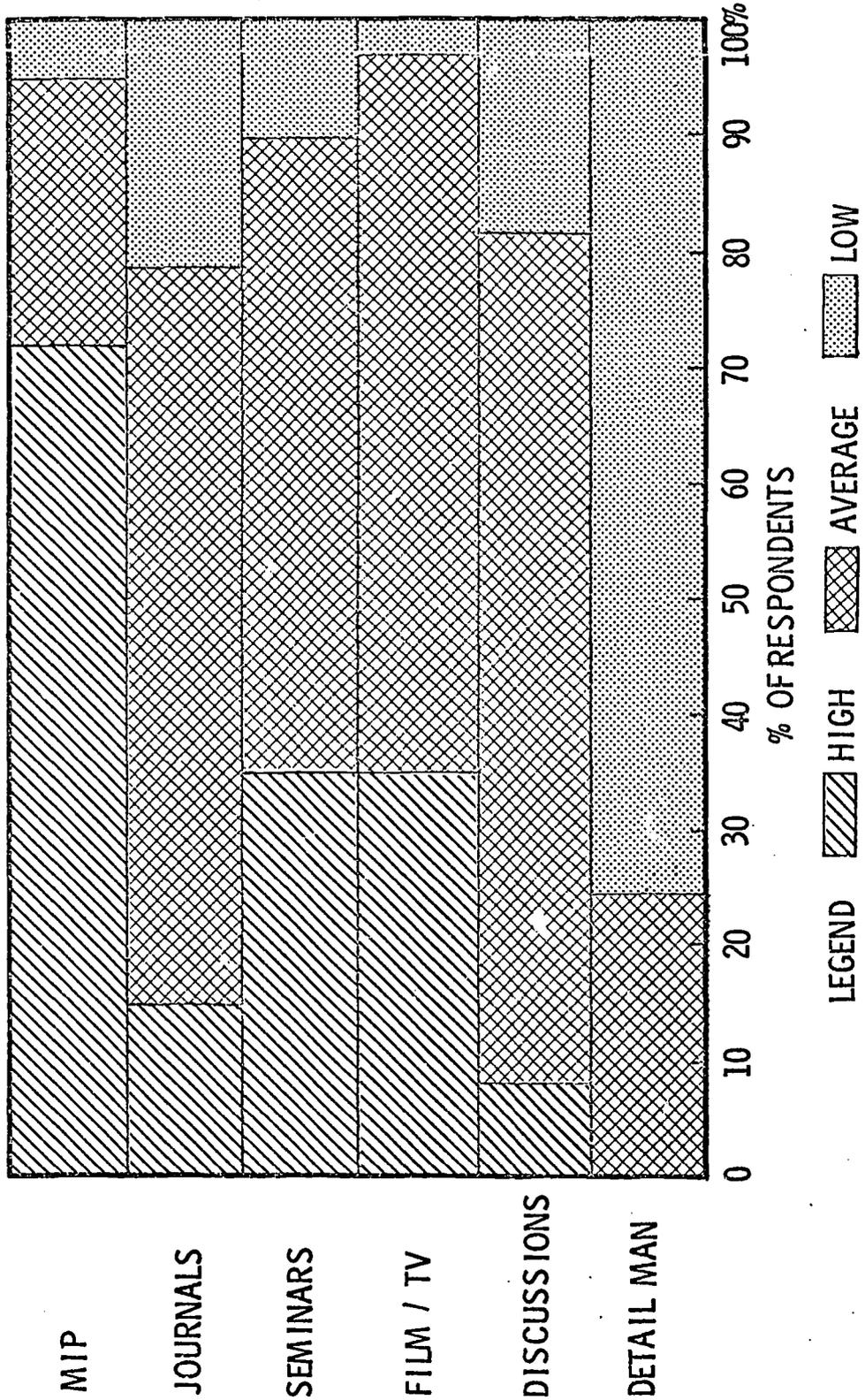
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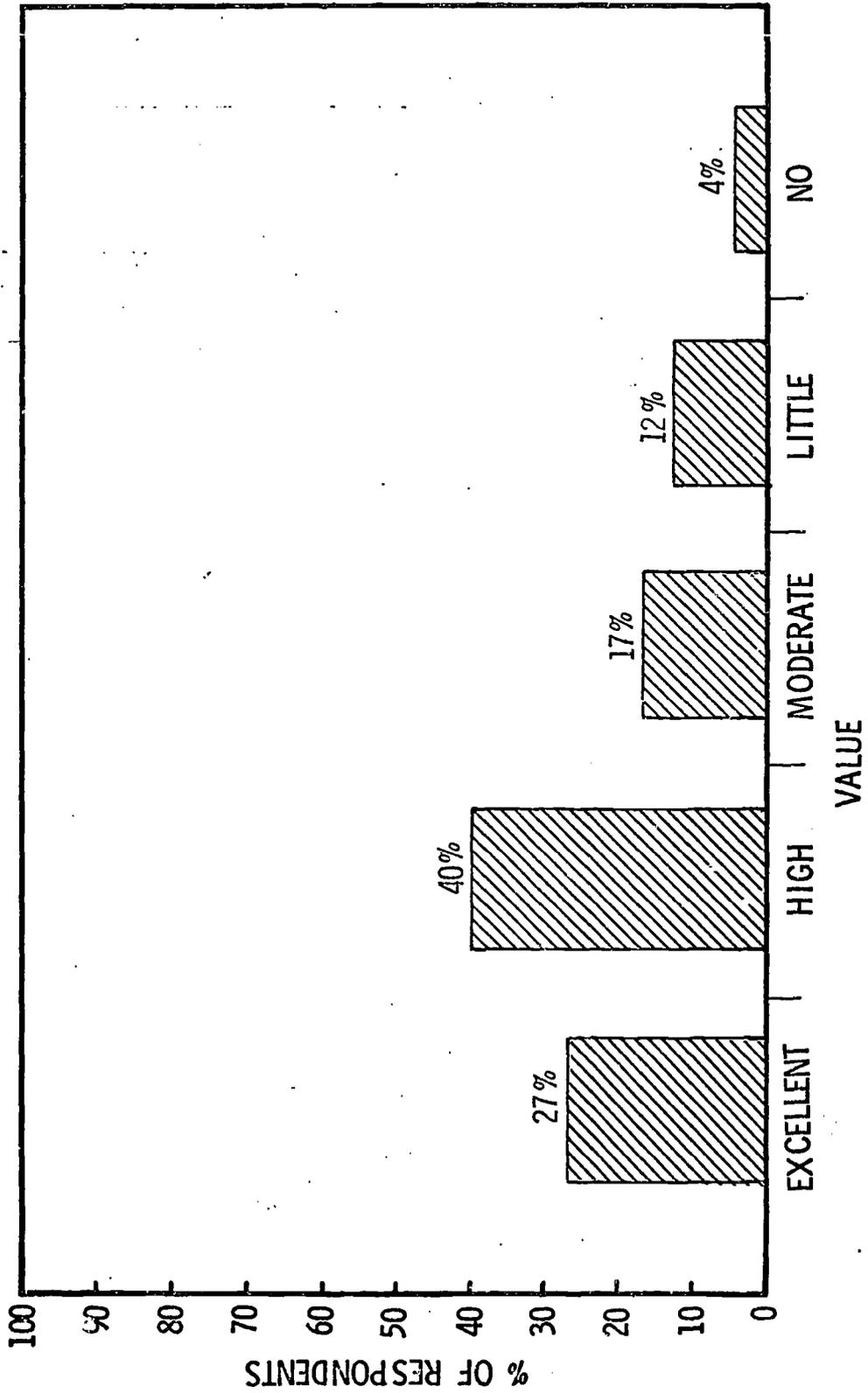
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COMPARATIVE RATING OF INFORMATION SOURCES



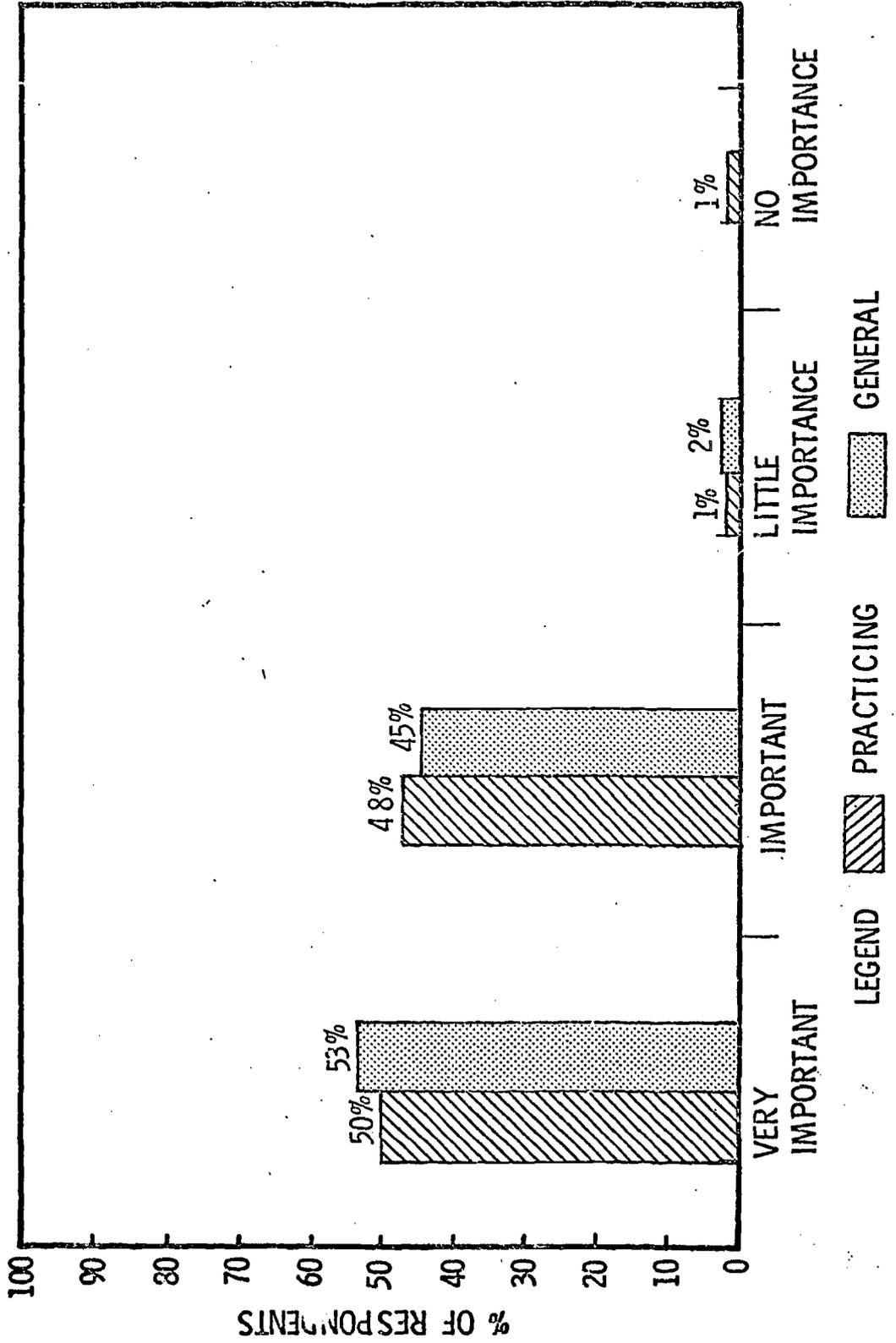
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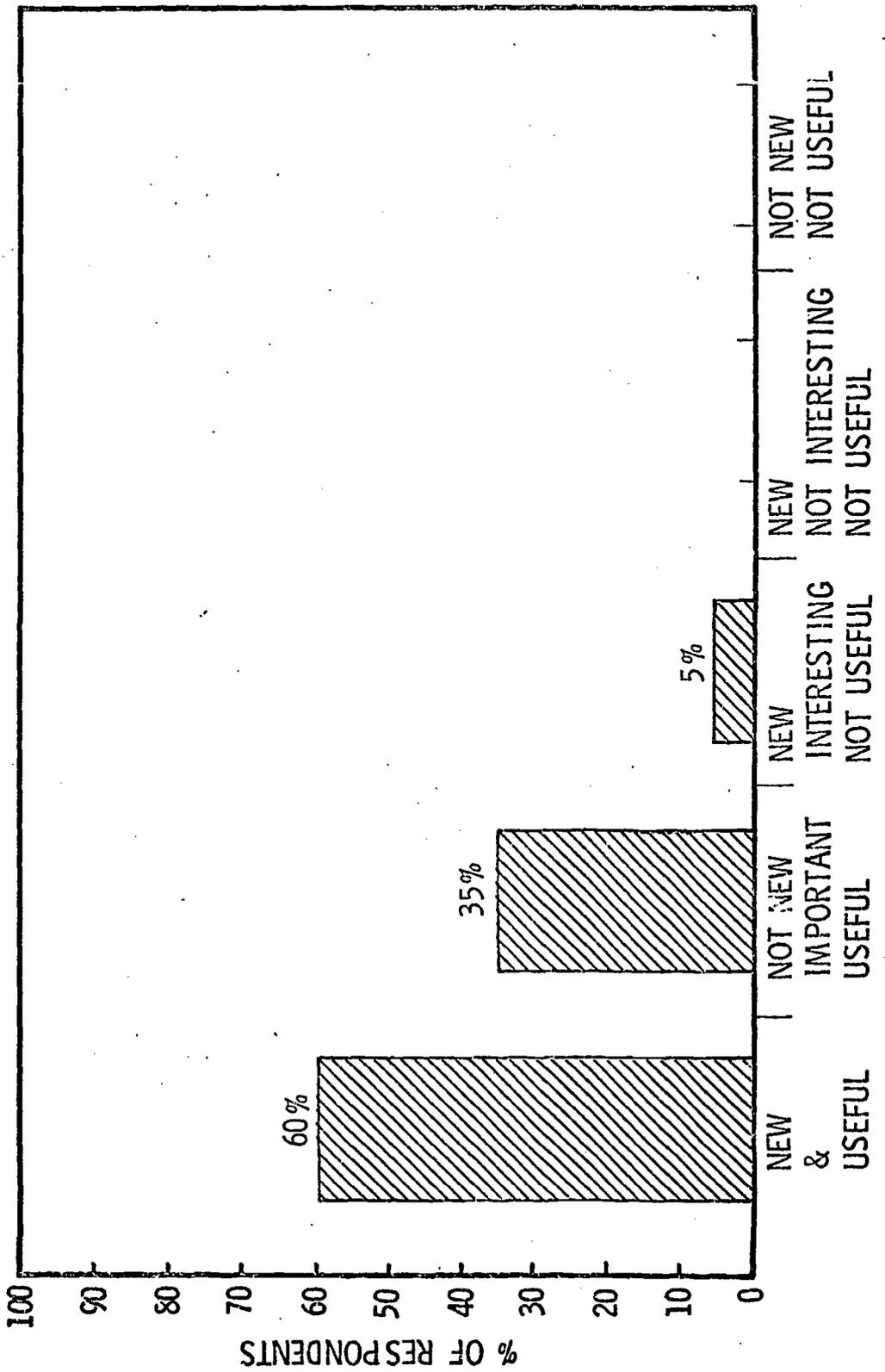
PROGRAM 6: ASSESSMENT OF MATURITY AND THE
ENVIRONMENT OF THE NEWBORN

RATING OF INFORMATION



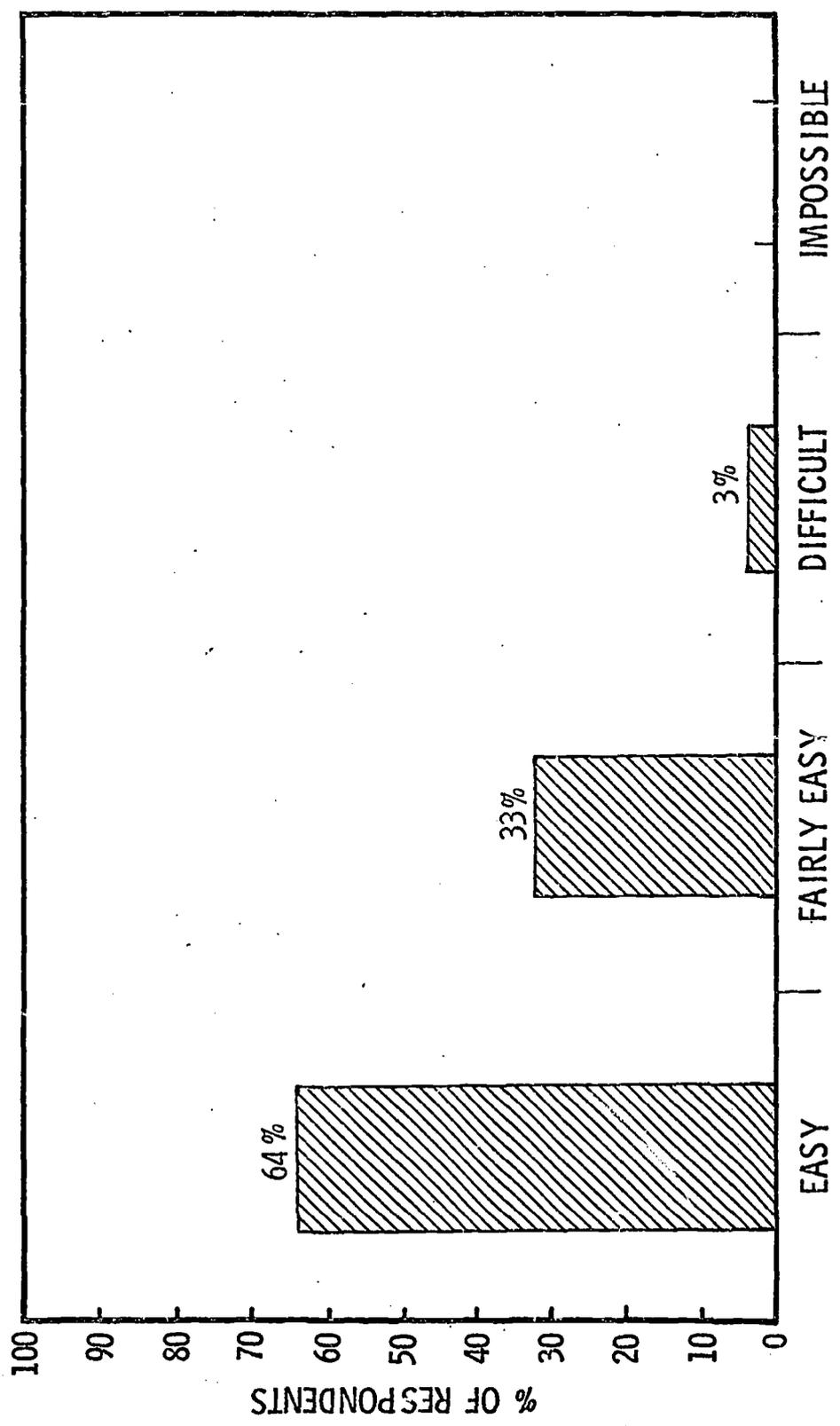
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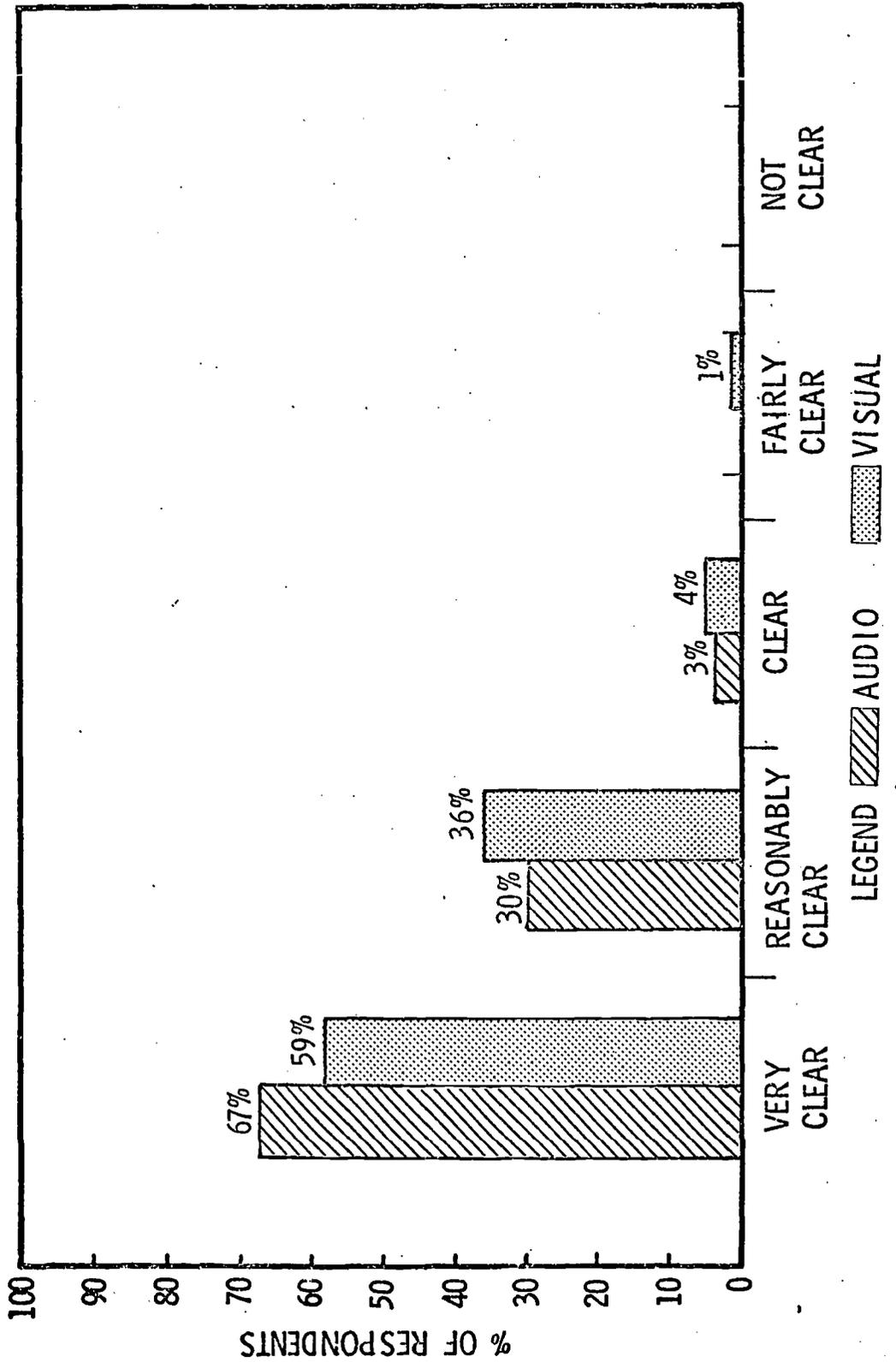
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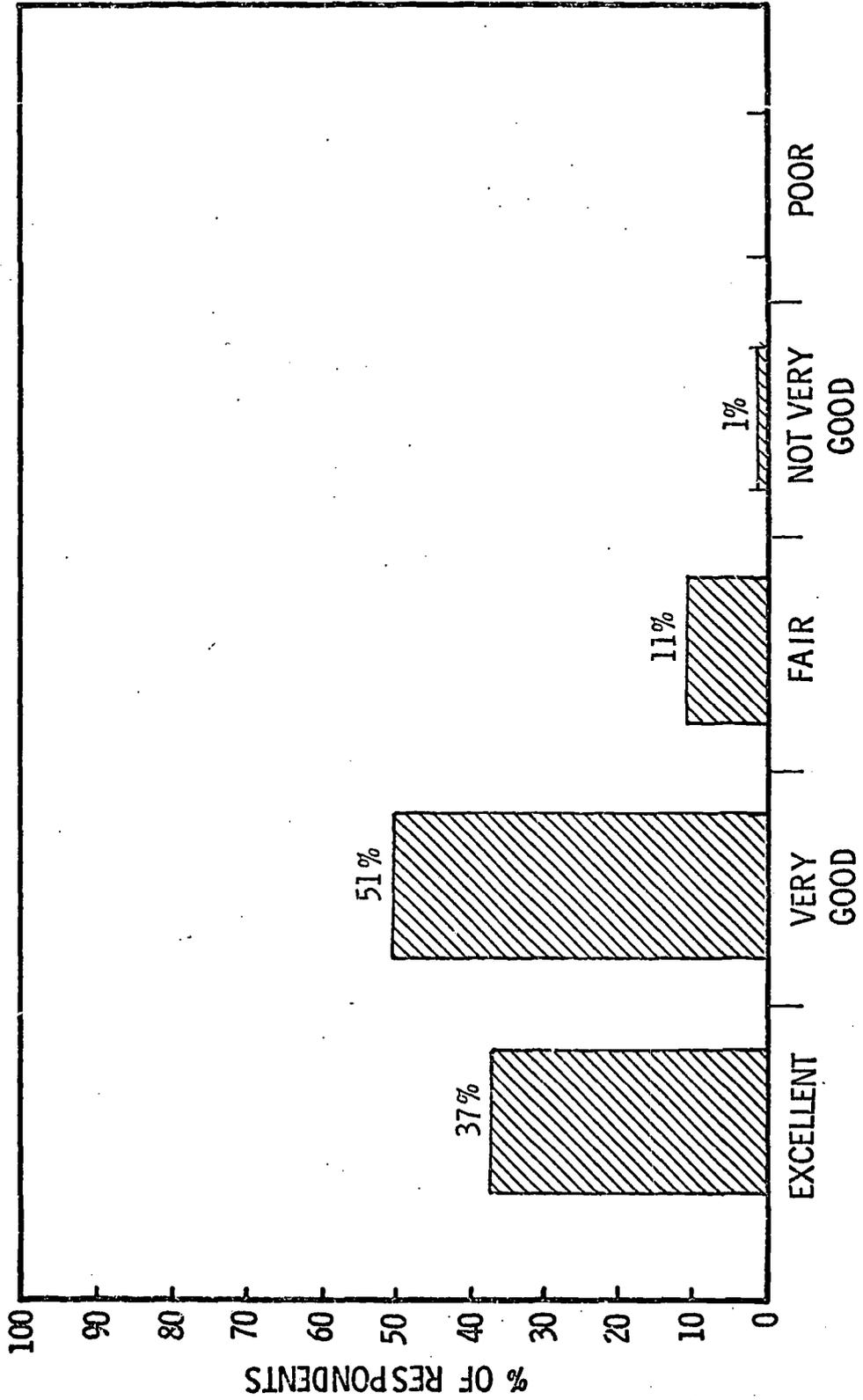
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COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS



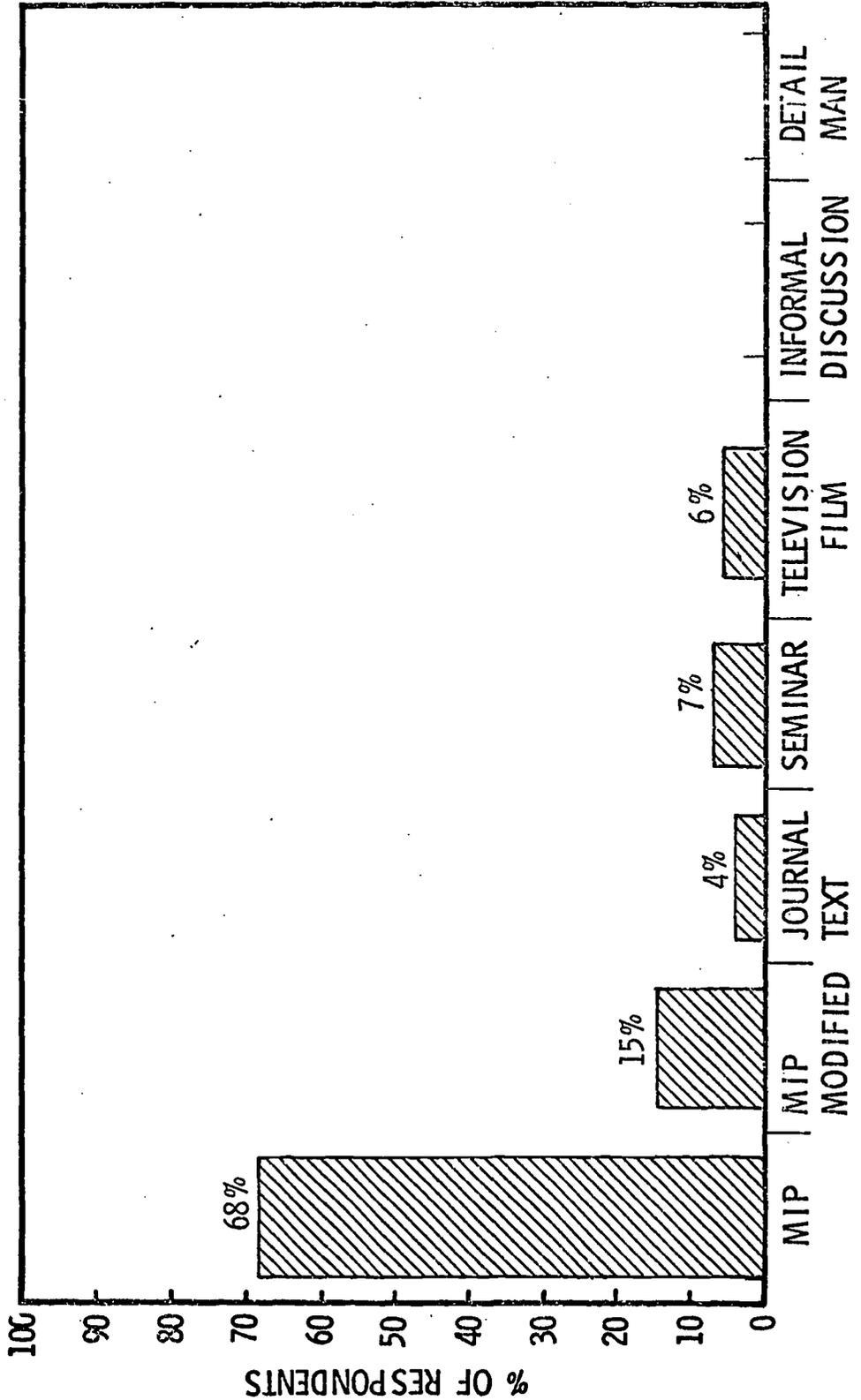
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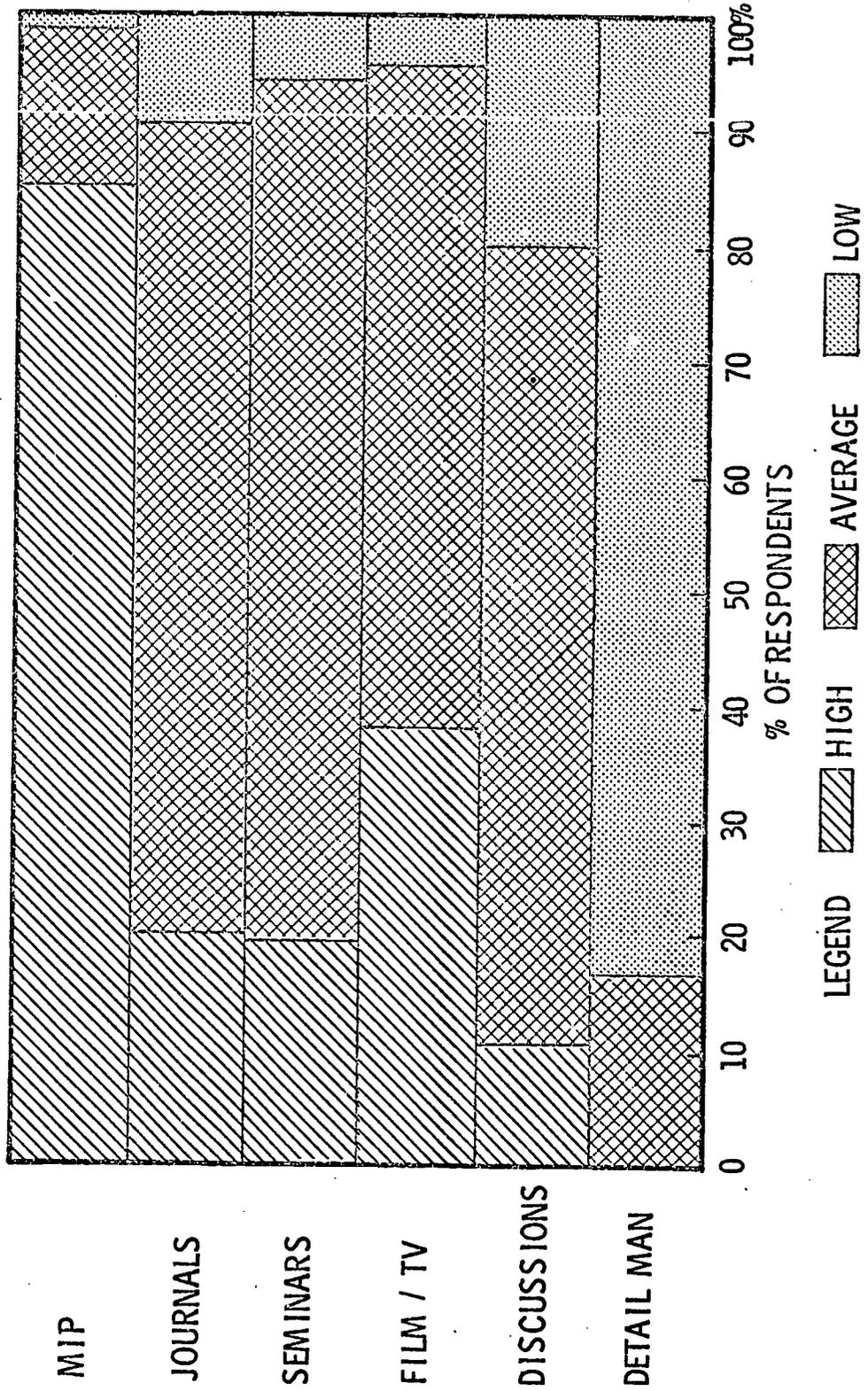
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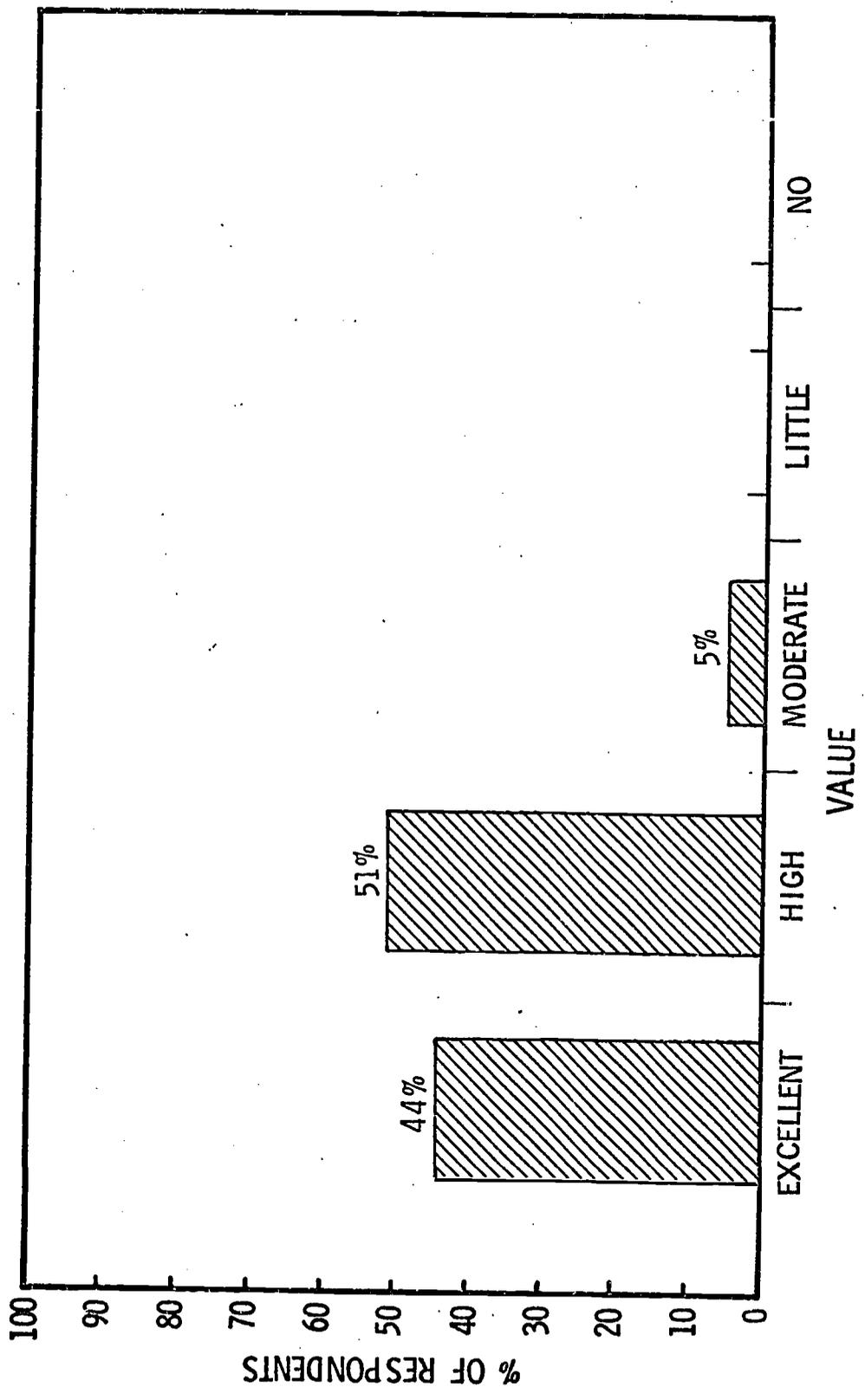
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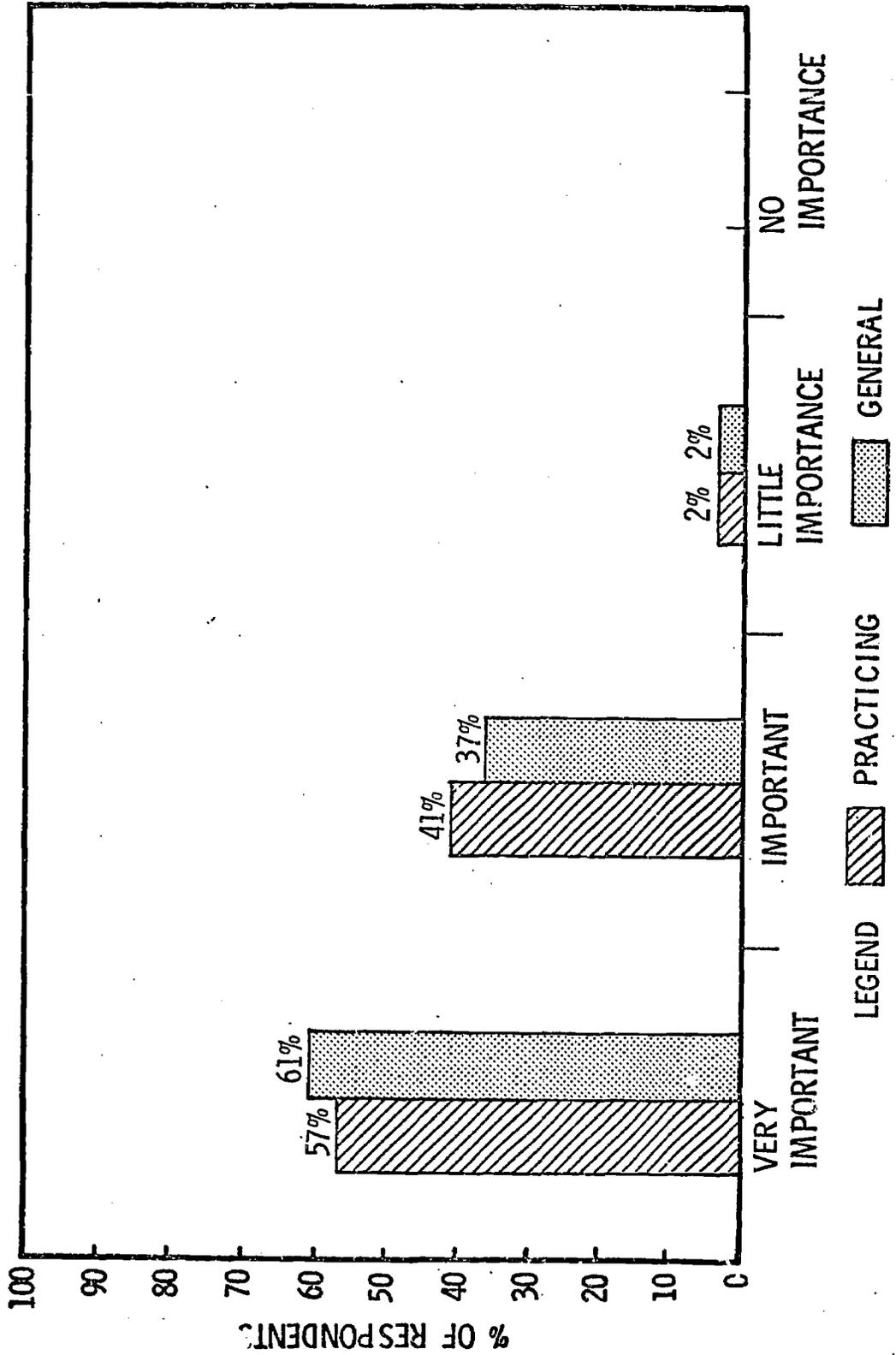
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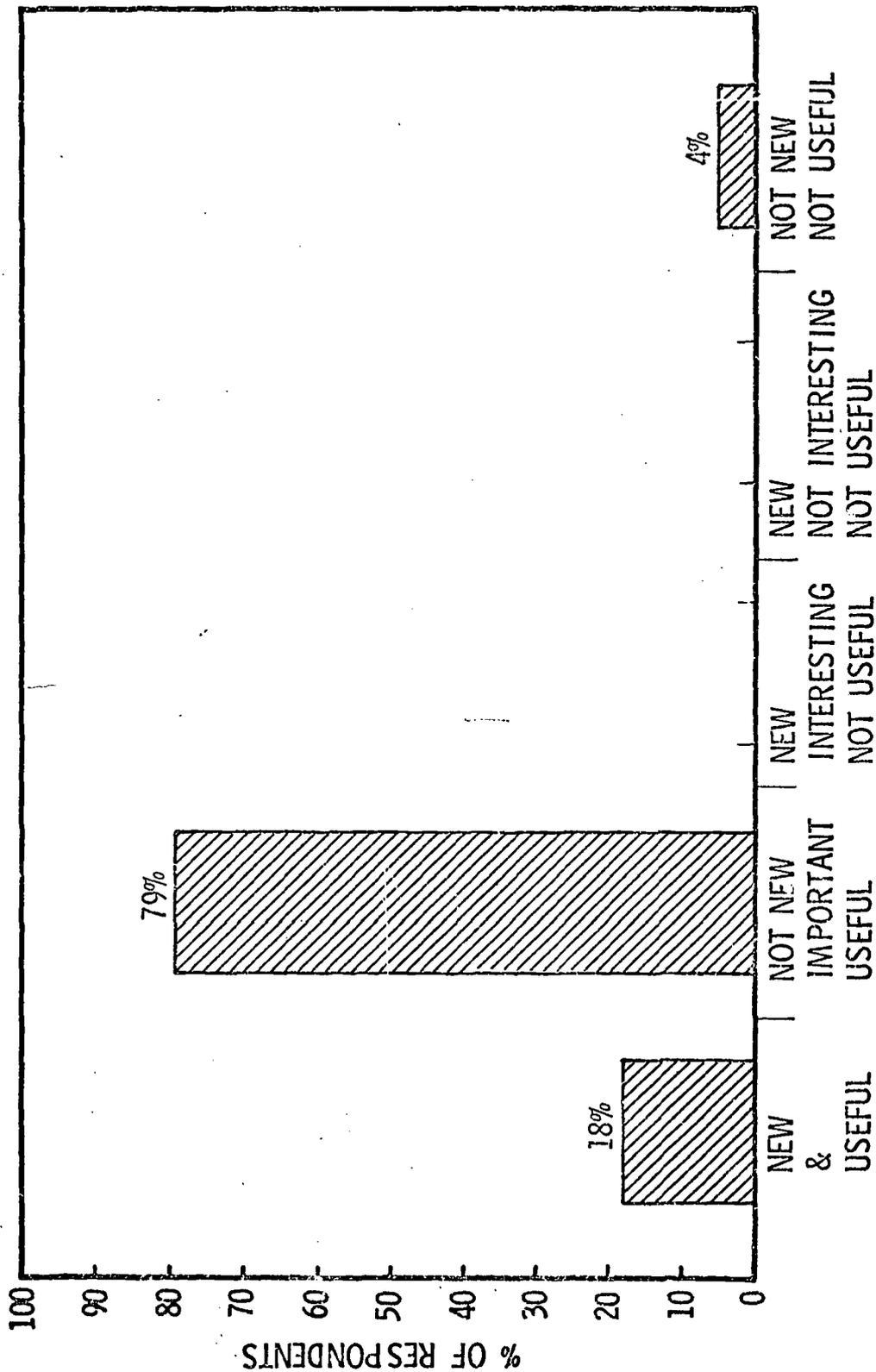
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RATING OF INFORMATION

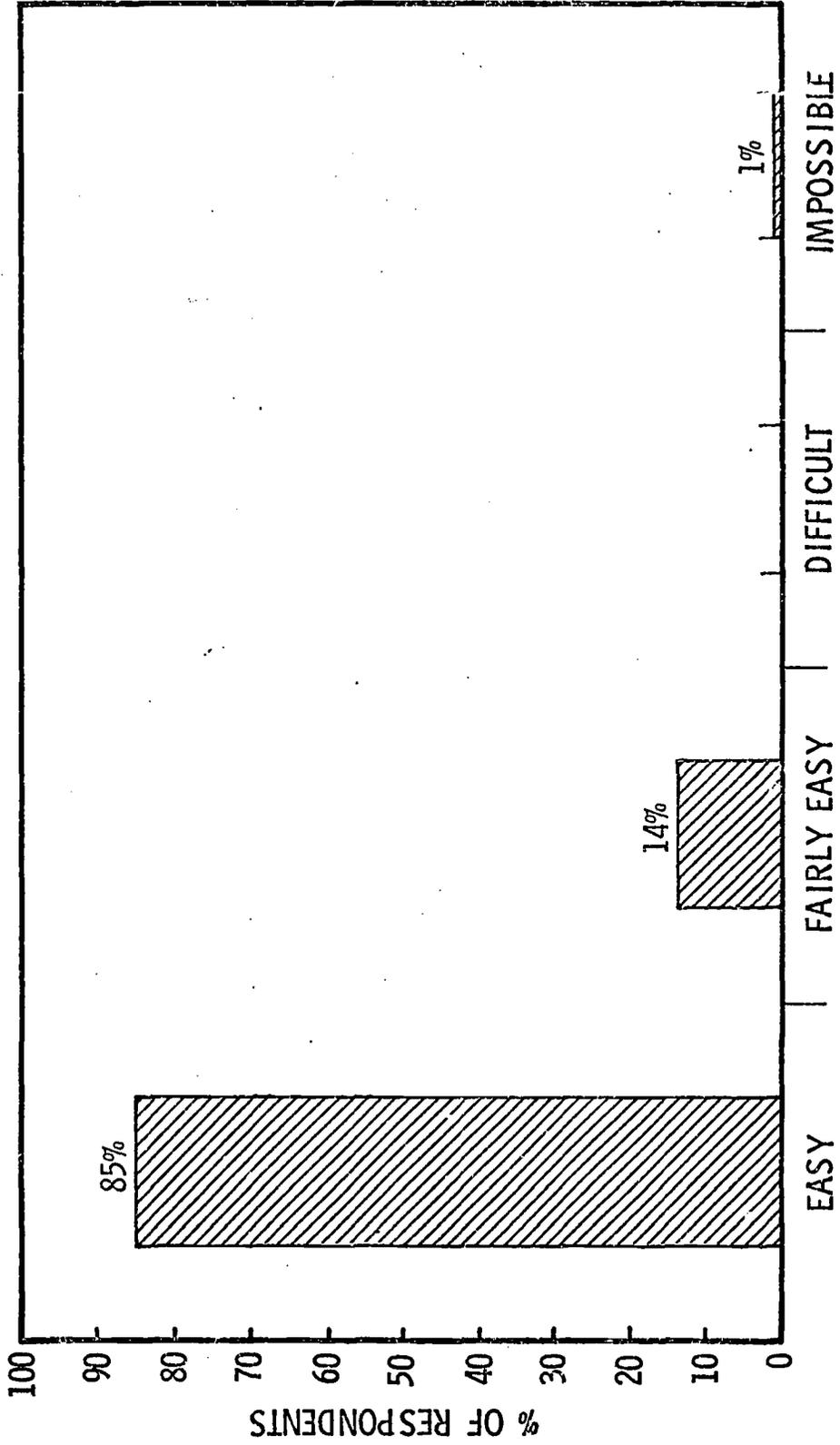


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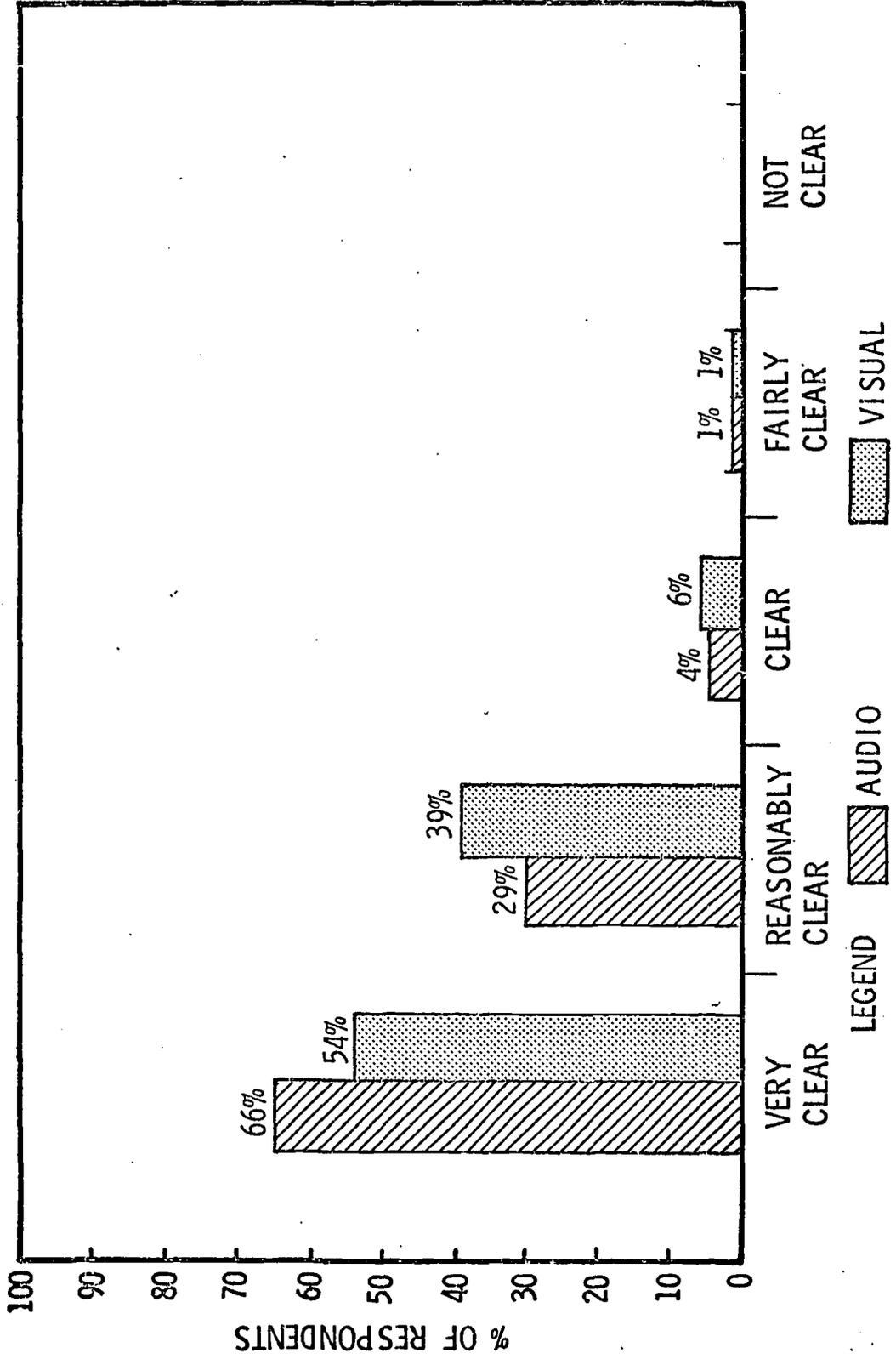
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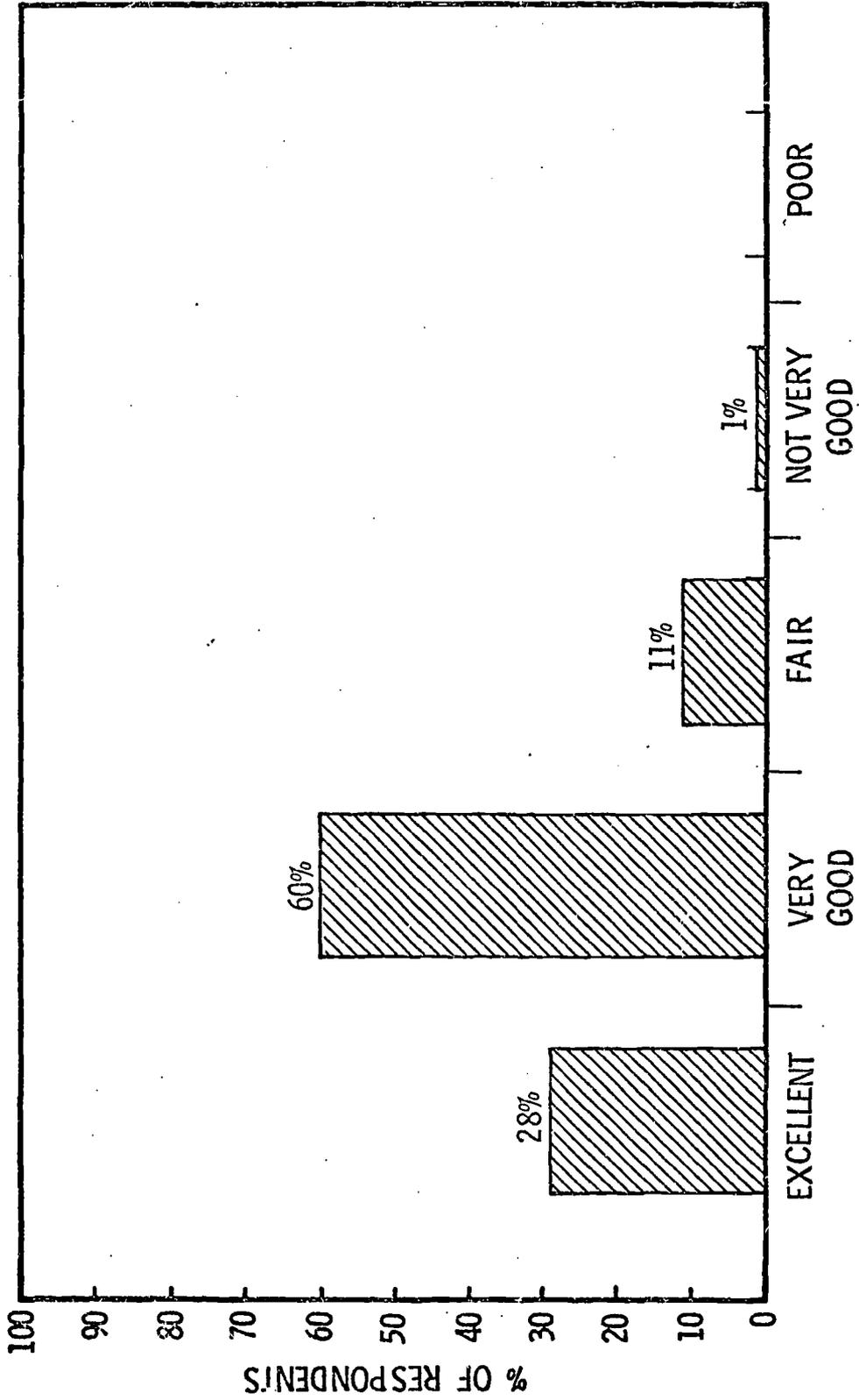


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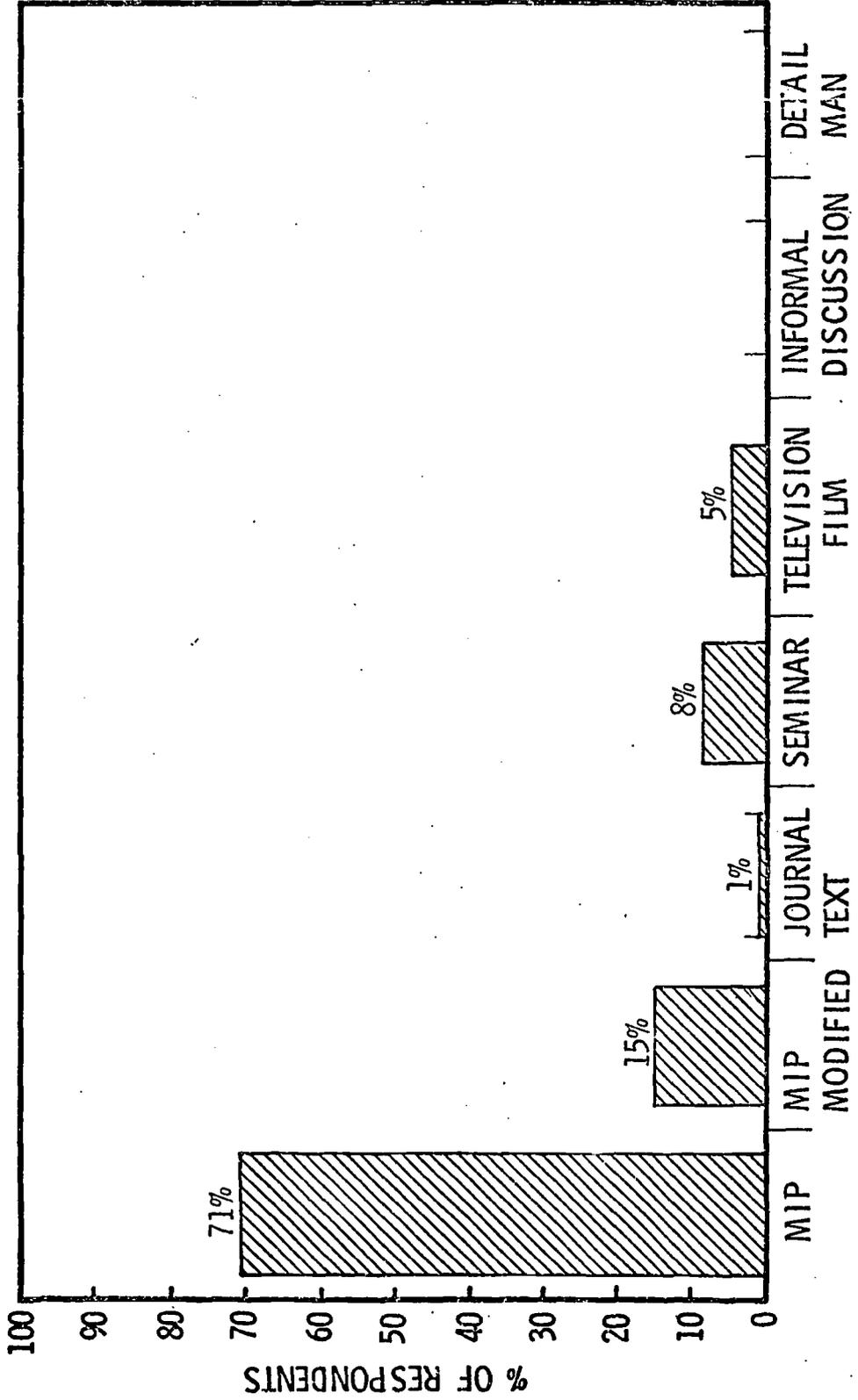


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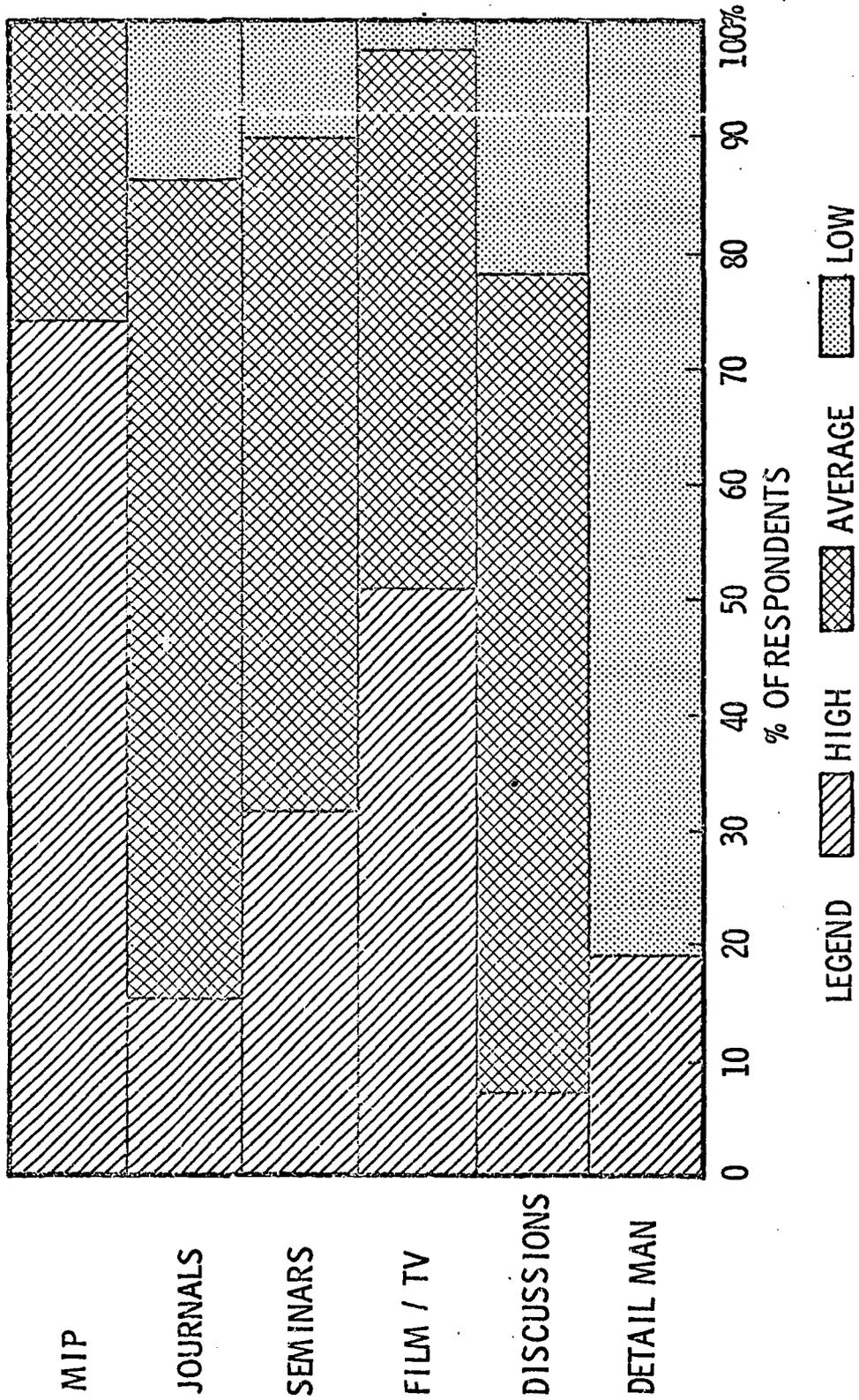


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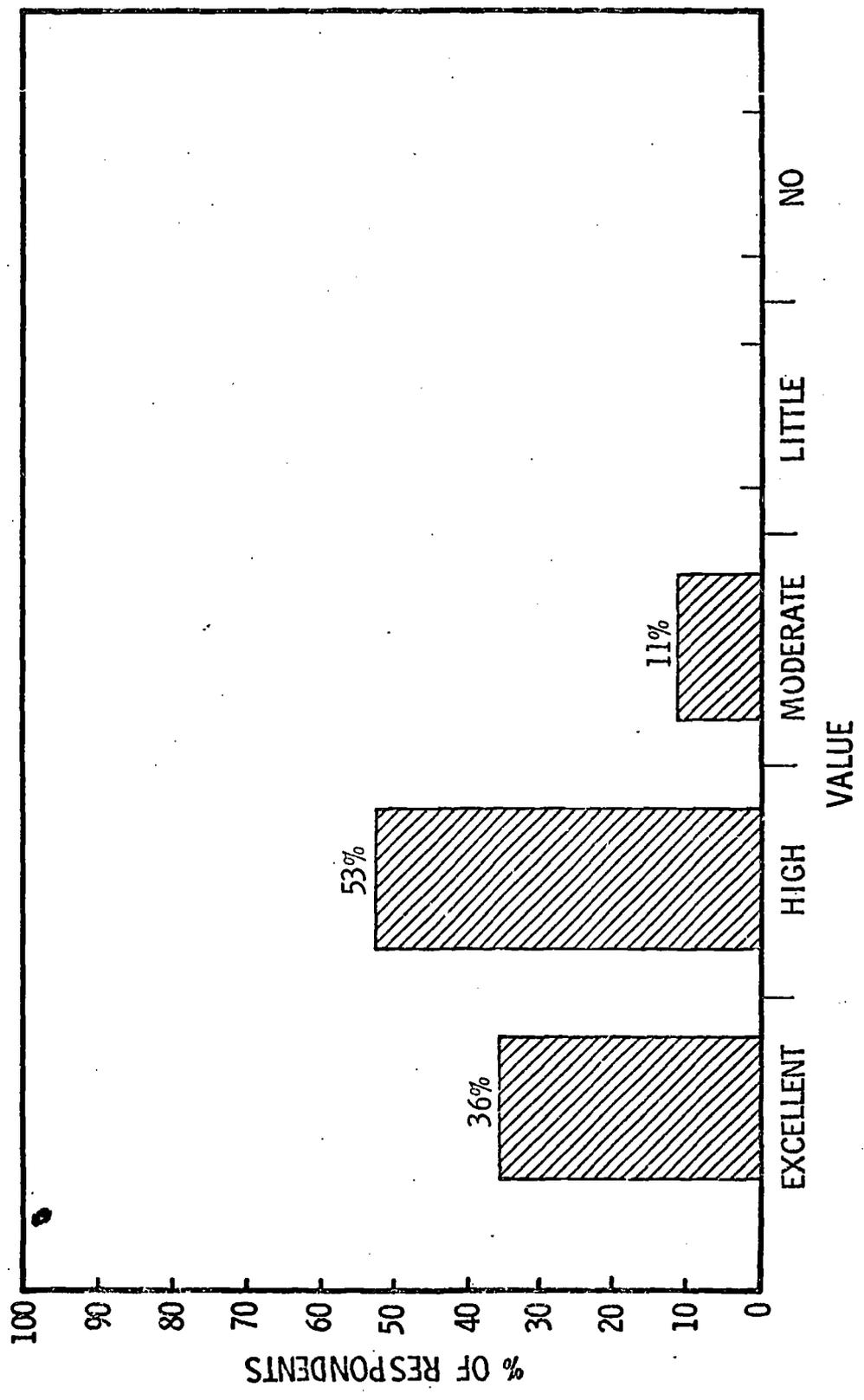


330

COMPARATIVE RATING OF INFORMATION SOURCES



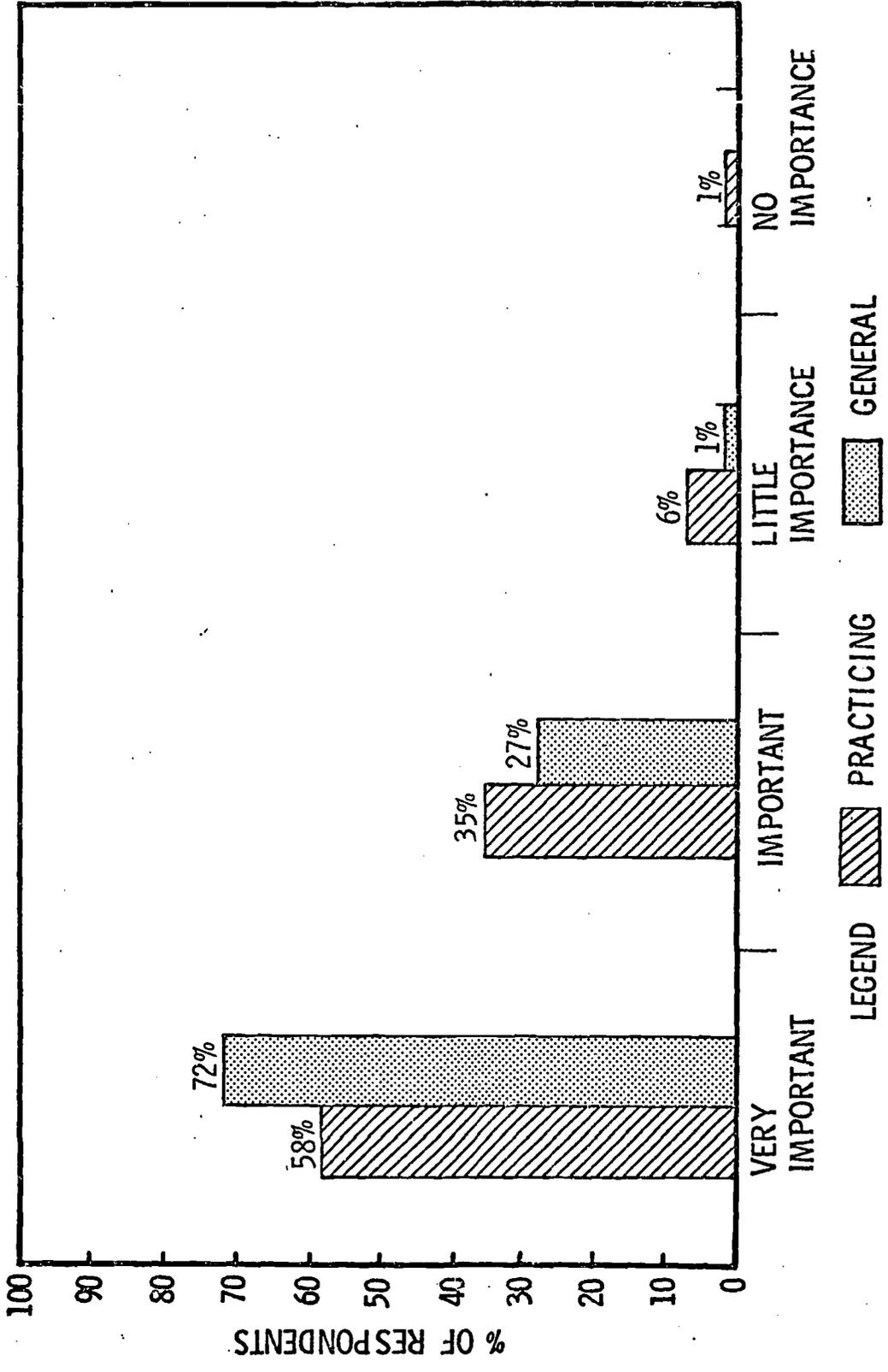
RATING OF TOPIC AND GENERAL QUALITY



332

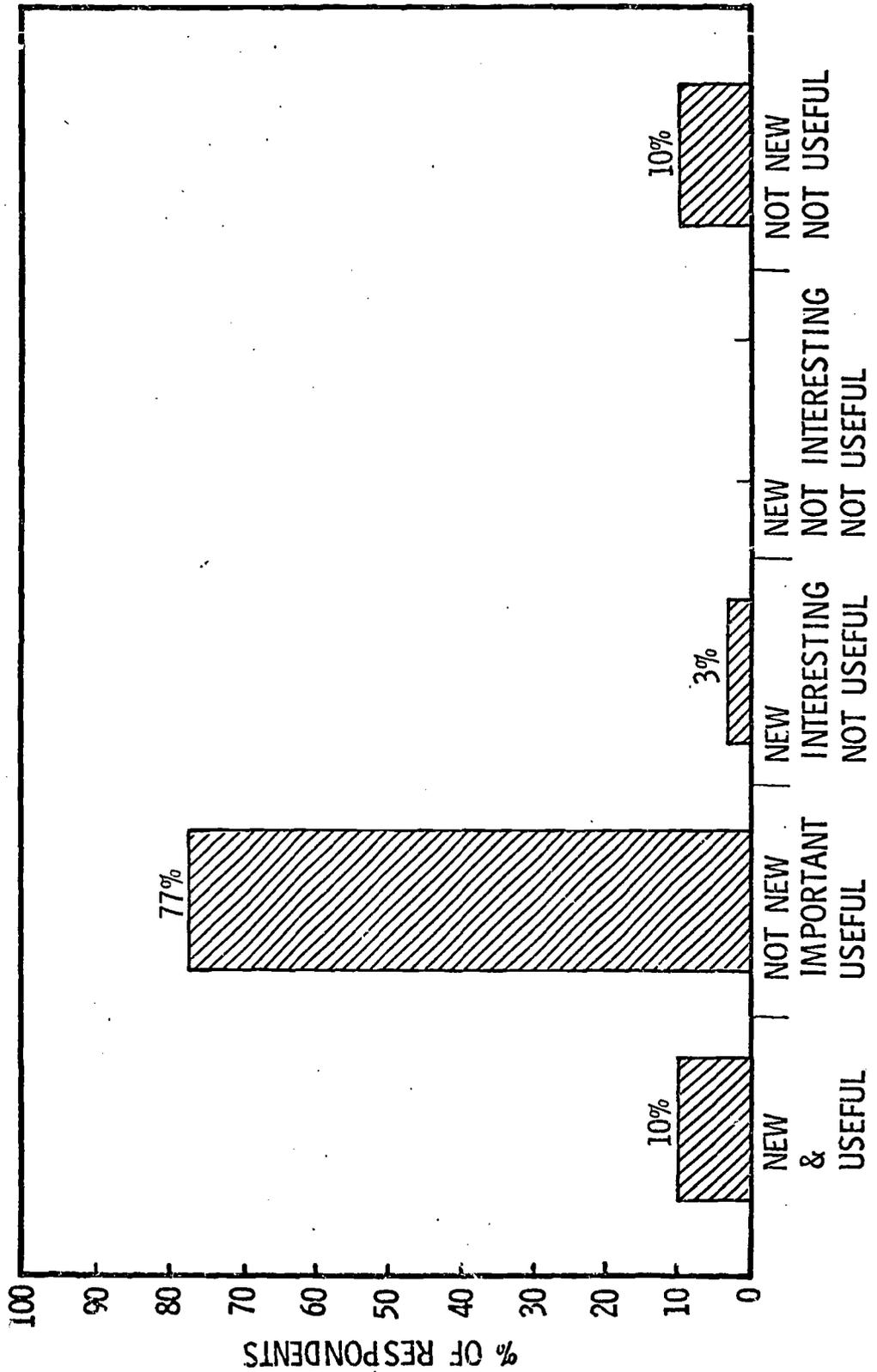
PROGRAM 8: OBSTETRIC EMERGENCIES

RATING OF INFORMATION



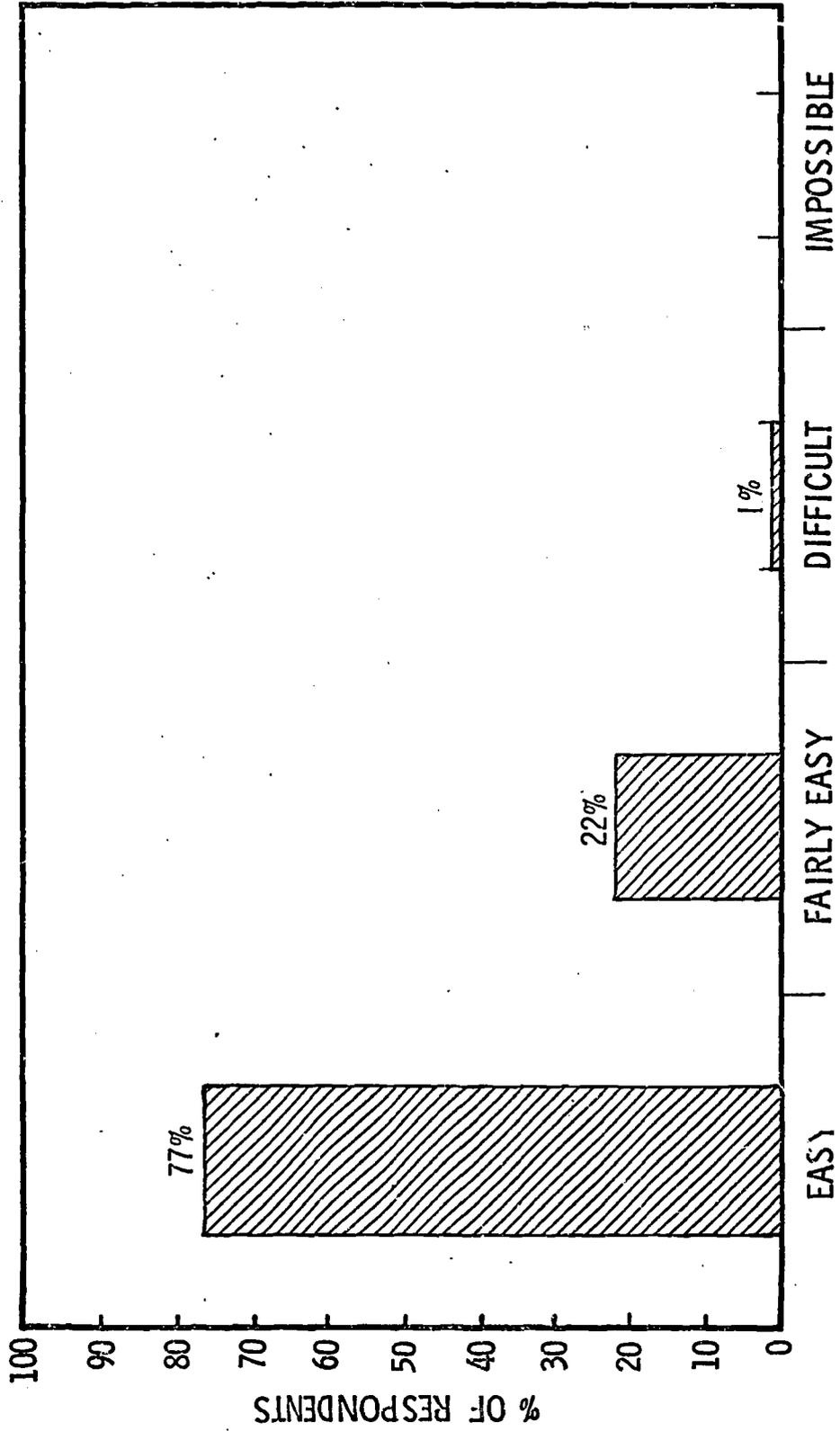
334

RATING PROGRAM INFORMATION

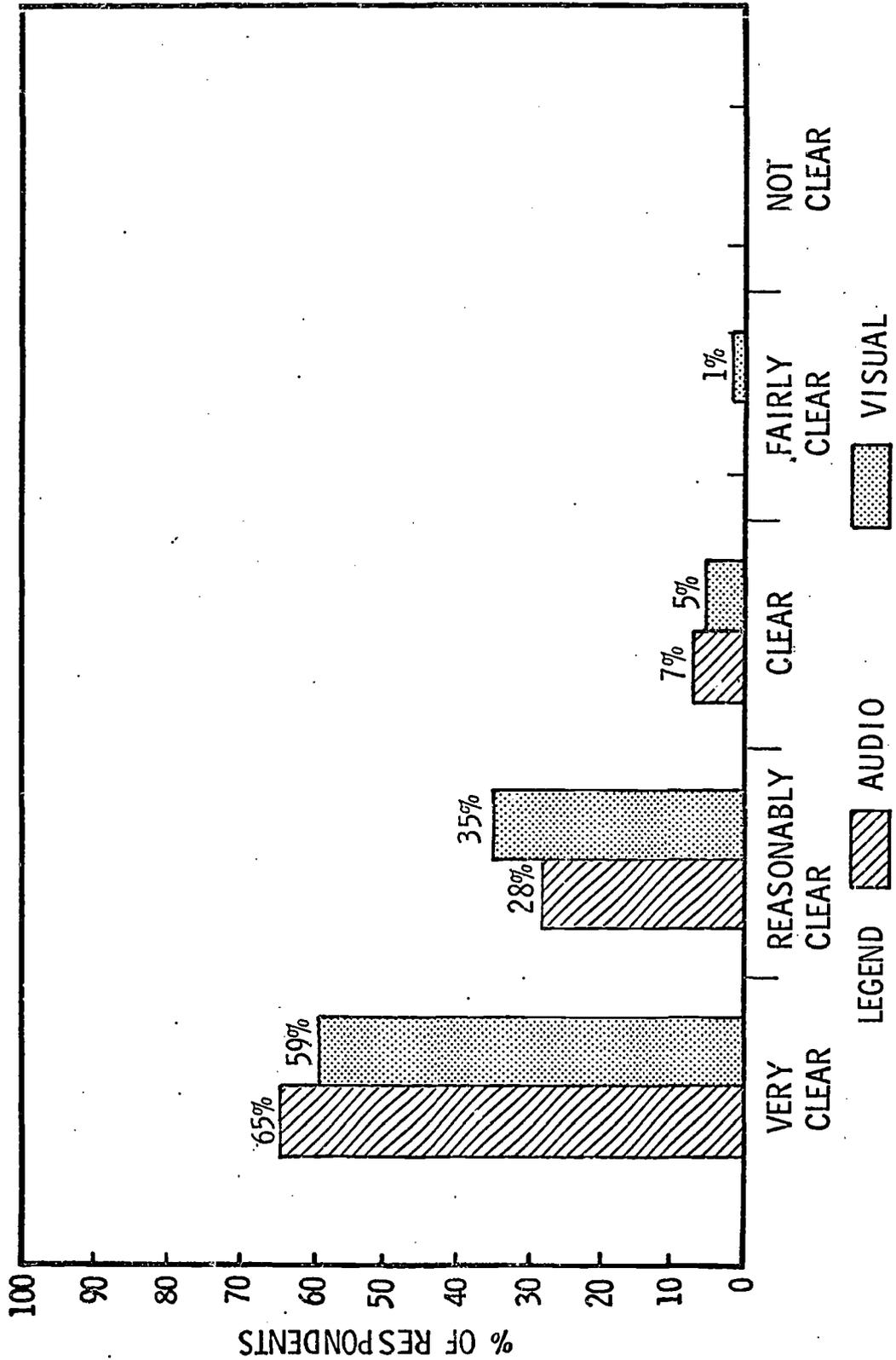


335

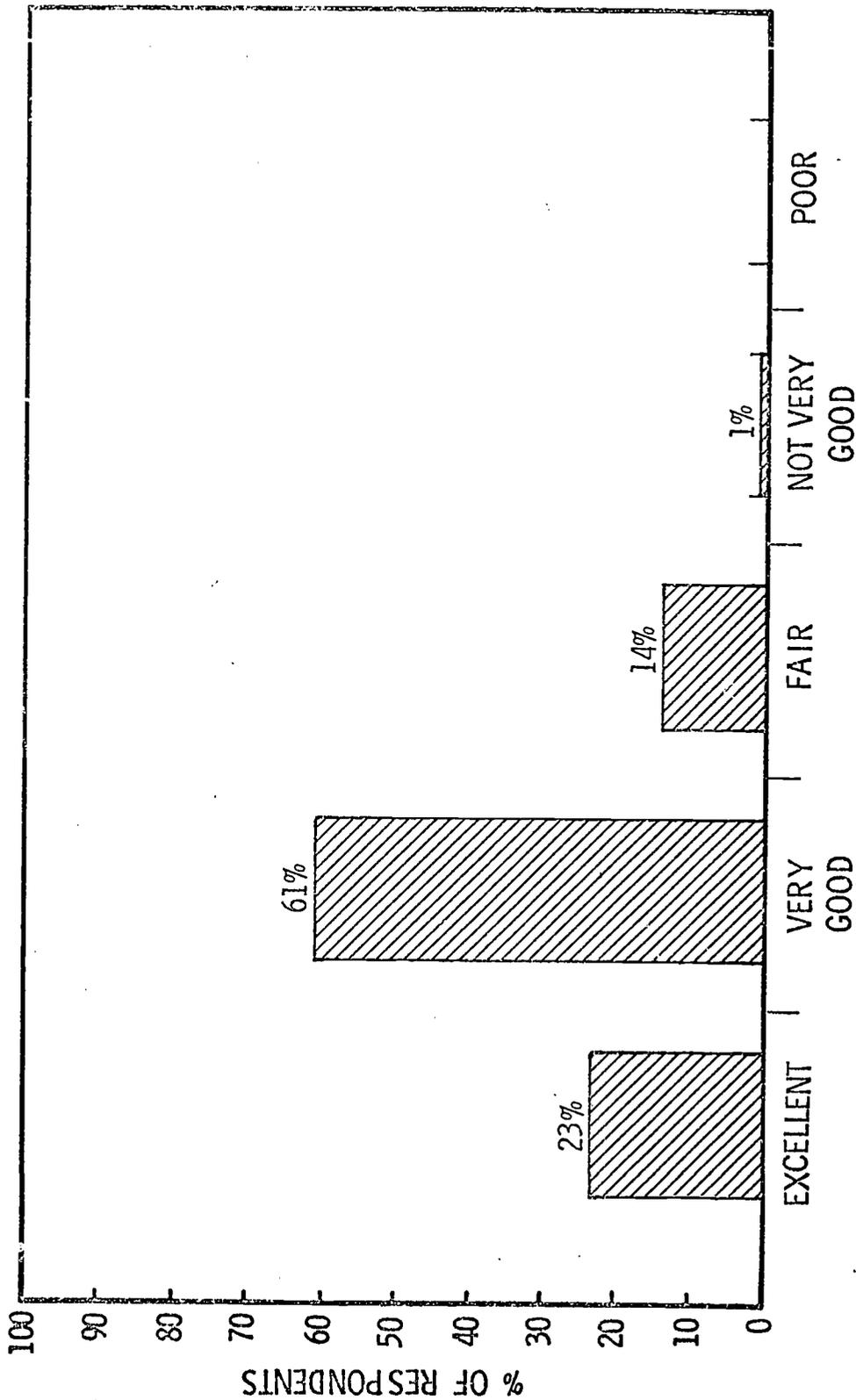
RATING OF PROGRAM DESIGN



COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS

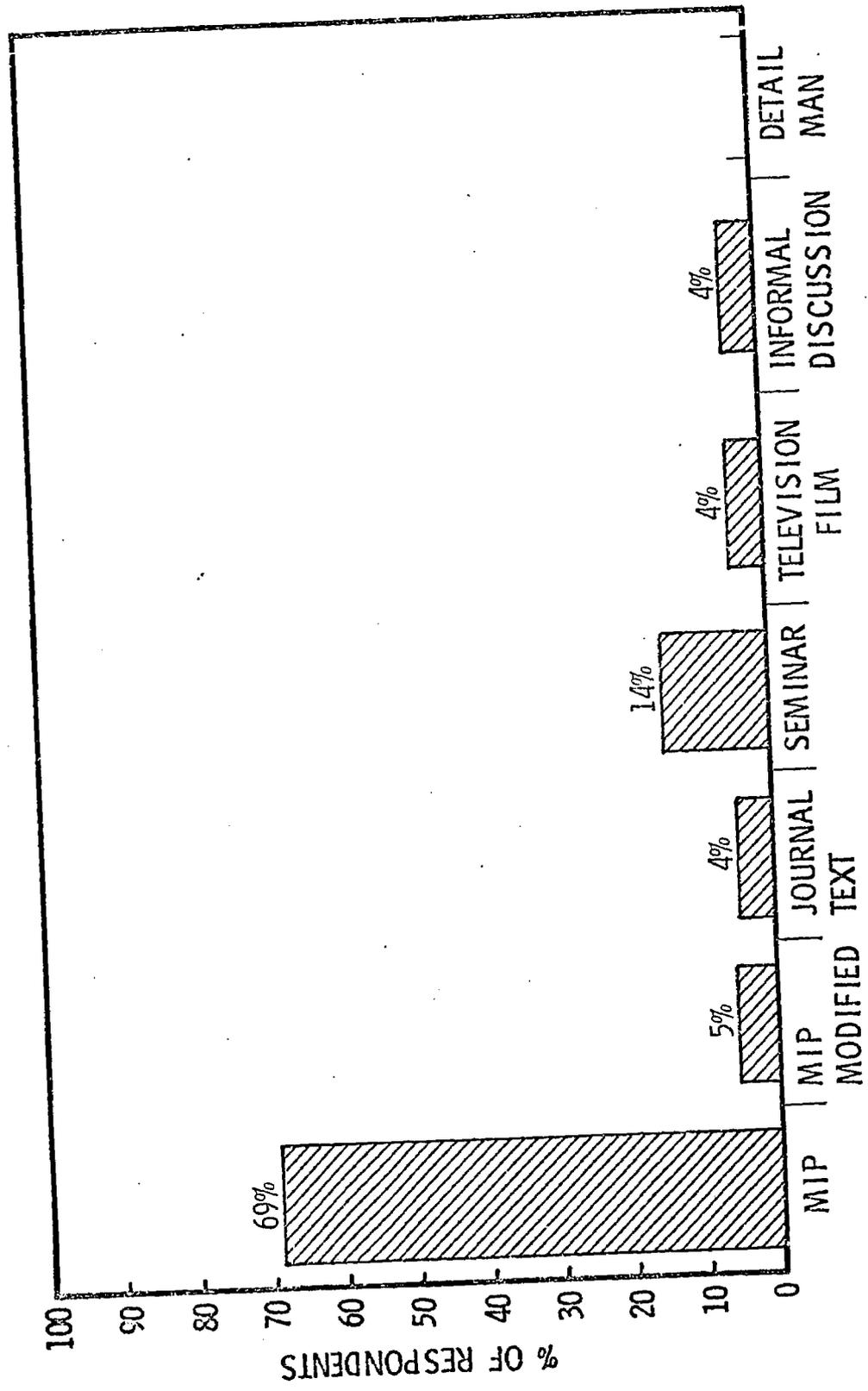


RATING OF ATTENTION QUALITY



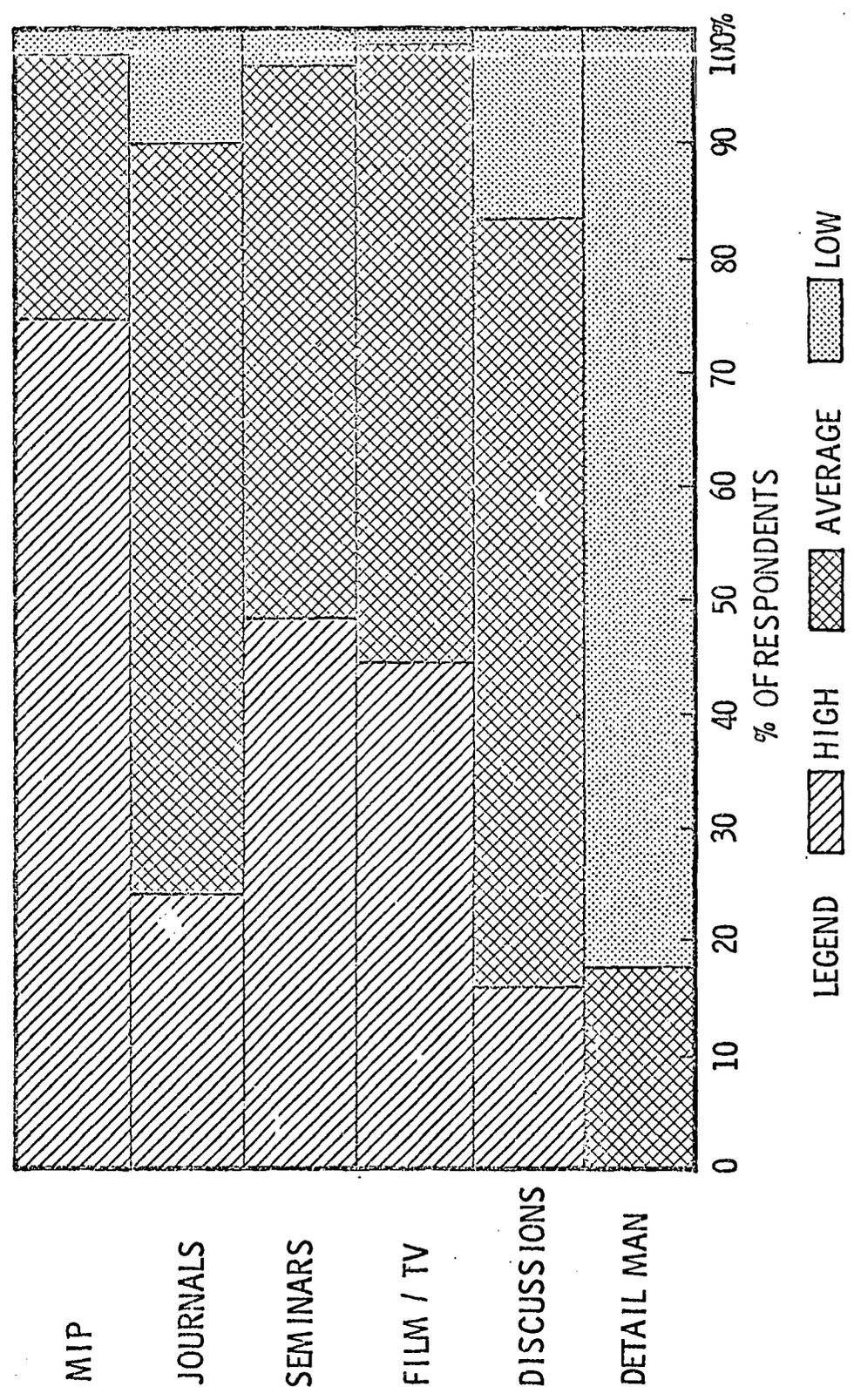
% OF RESPONDENTS

RANK ORDER OF INFORMATION SOURCES



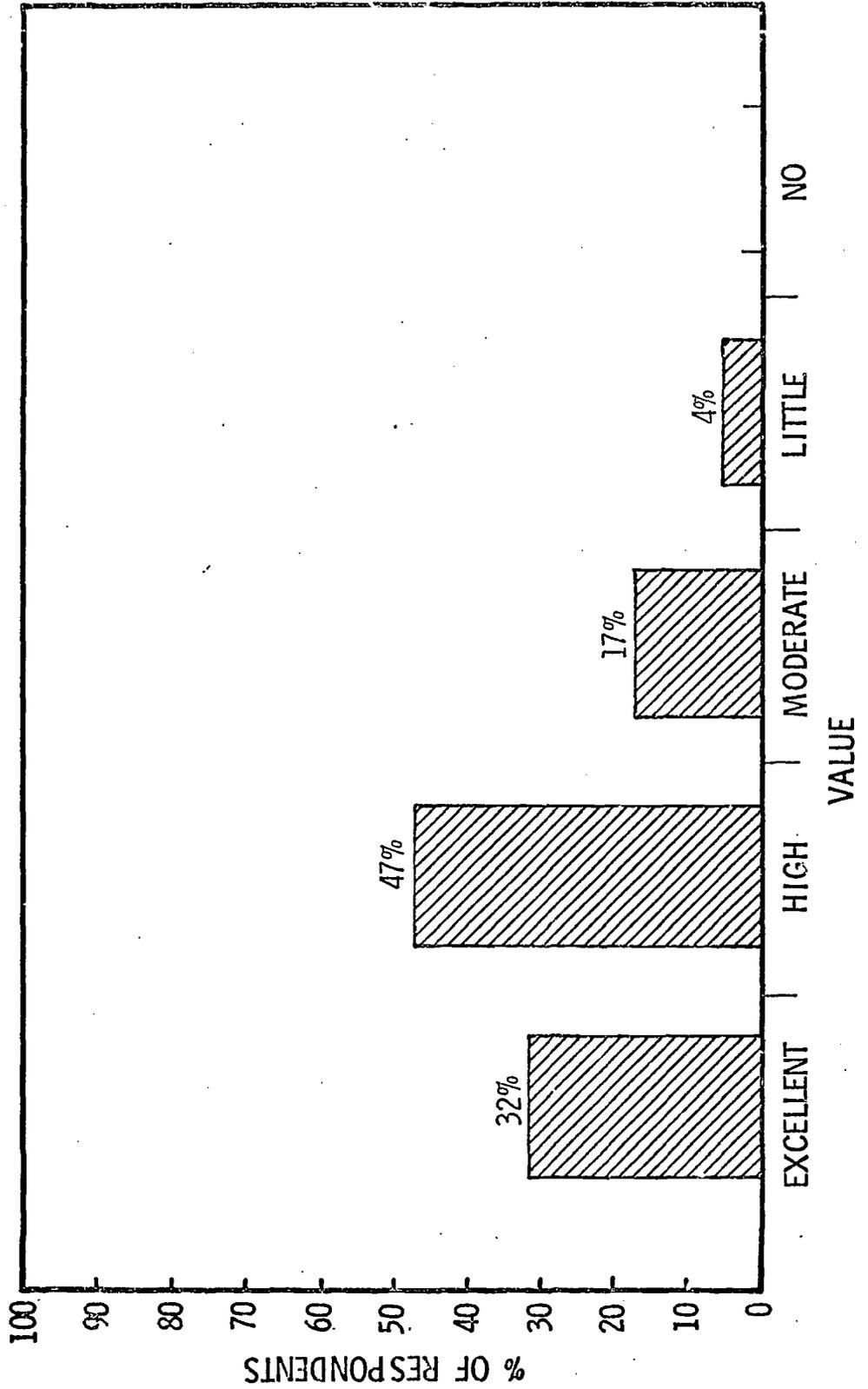
939

COMPARATIVE RATING OF INFORMATION SOURCES



340

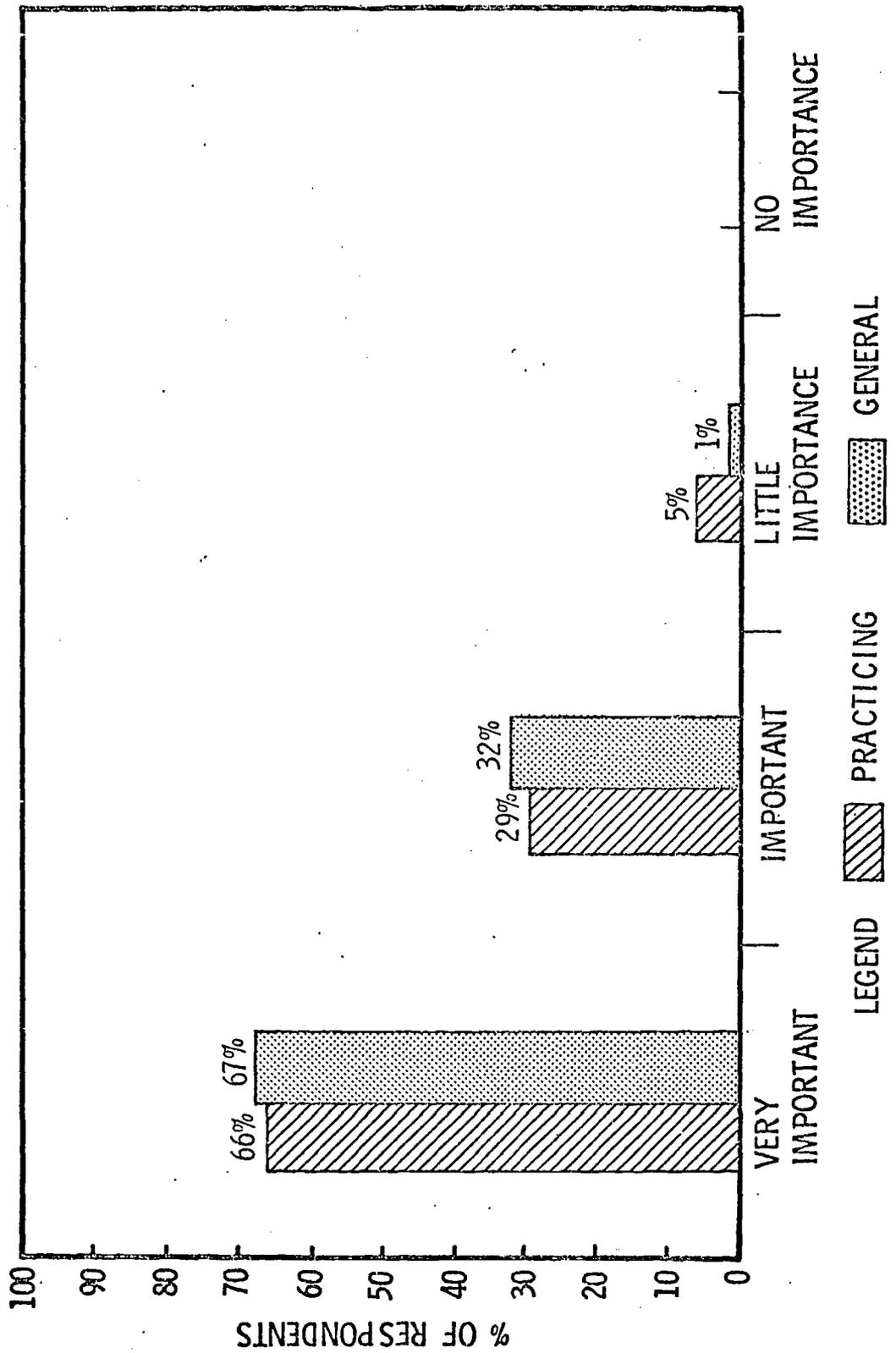
RATING OF TOPIC AND GENERAL QUALITY



341

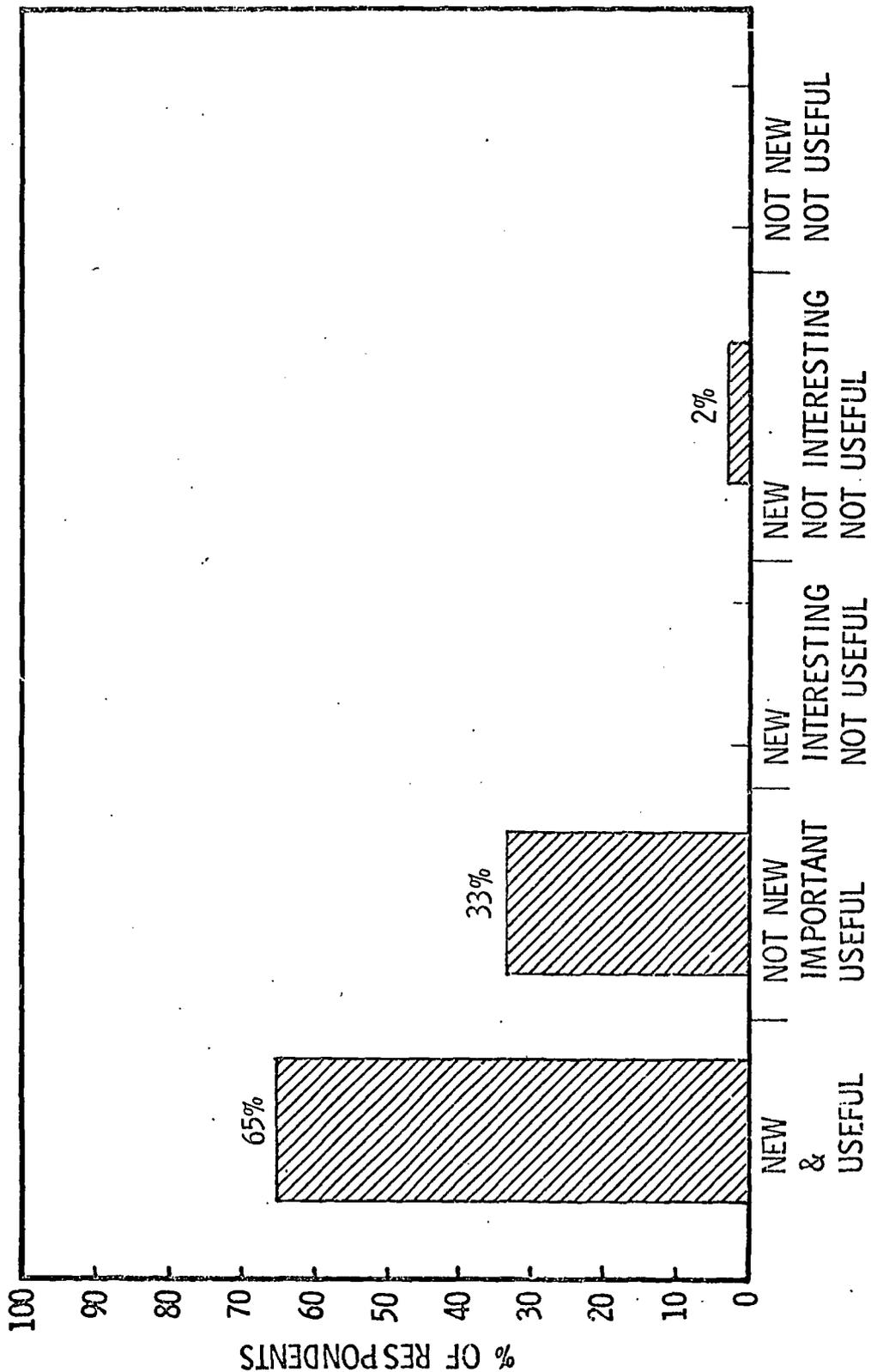
PROGRAM 9: JAUNDICE IN THE NEWBORN

RATING OF INFORMATION



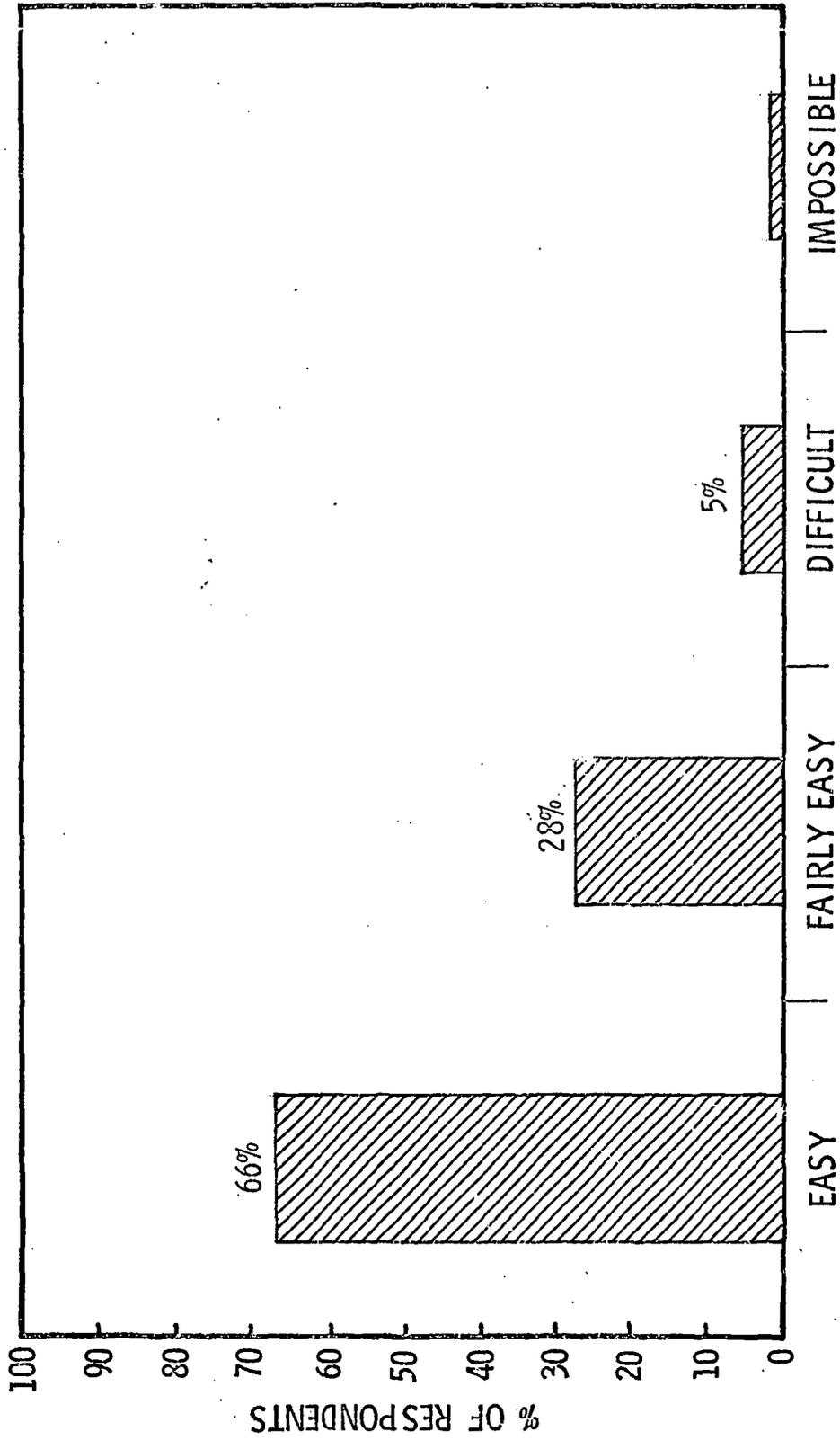
343

RATING PROGRAM INFORMATION



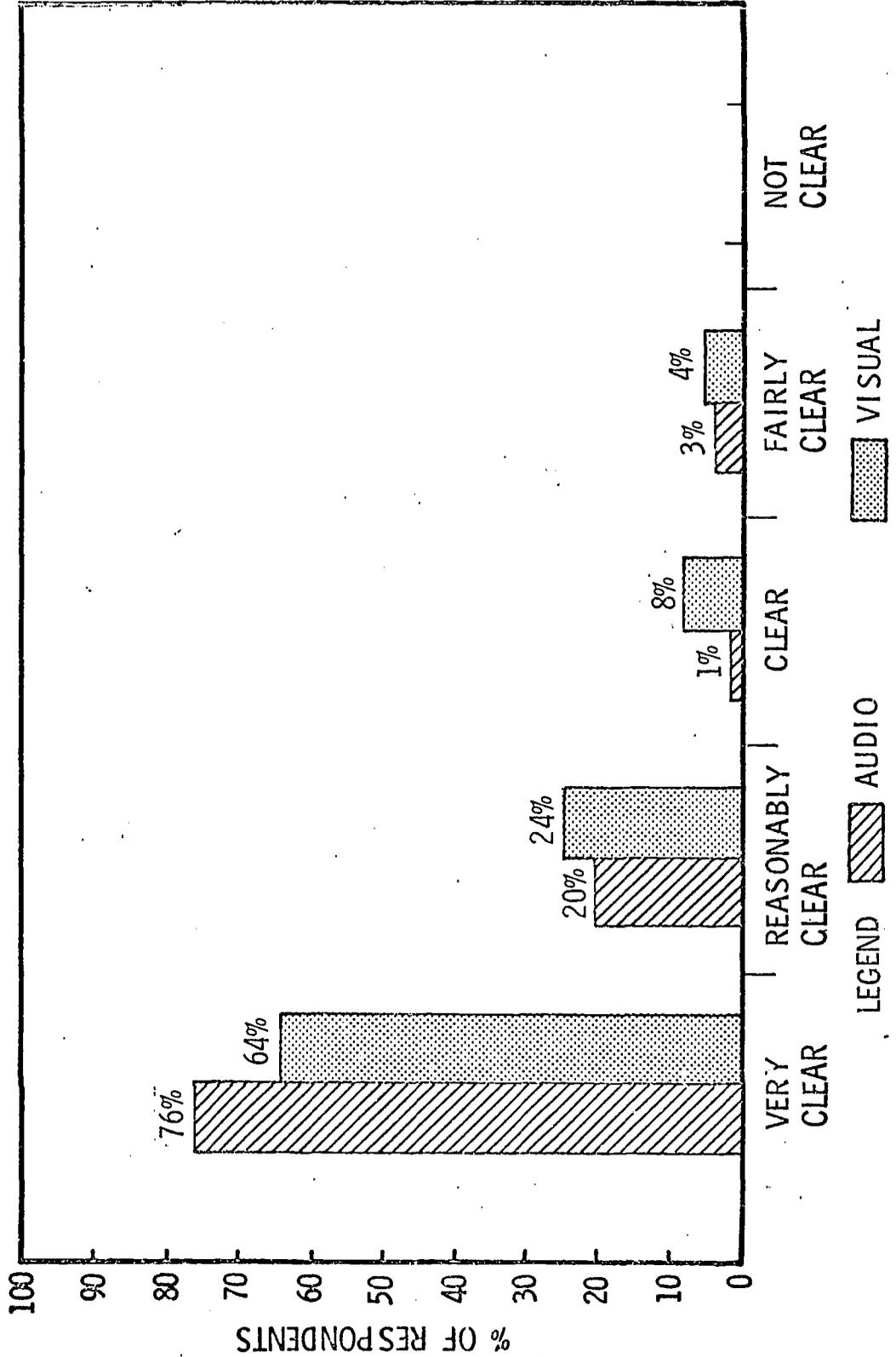
344

RATING OF PROGRAM DESIGN

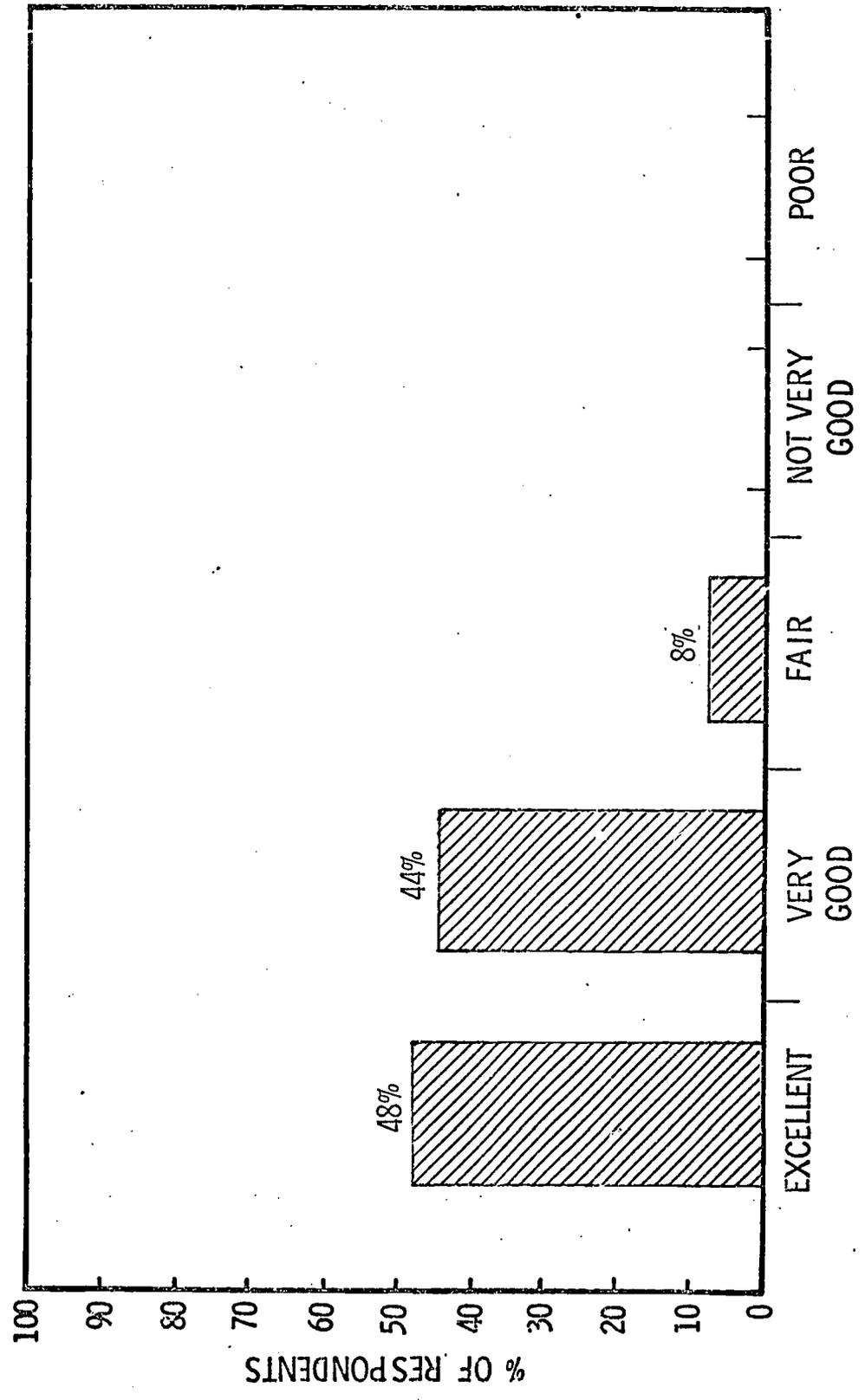


345

COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS

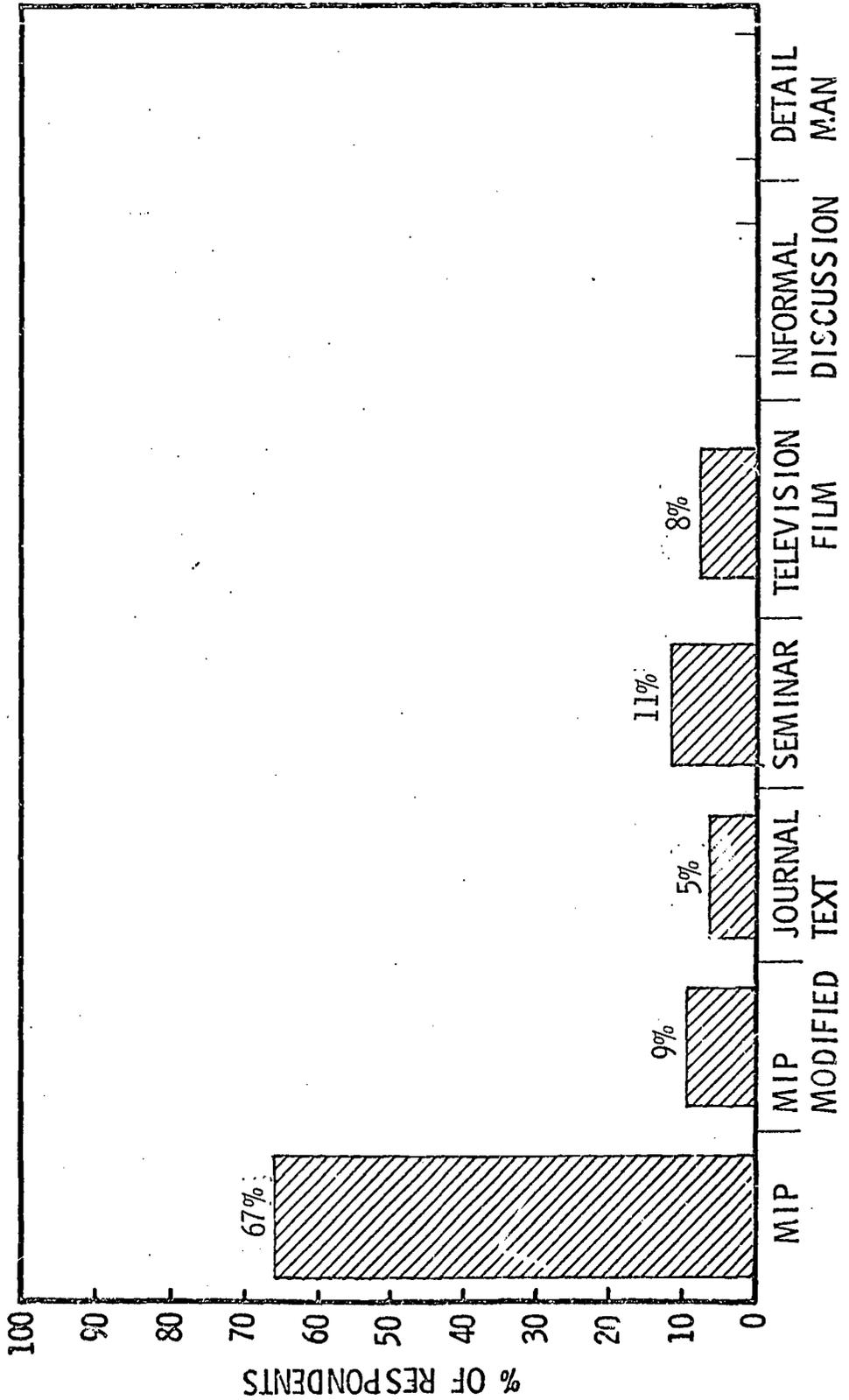


RATING OF ATTENTION QUALITY

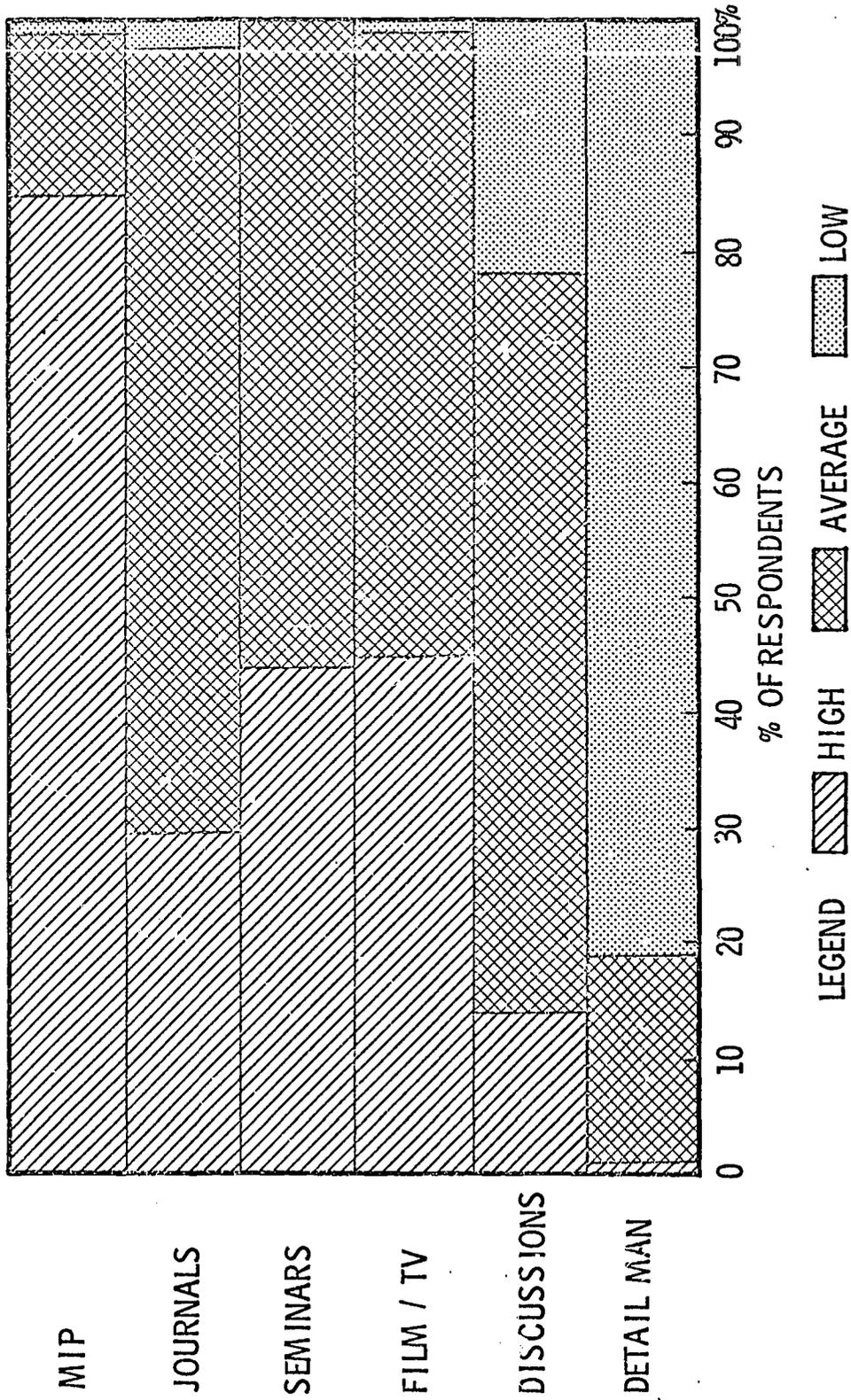


347

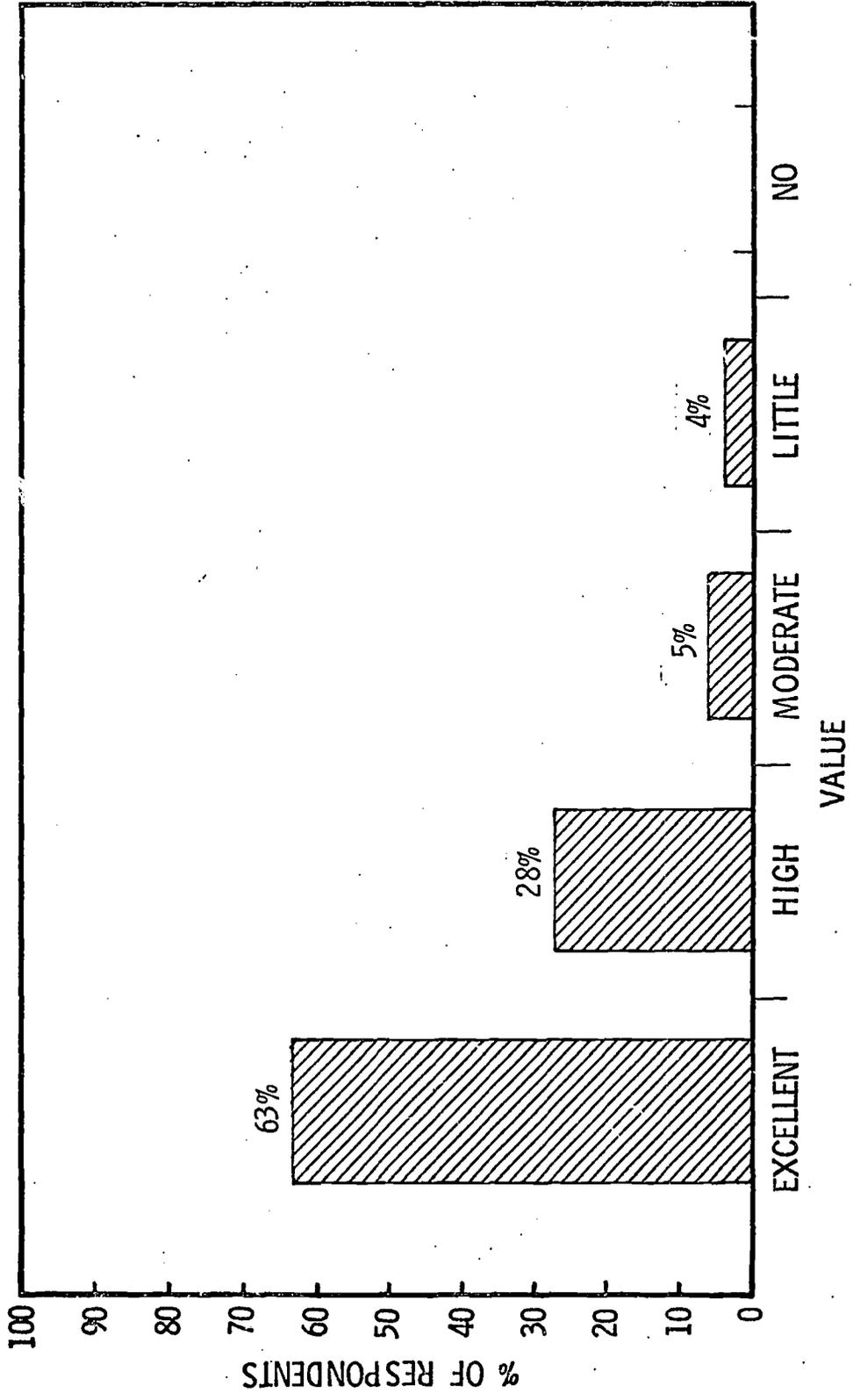
RANK ORDER OF INFORMATION SOURCES



COMPARATIVE RATING OF INFORMATION SOURCES



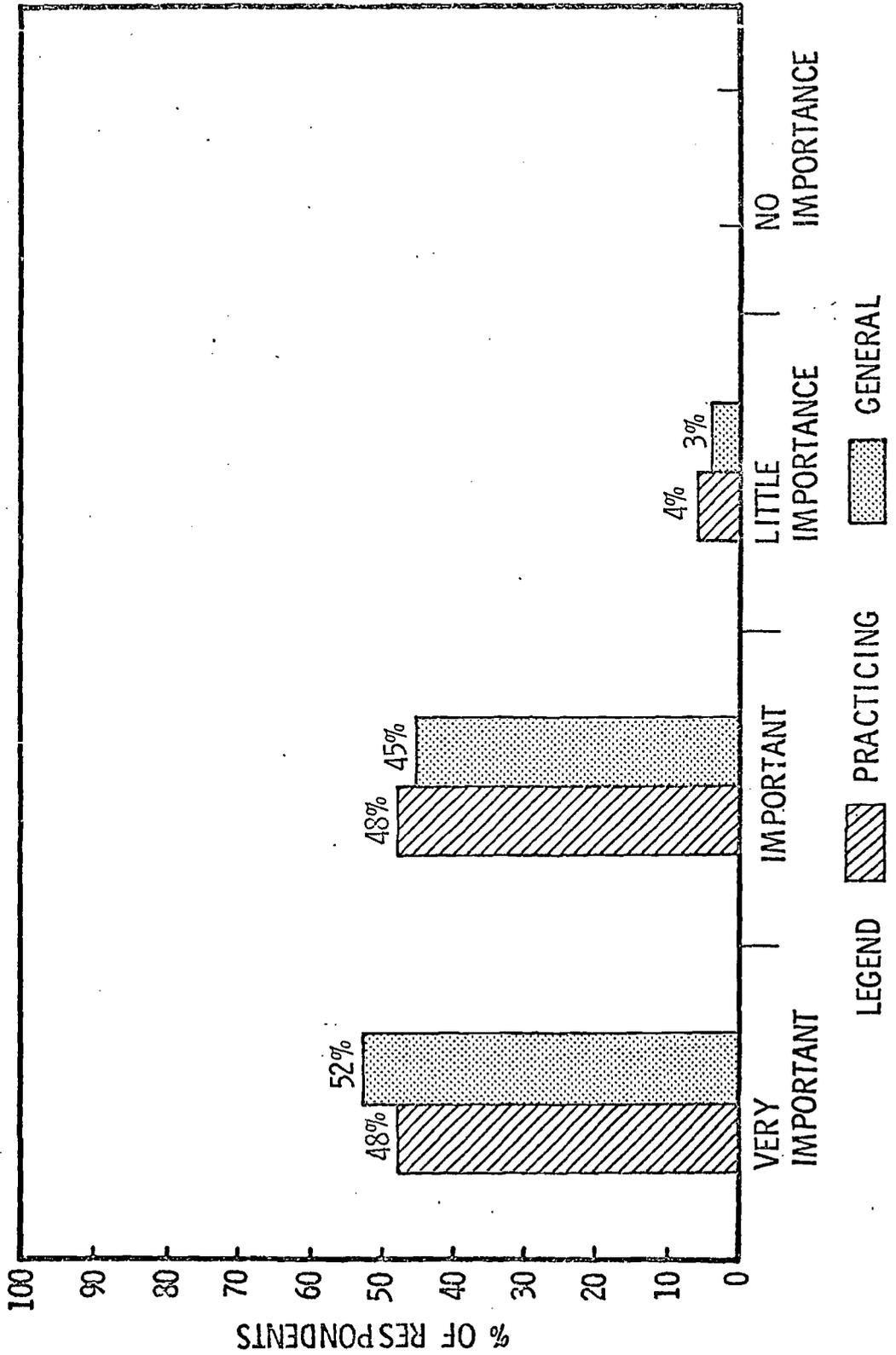
RATING OF TOPIC AND GENERAL QUALITY



096

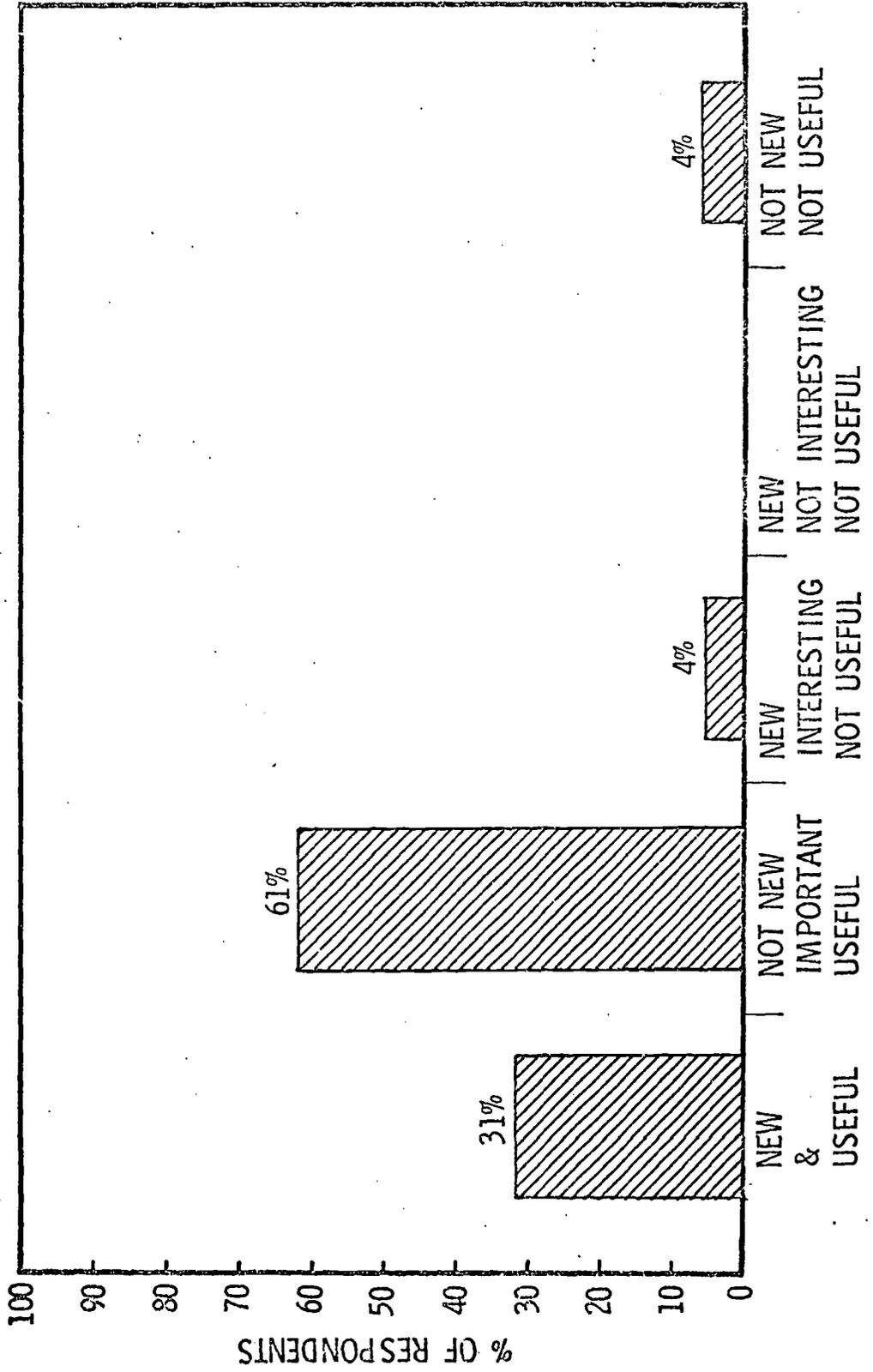
PROGRAM 10: TRANQUILIZERS

RATING OF INFORMATION



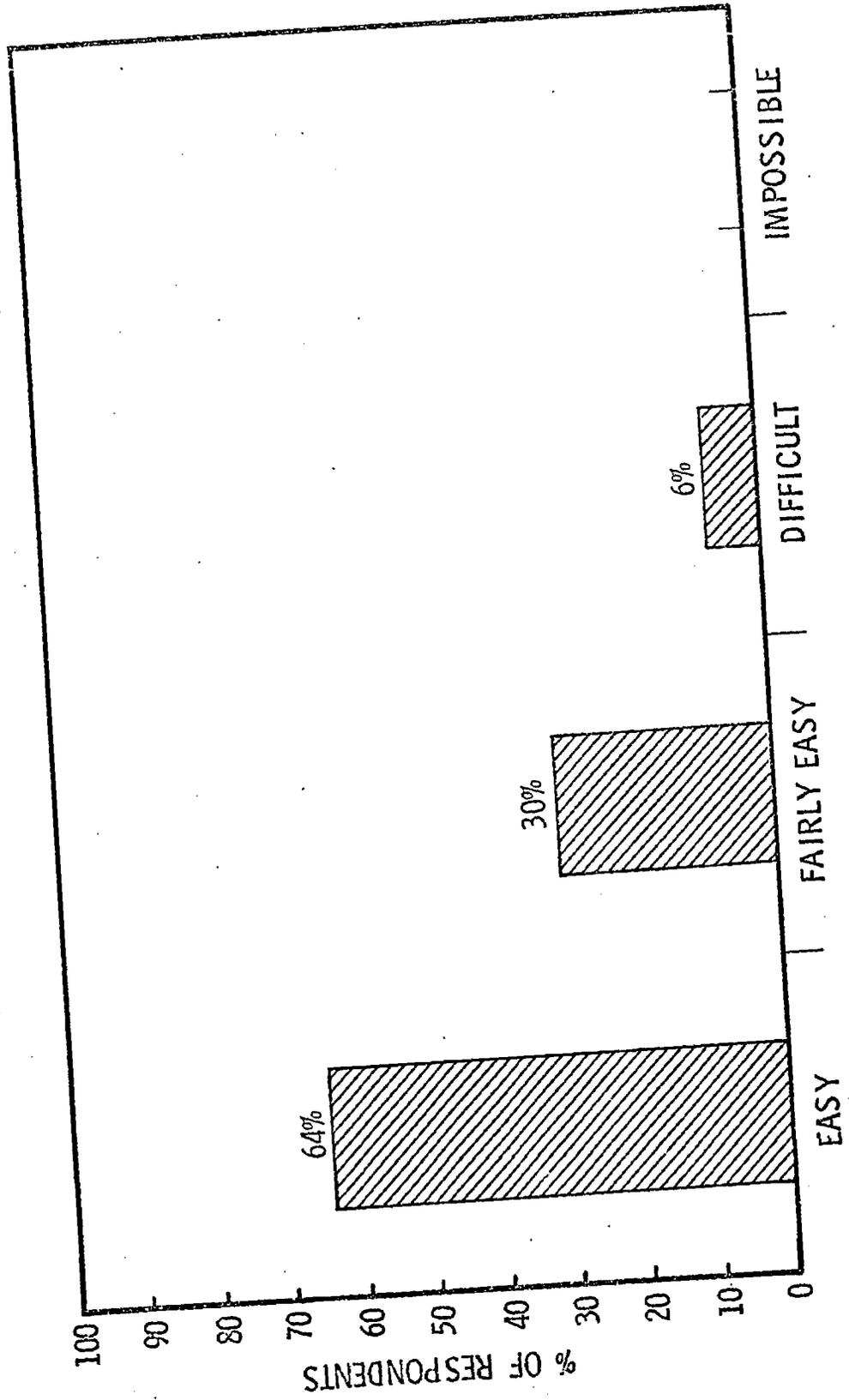
352

RATING PROGRAM INFORMATION



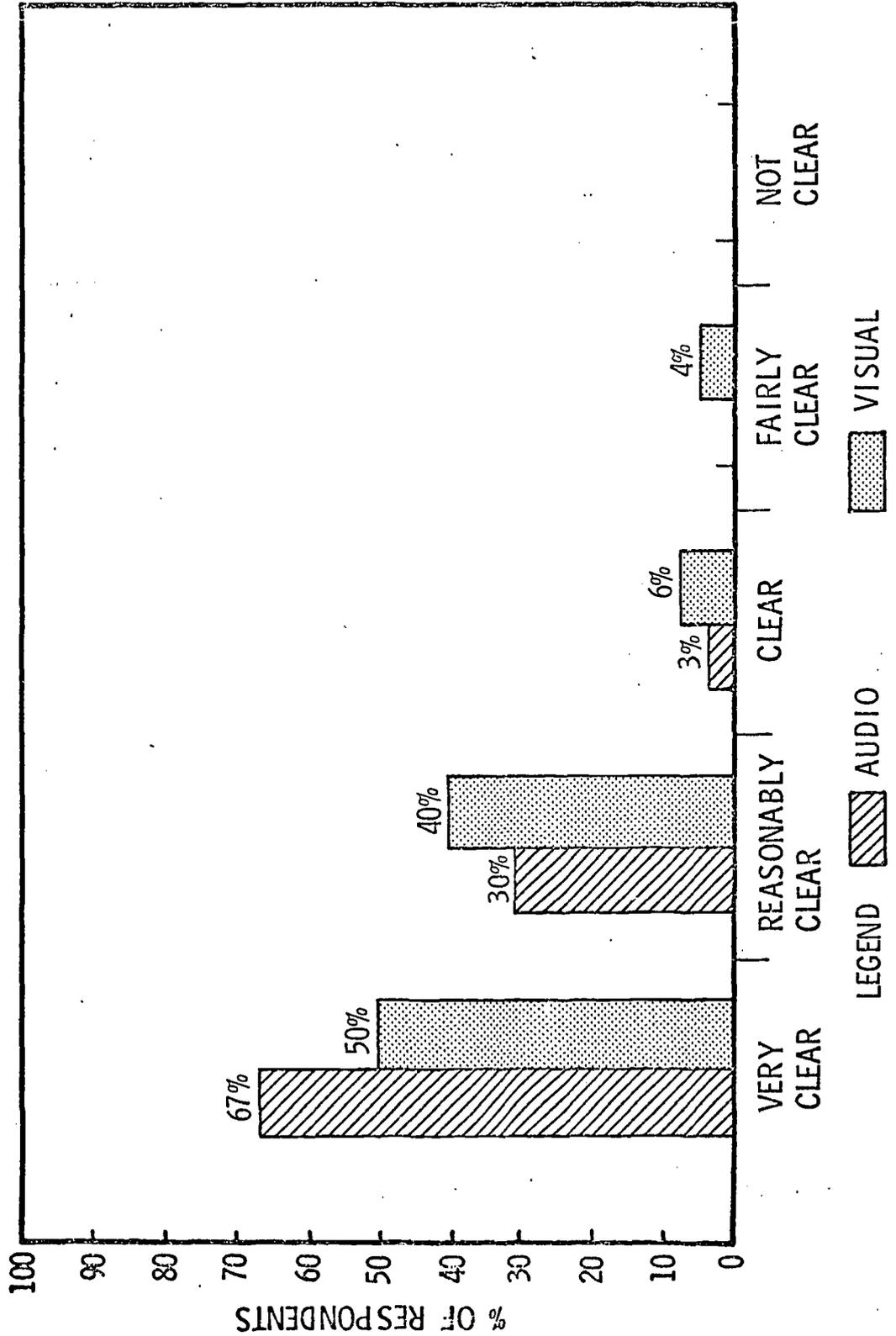
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RATING OF PROGRAM DESIGN



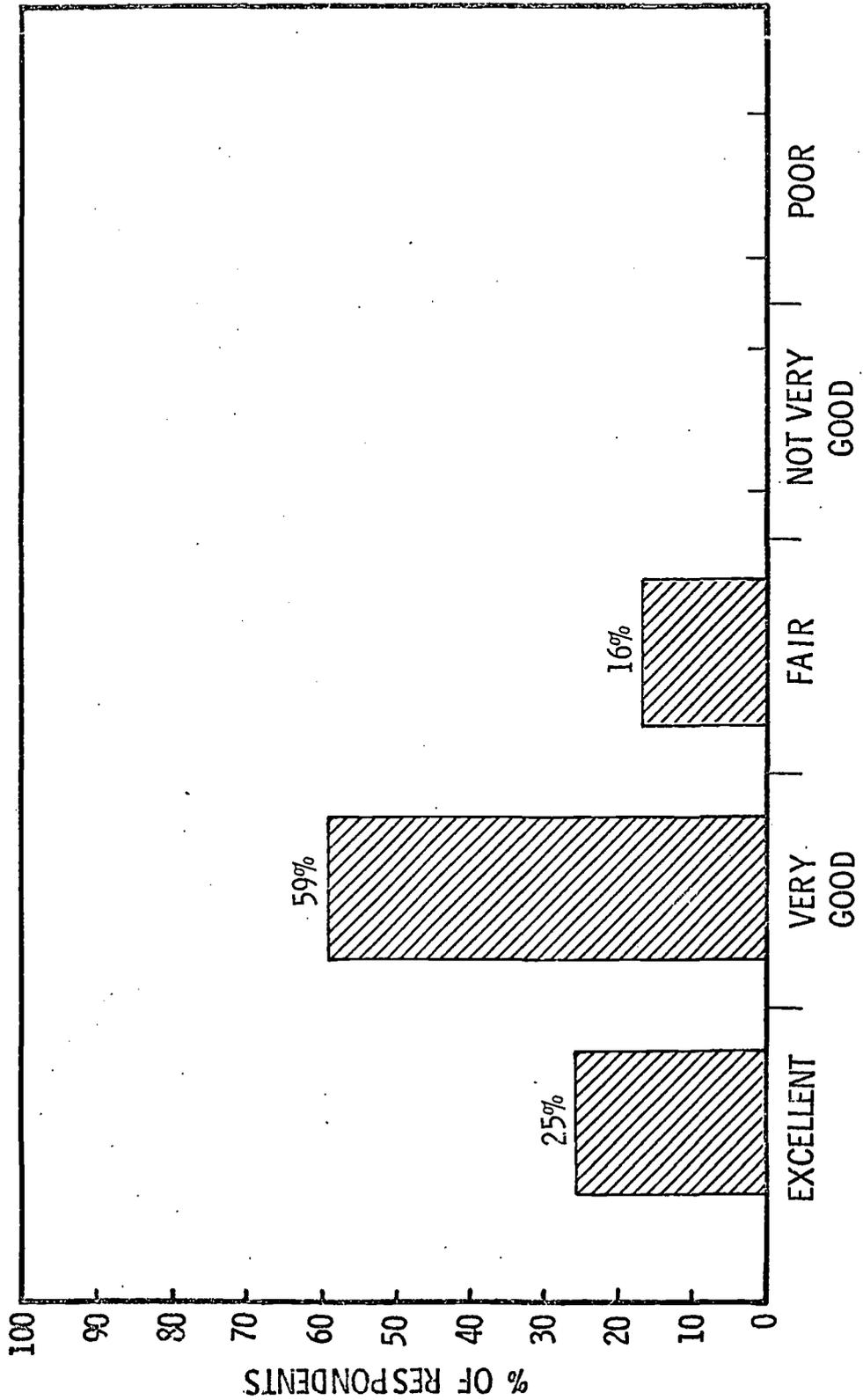
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COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS

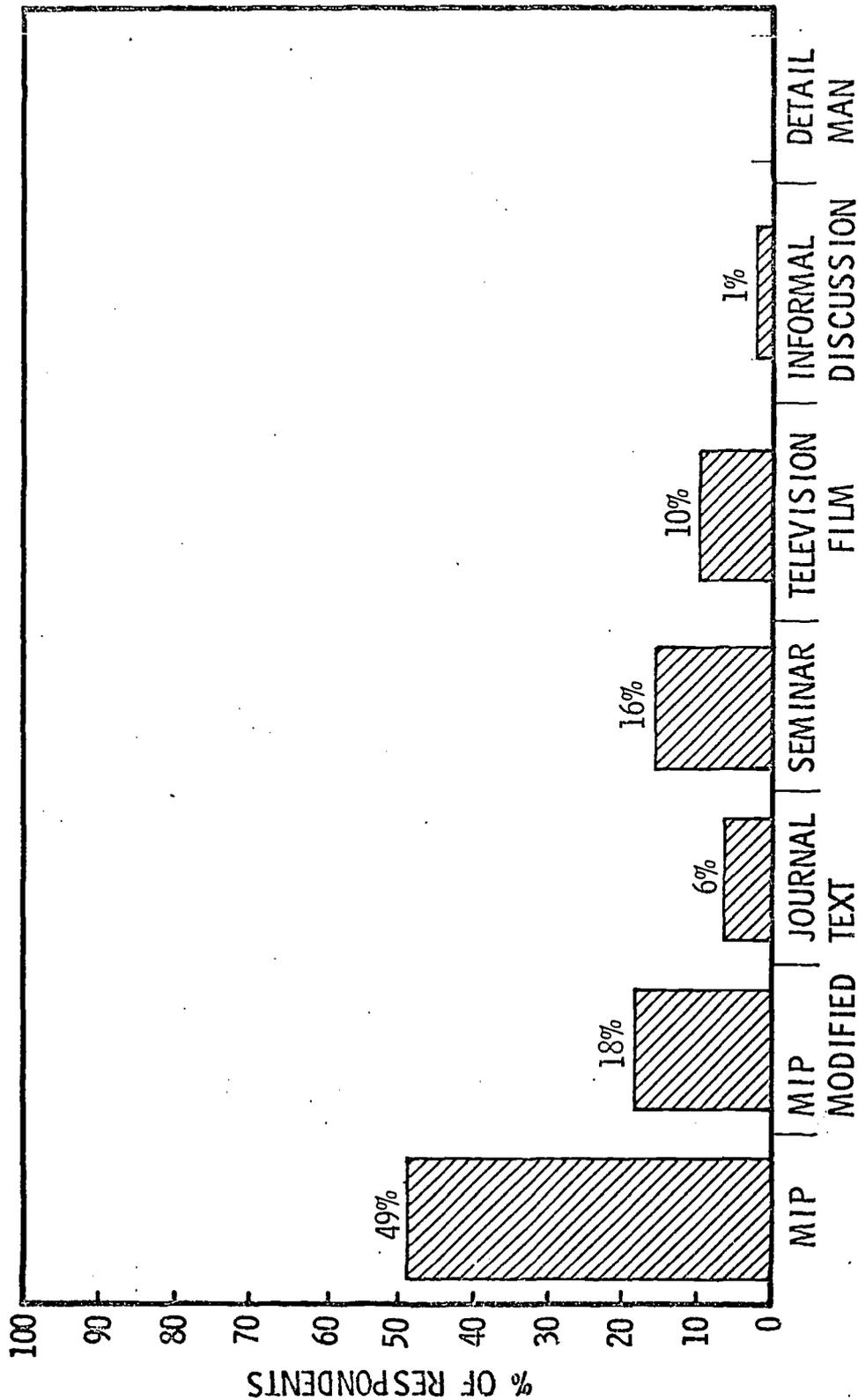


855

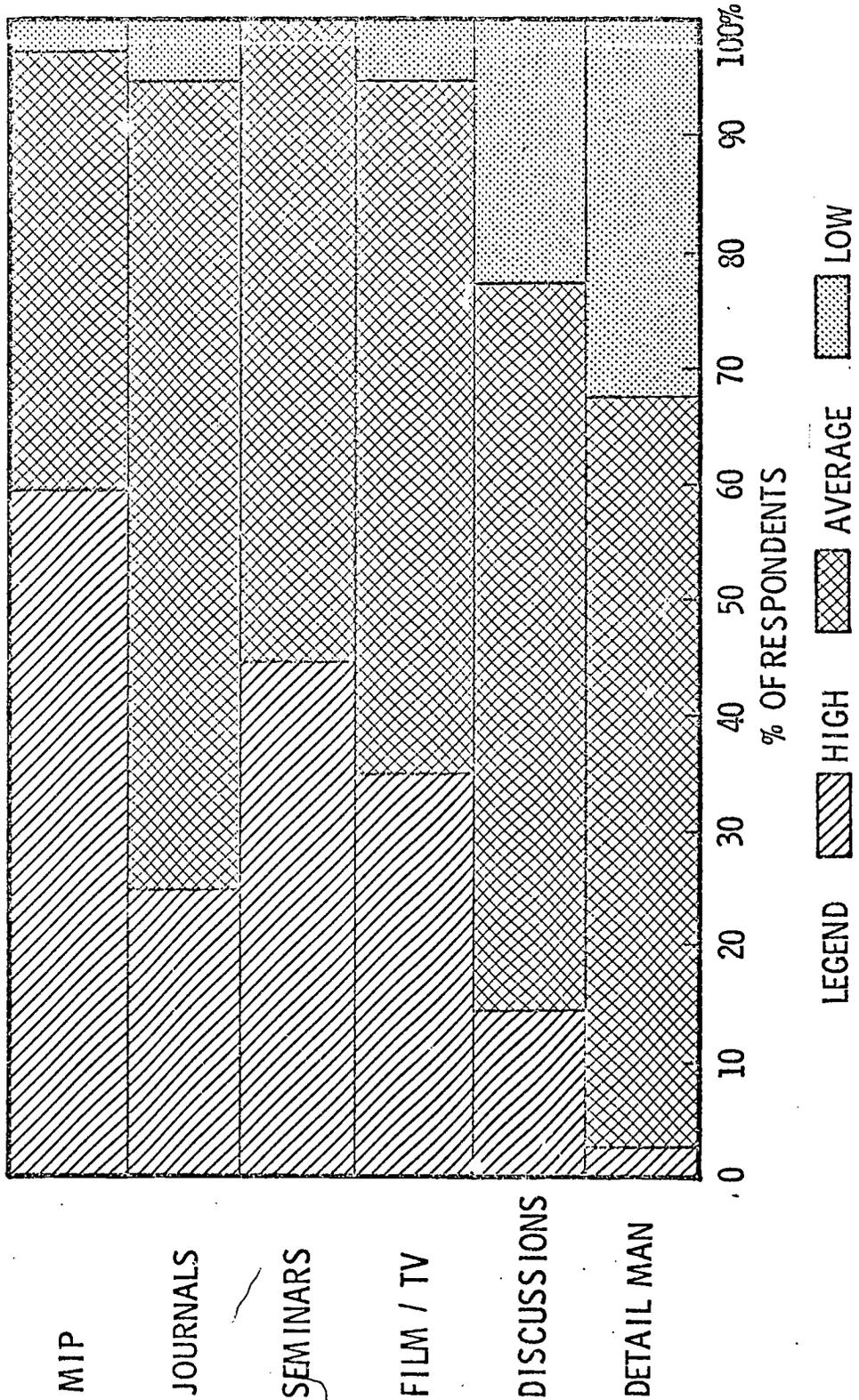
RATING OF ATTENTION QUALITY



RANK ORDER OF INFORMATION SOURCES

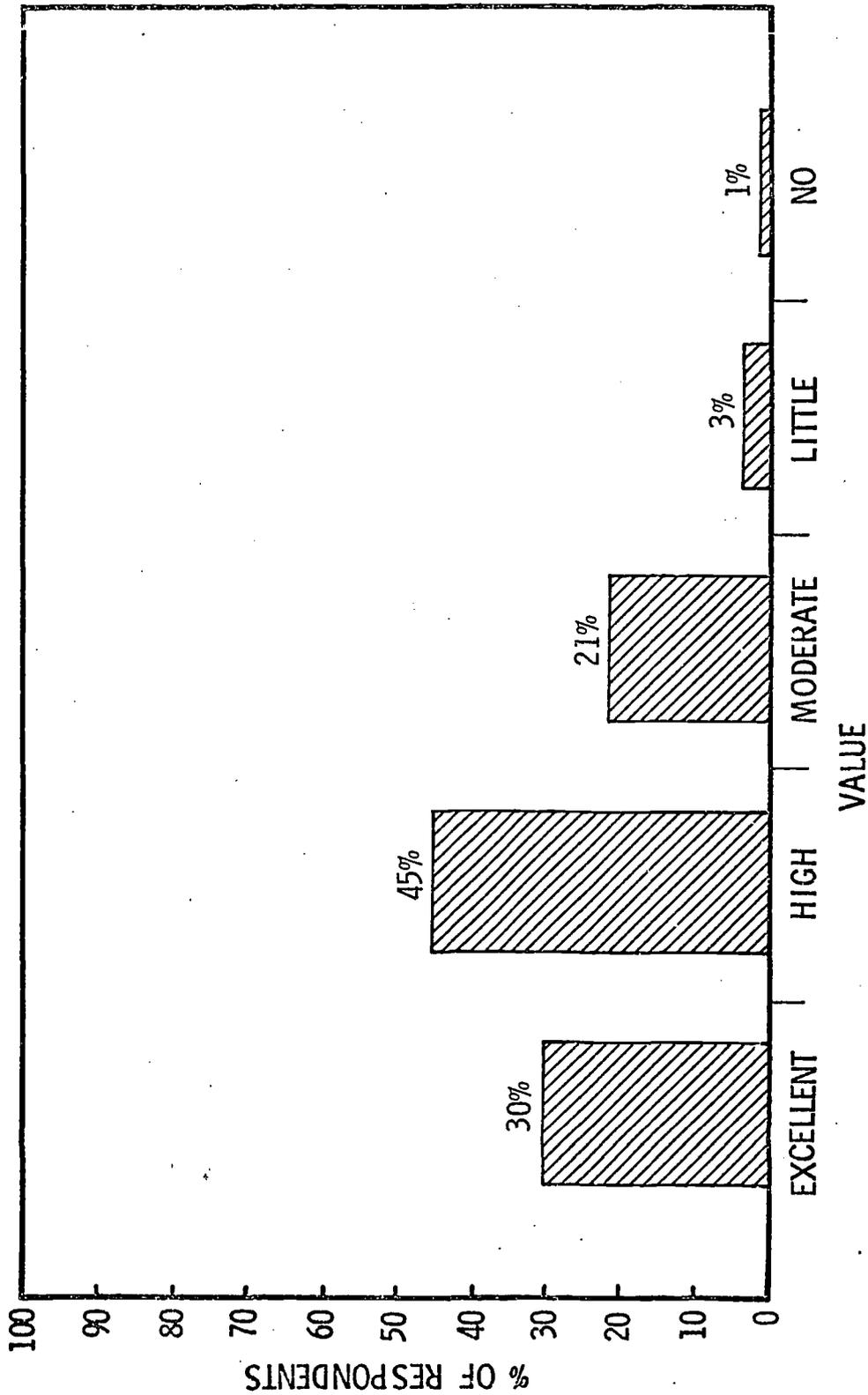


COMPARATIVE RATING OF INFORMATION SOURCES



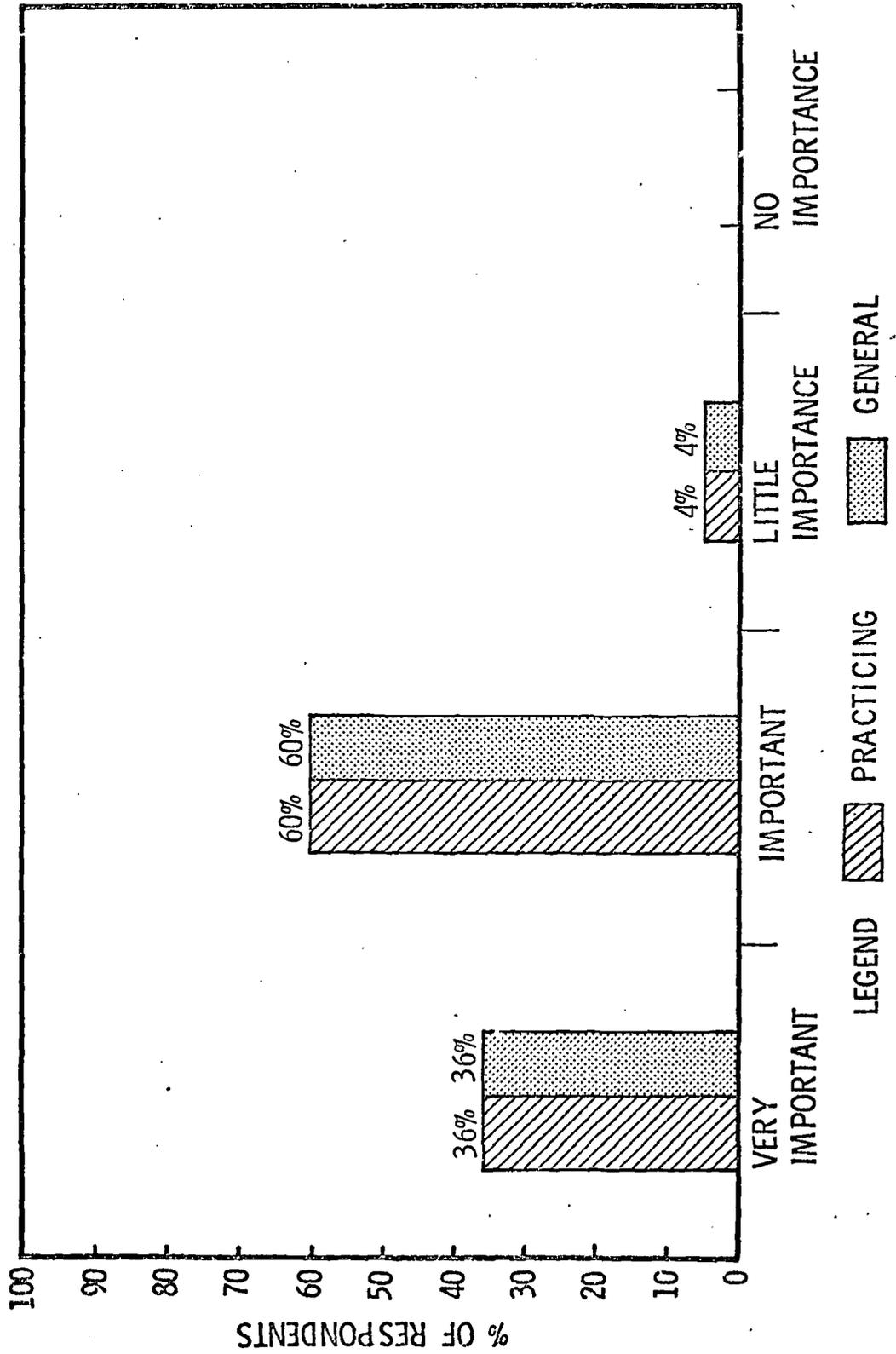
358

RATING OF TOPIC AND GENERAL QUALITY



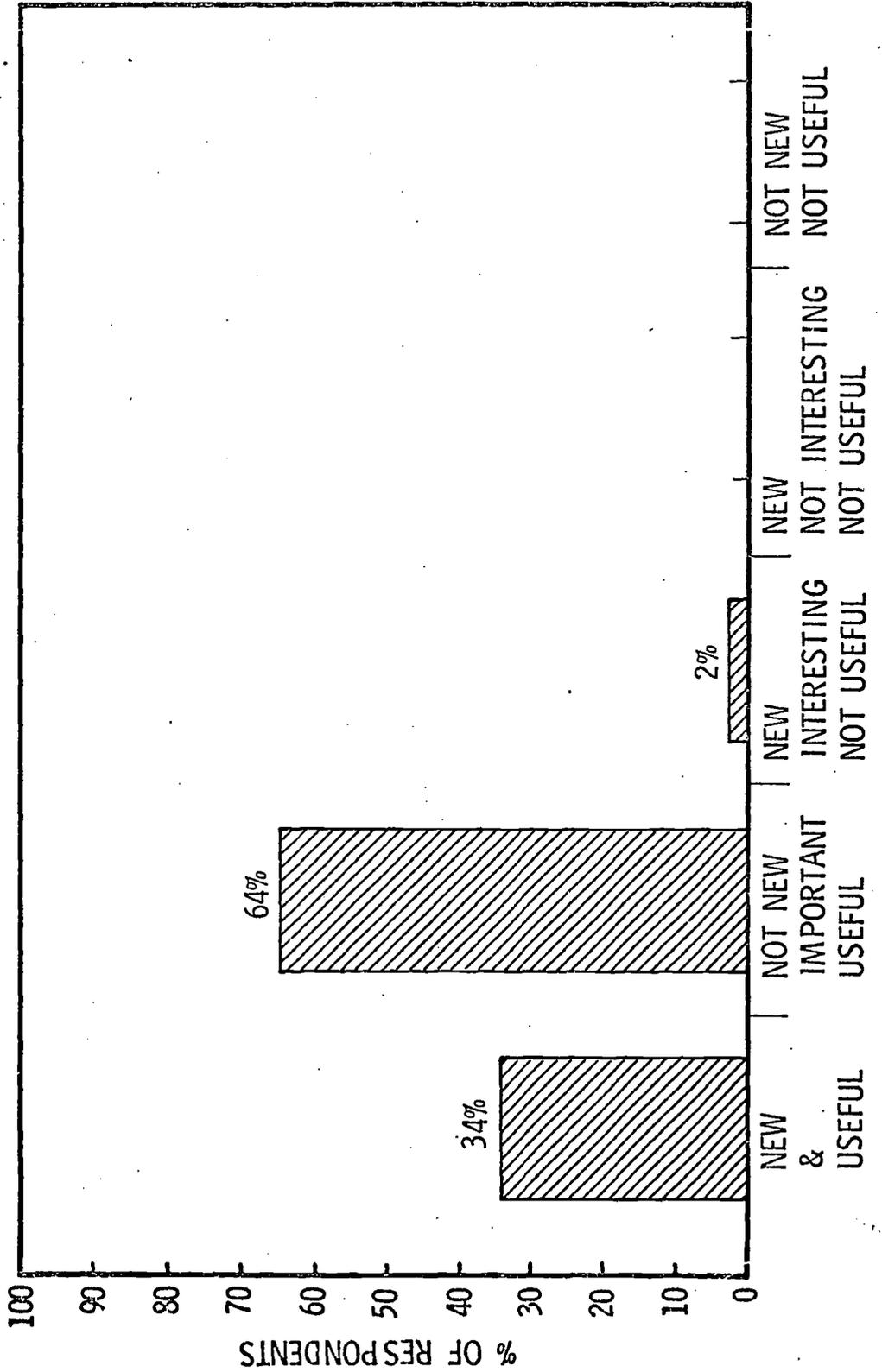
PROGRAM 11: INHALATION THERAPY

RATING OF INFORMATION



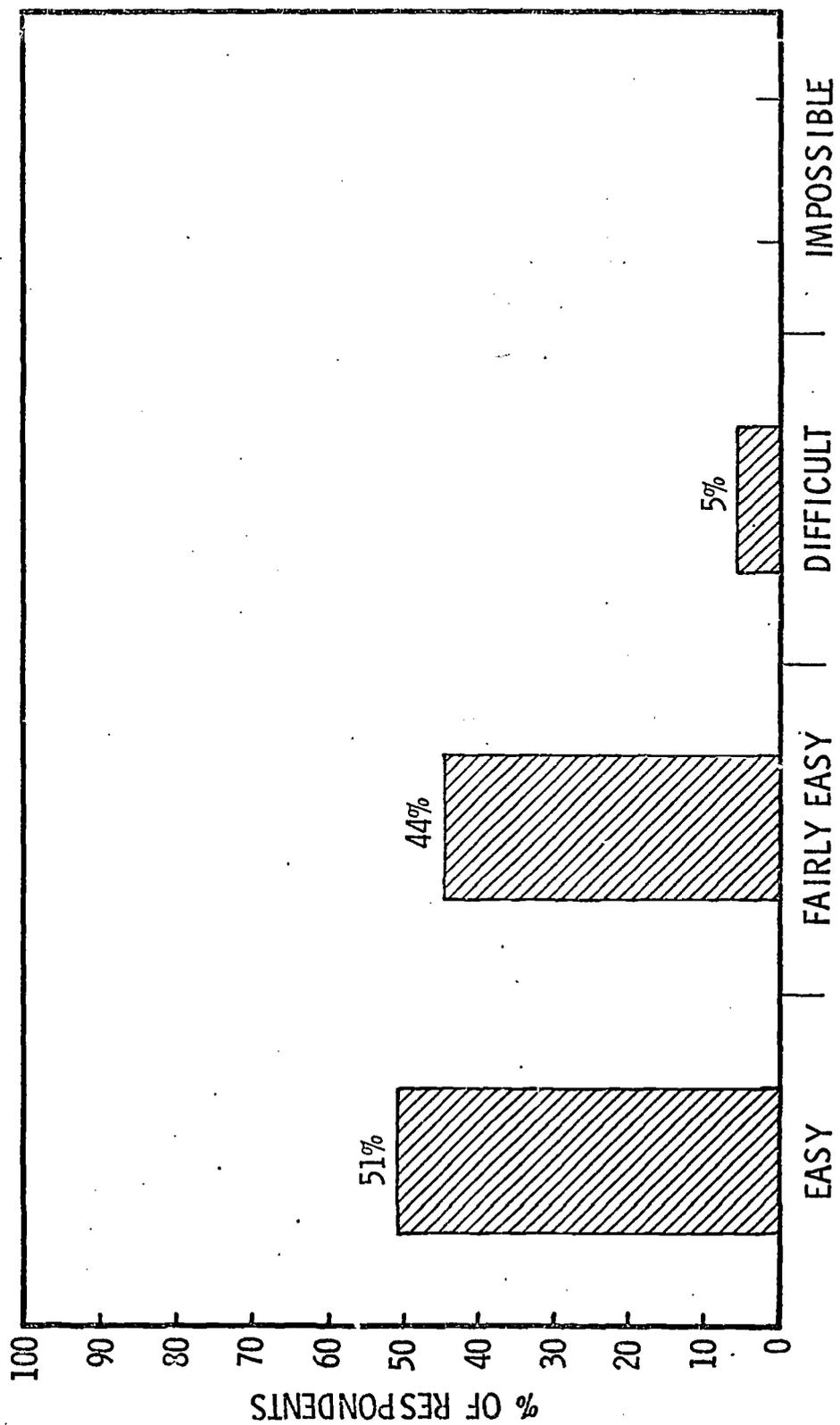
361

RATING PROGRAM INFORMATION



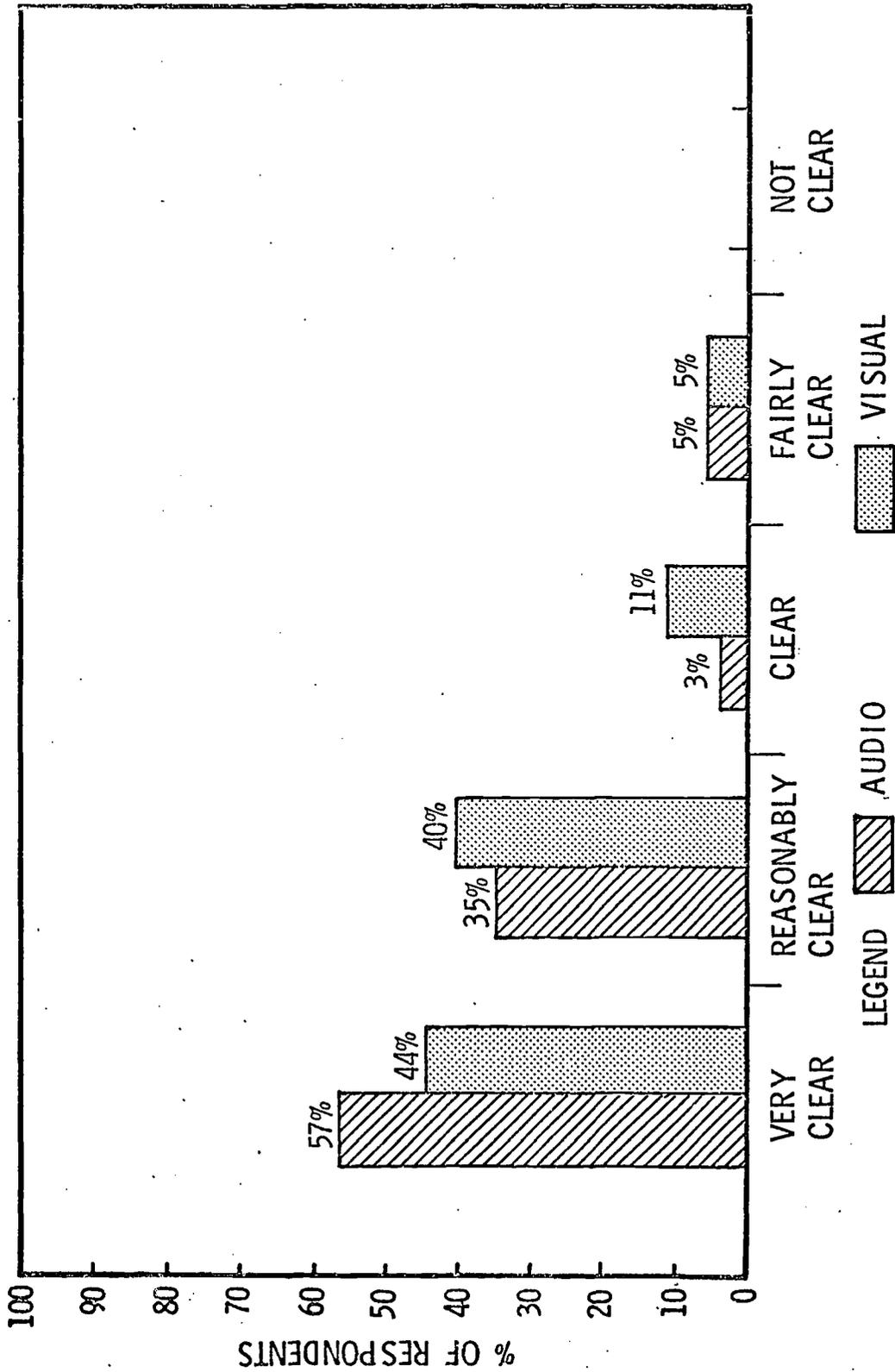
862

RATING OF PROGRAM DESIGN



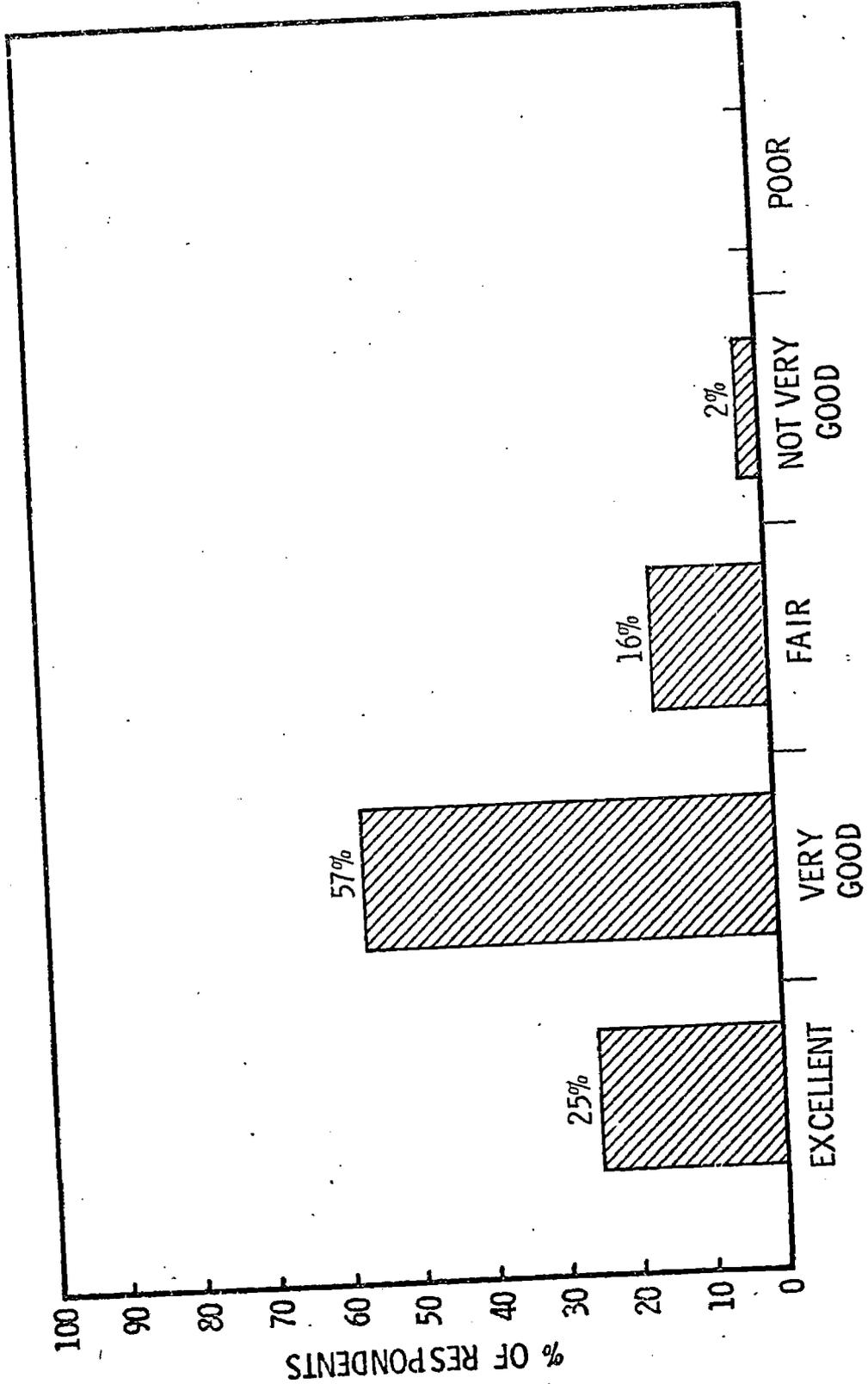
363

COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS



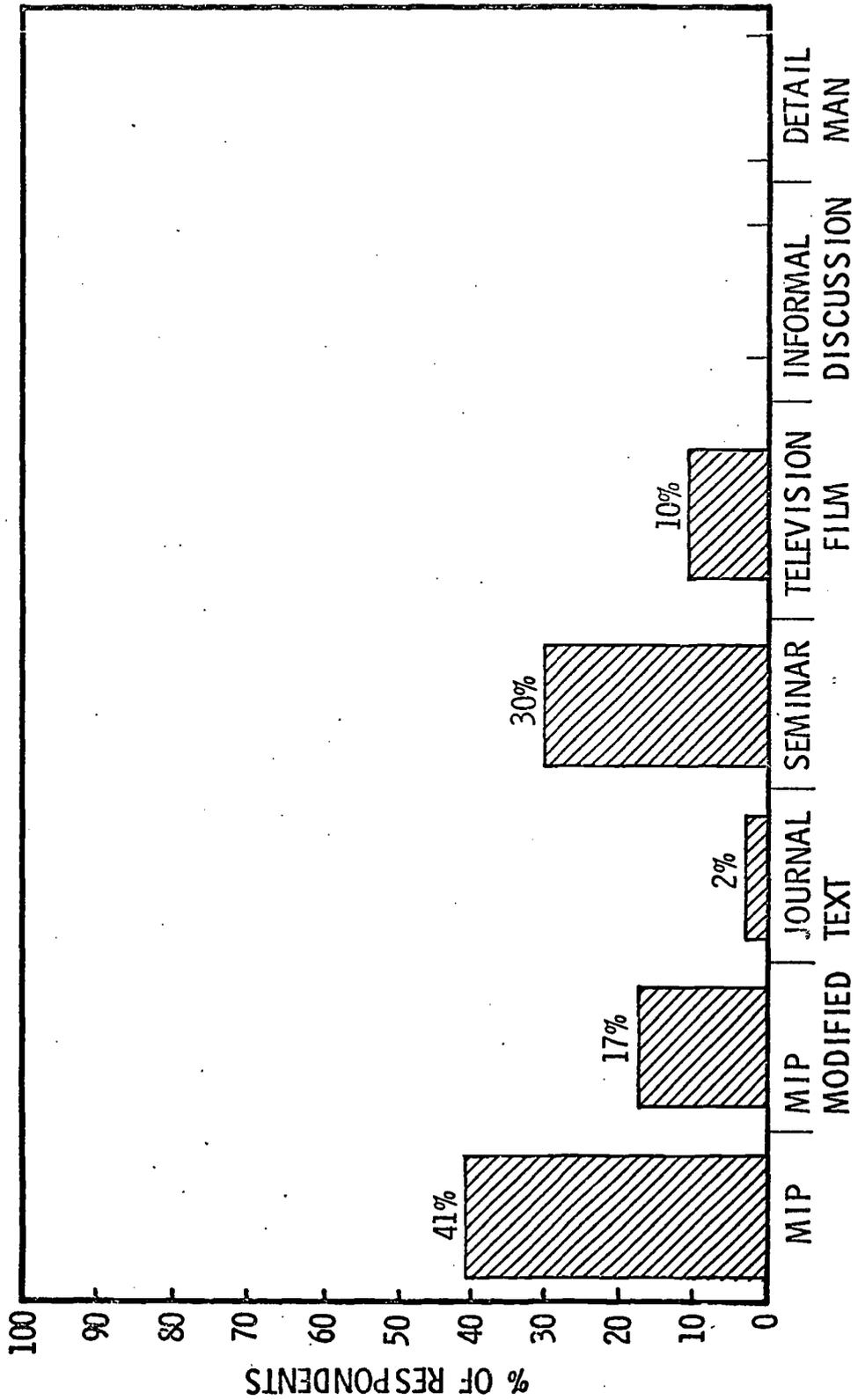
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RATING OF ATTENTION QUALITY



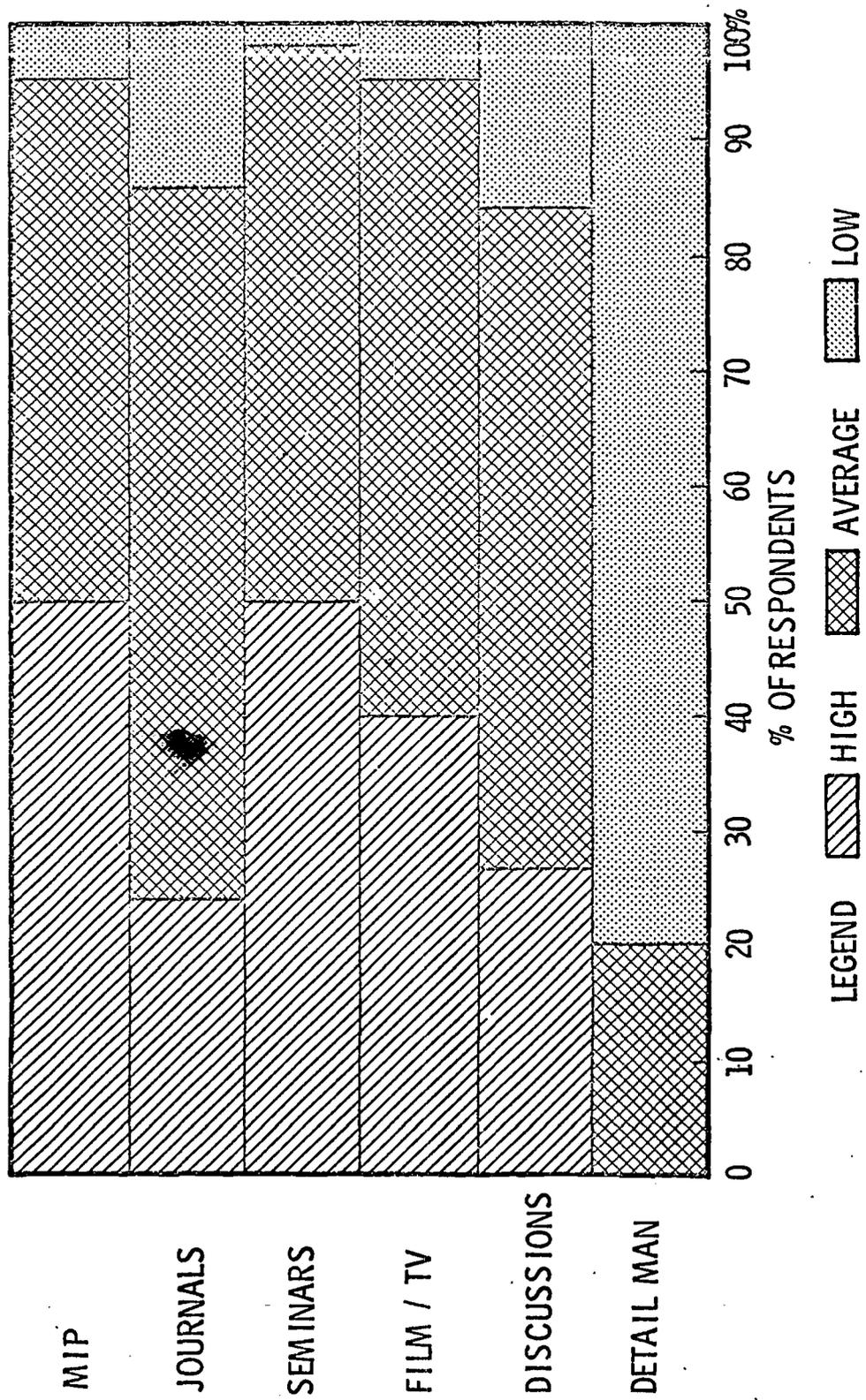
365

RANK ORDER OF INFORMATION SOURCES

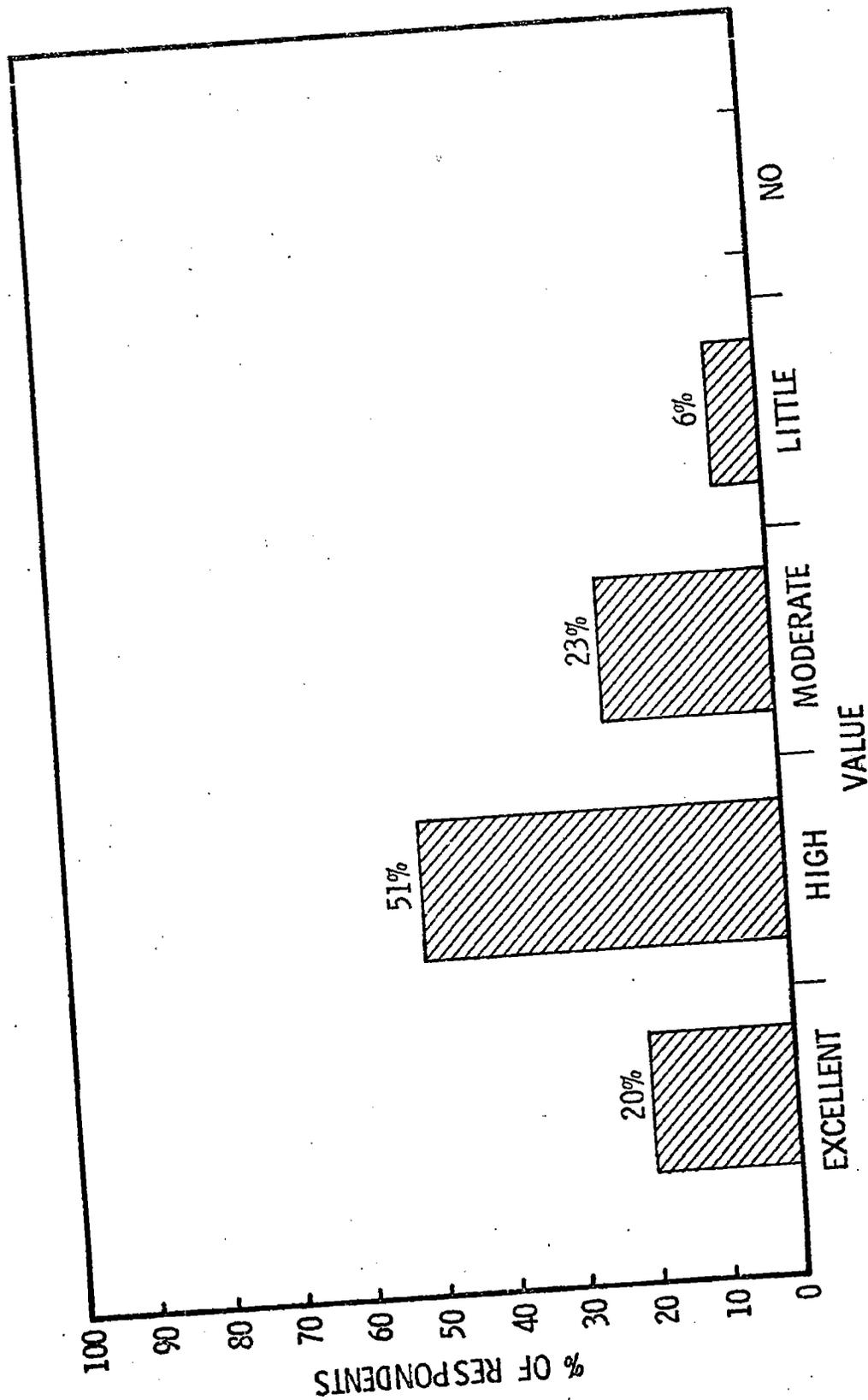


366

COMPARATIVE RATING OF INFORMATION SOURCES



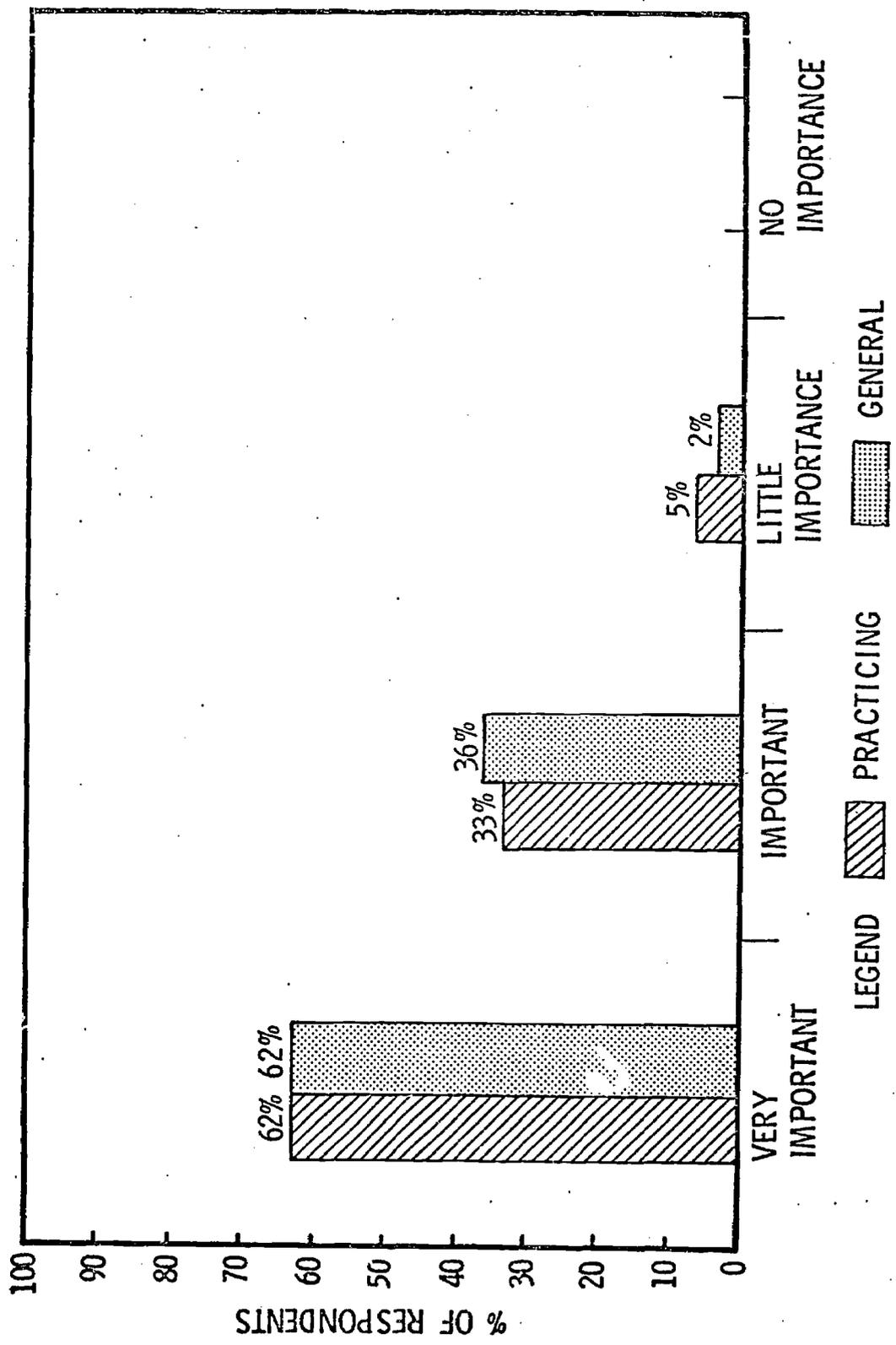
RATING OF TOPIC AND GENERAL QUALITY



368

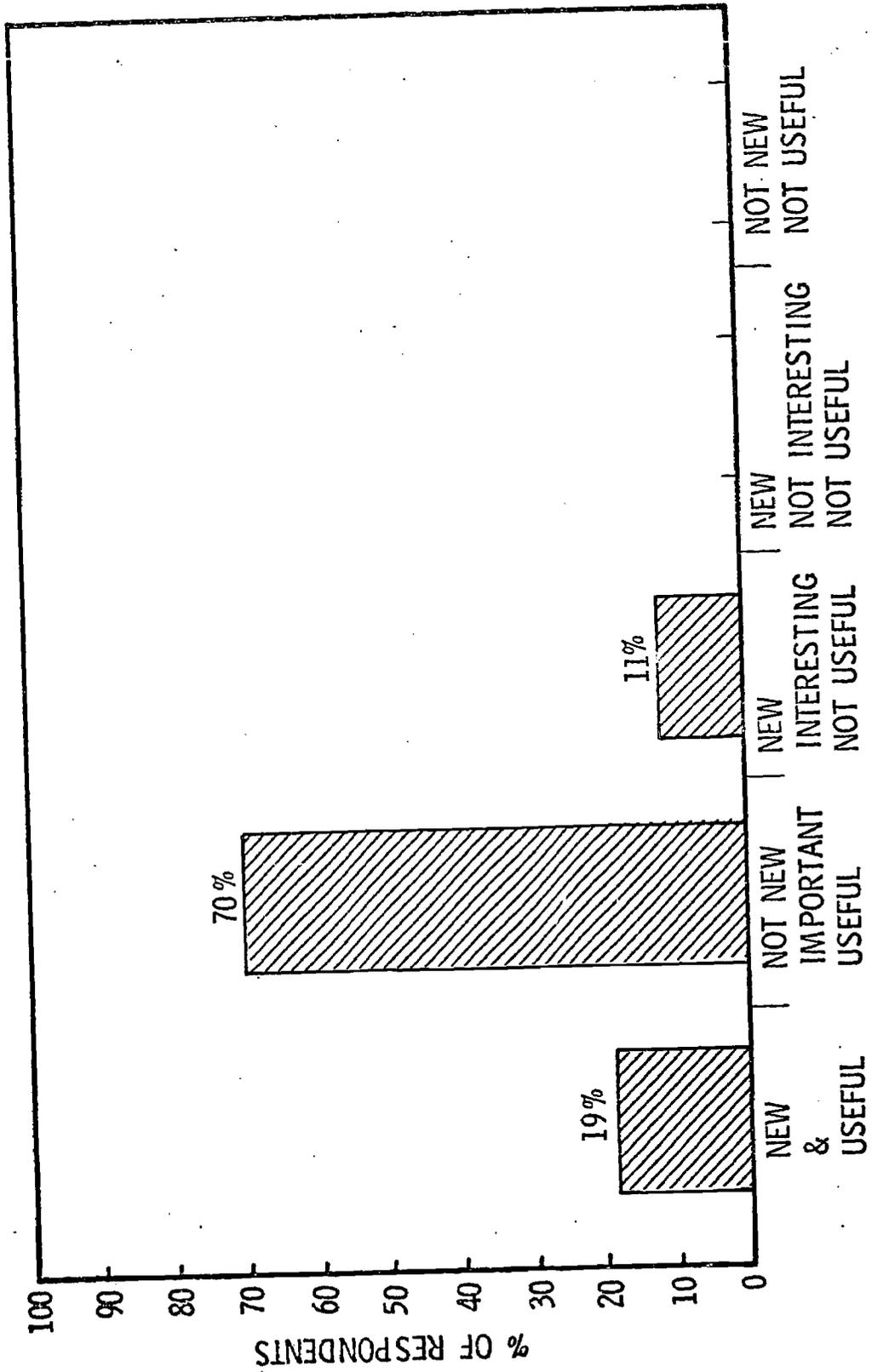
PROGRAM 12: HYPERTENSION

RATING OF INFORMATION

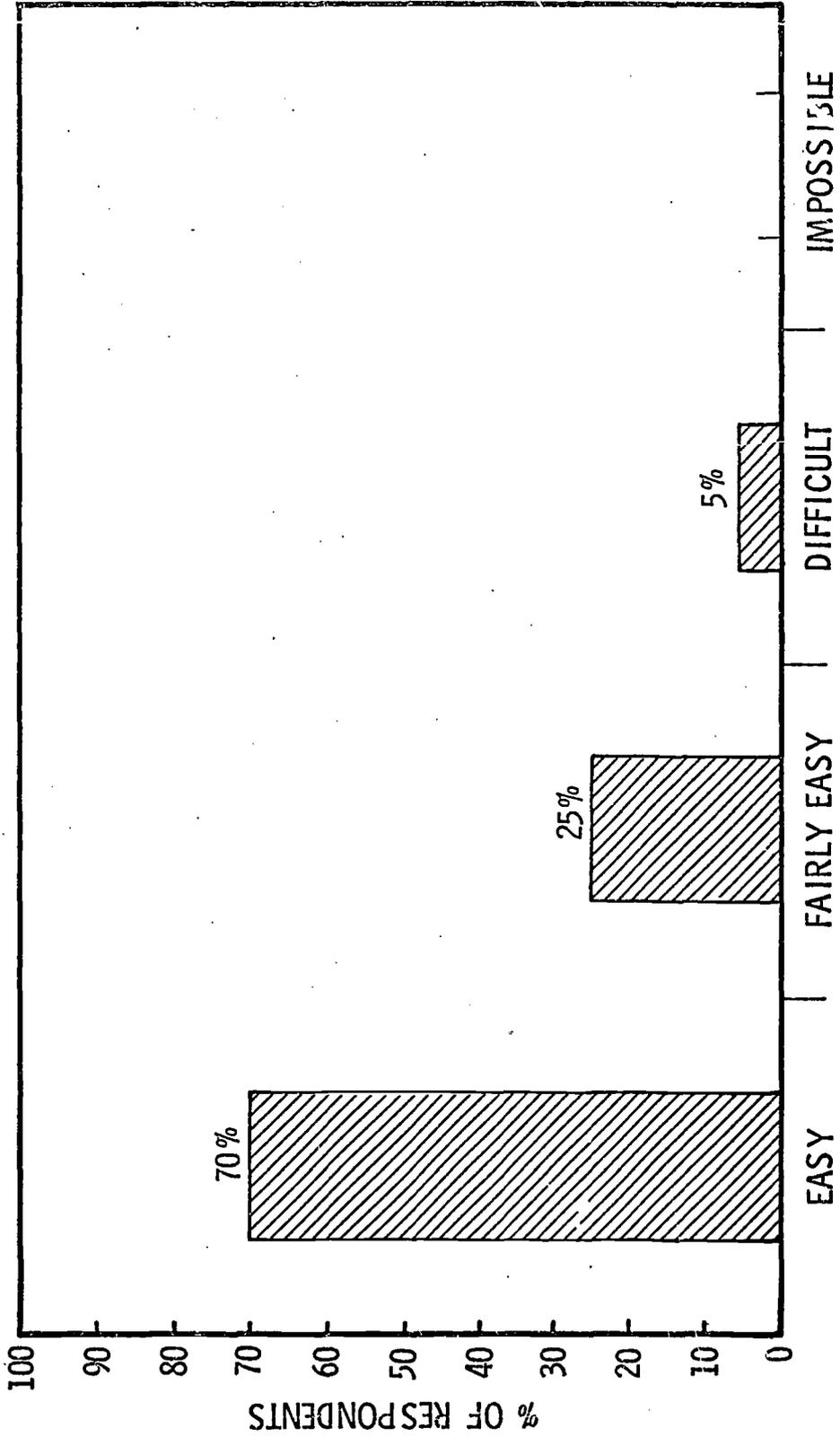


270

RATING PROGRAM INFORMATION

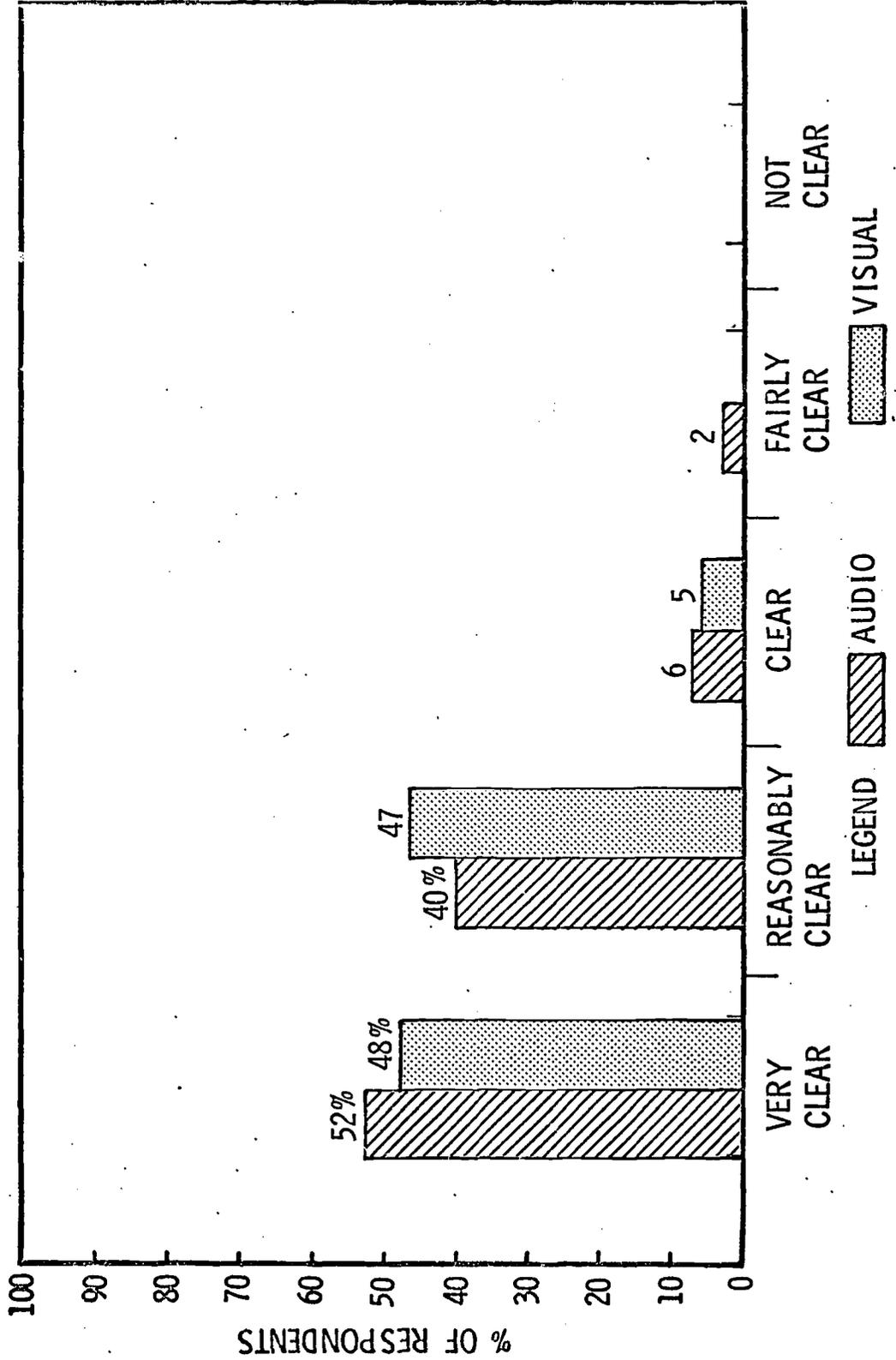


RATING OF PROGRAM DESIGN

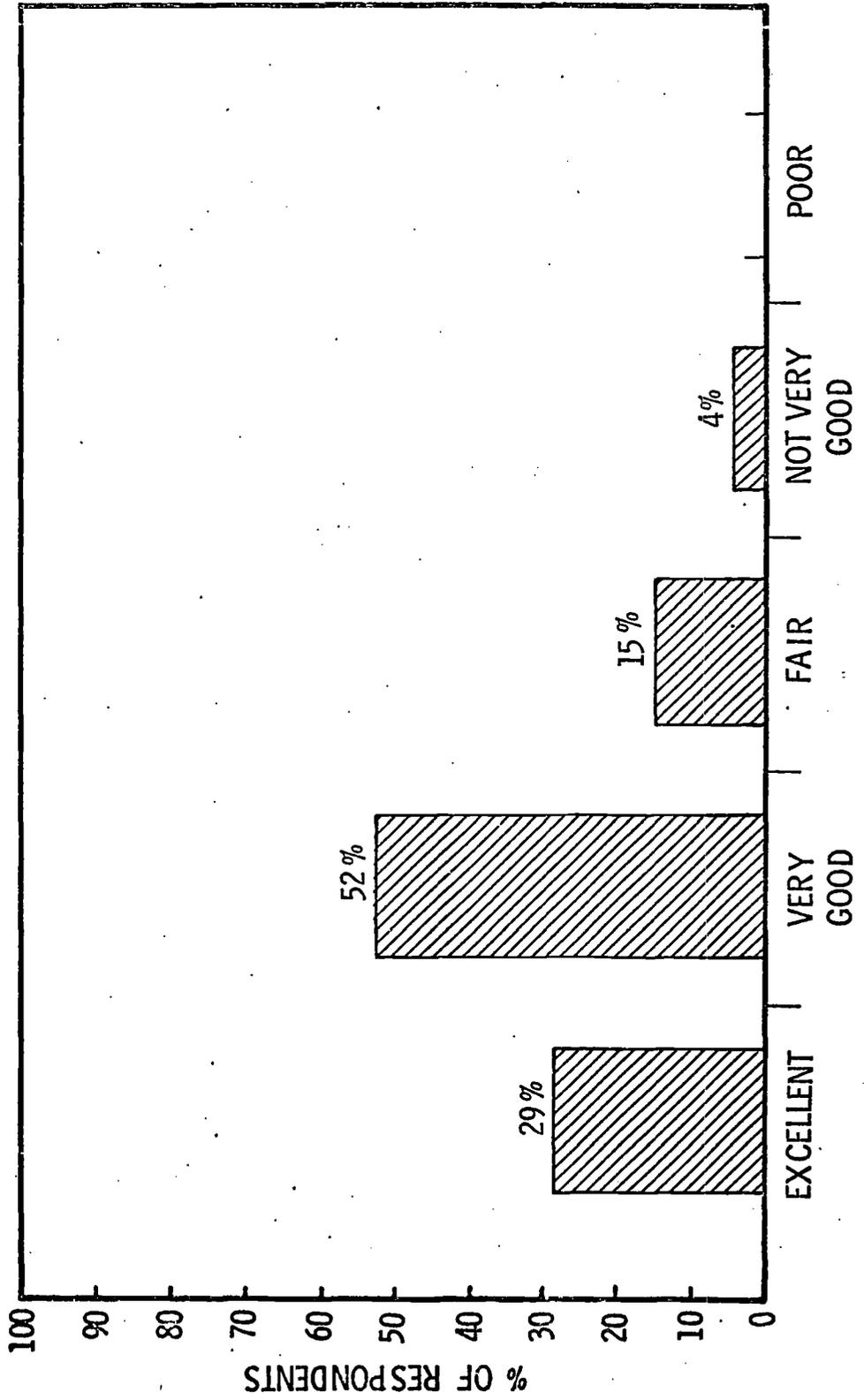


372

COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS

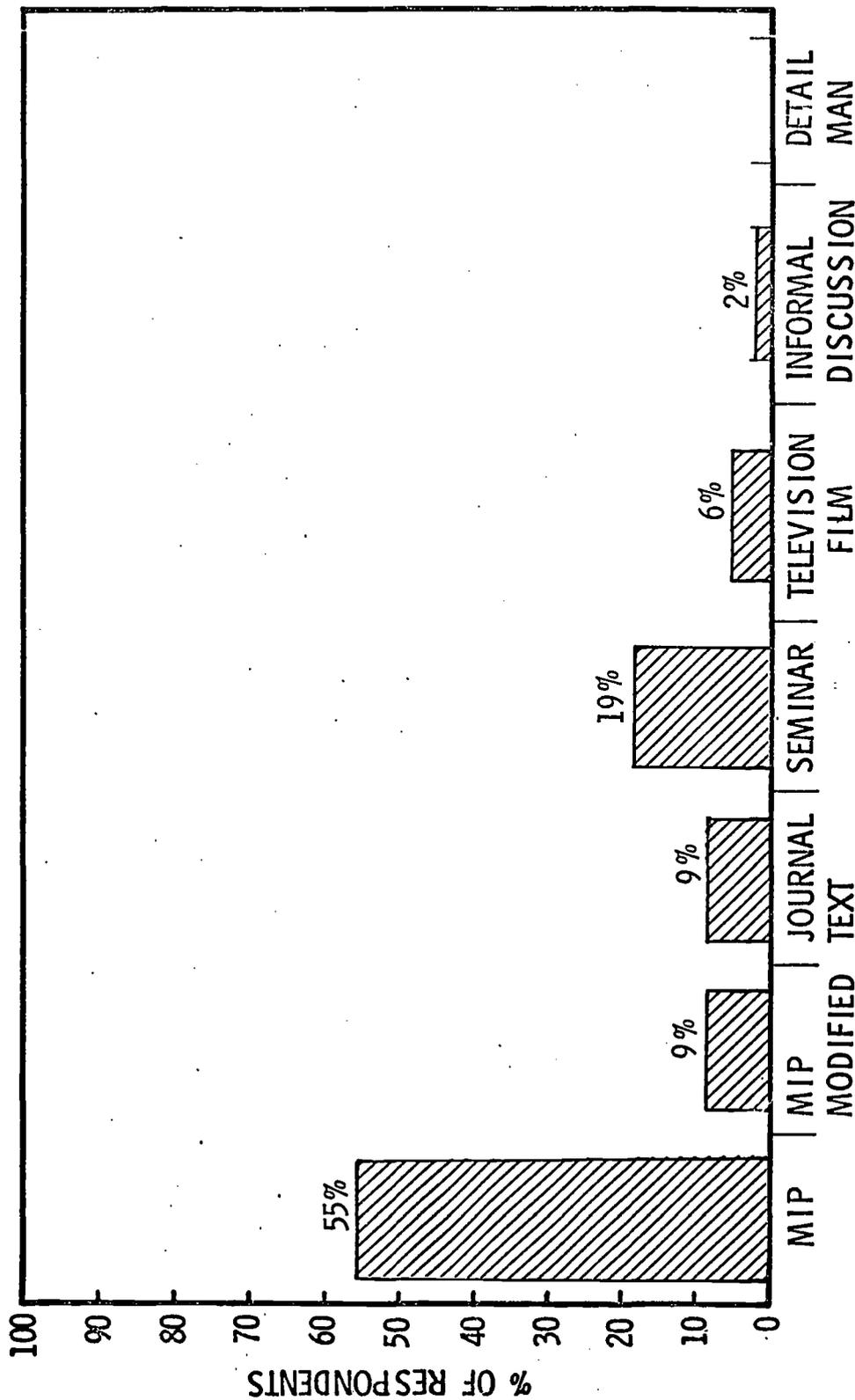


RATING OF ATTENTION QUALITY



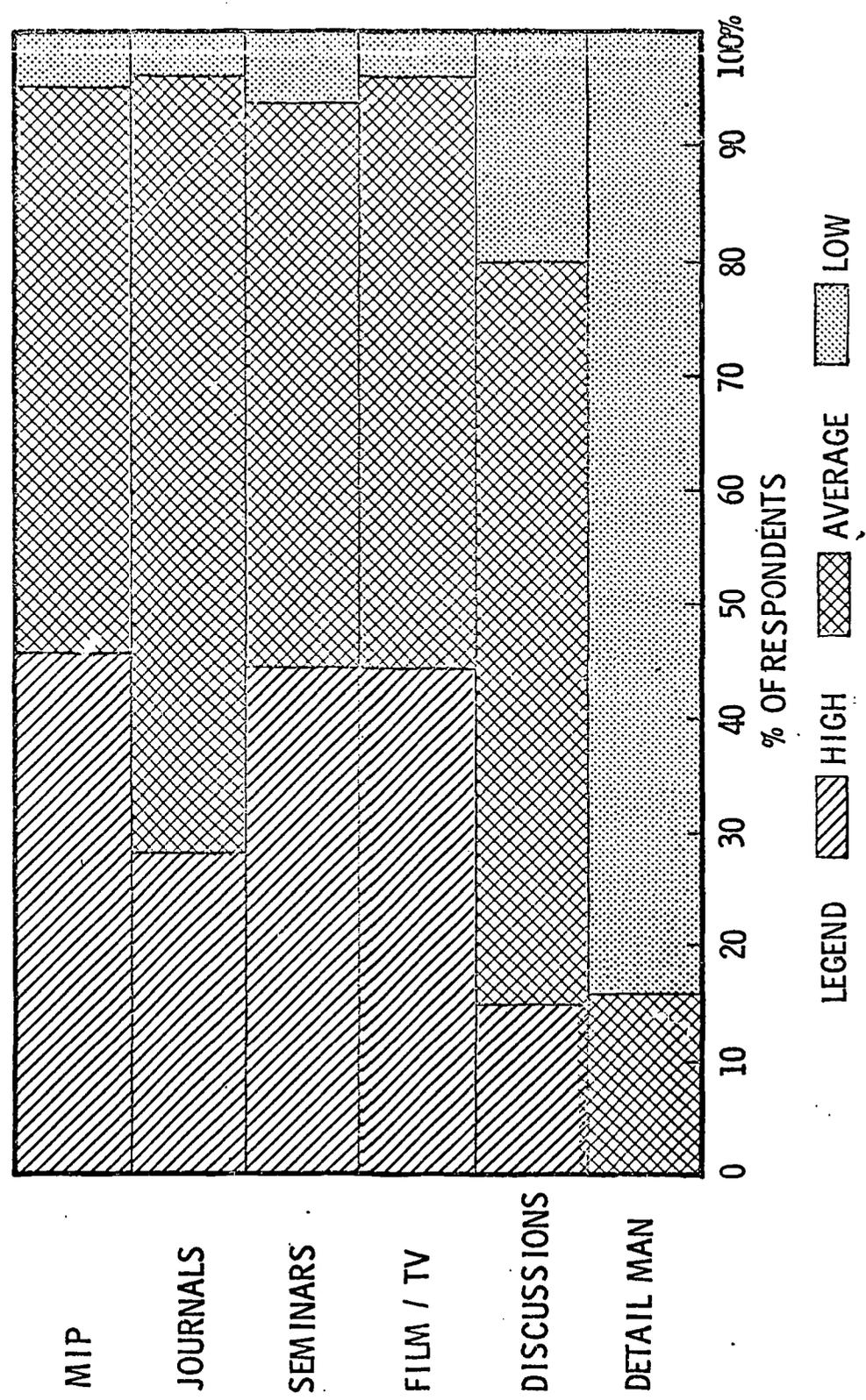
374

RANK ORDER OF INFORMATION SOURCES



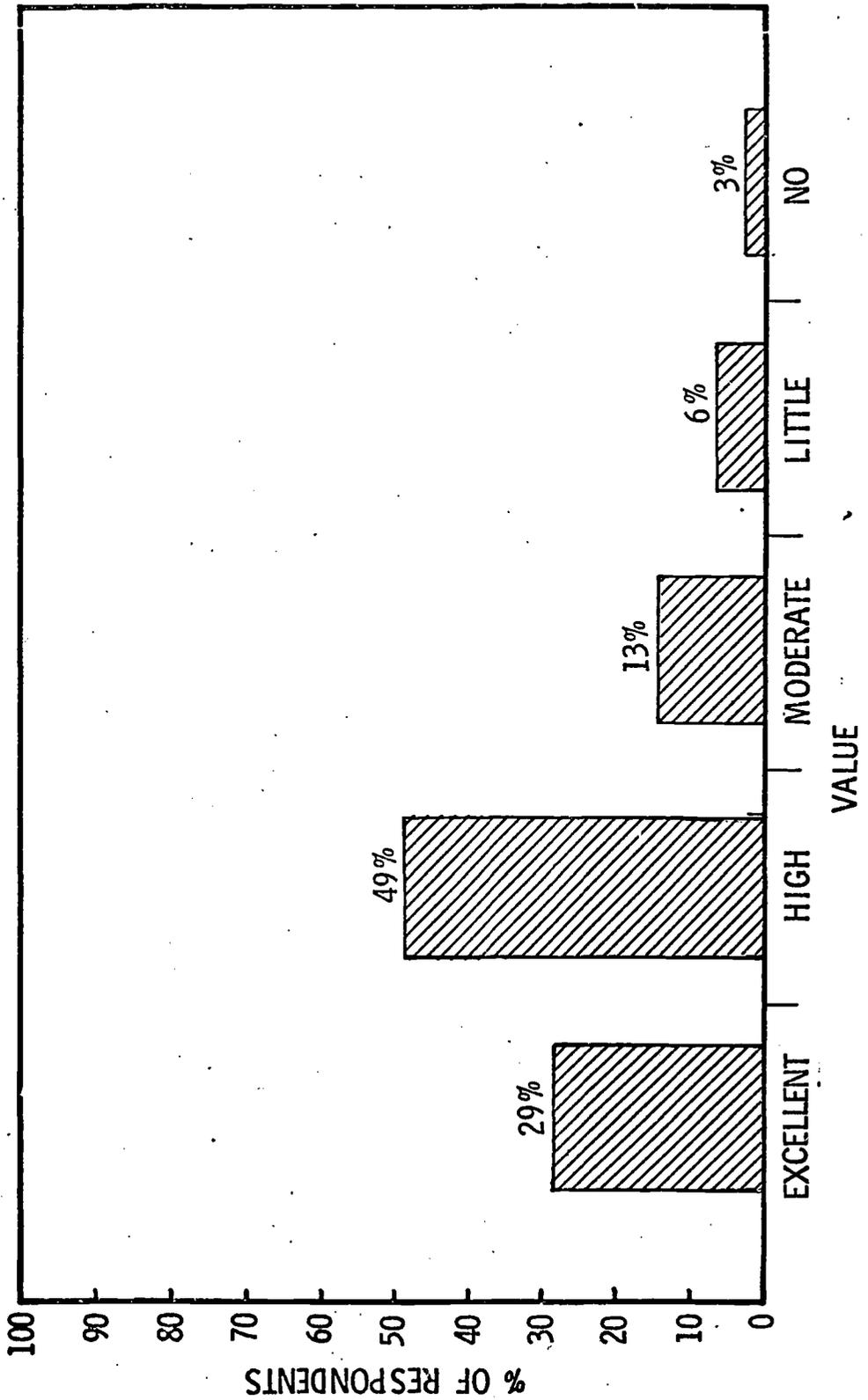
275

COMPARATIVE RATING OF INFORMATION SOURCES



376

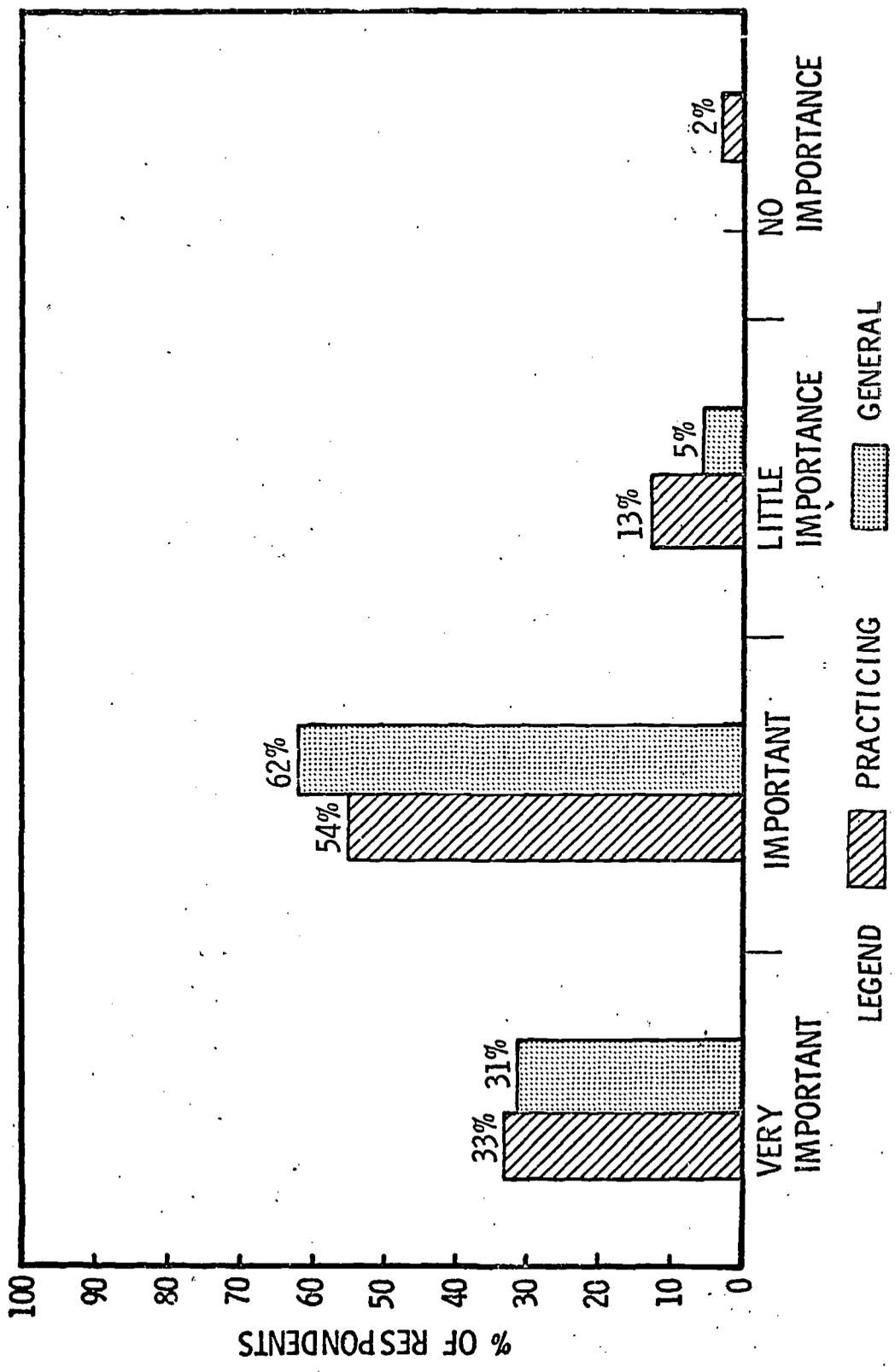
RATING OF TOPIC AND GENERAL QUALITY



277

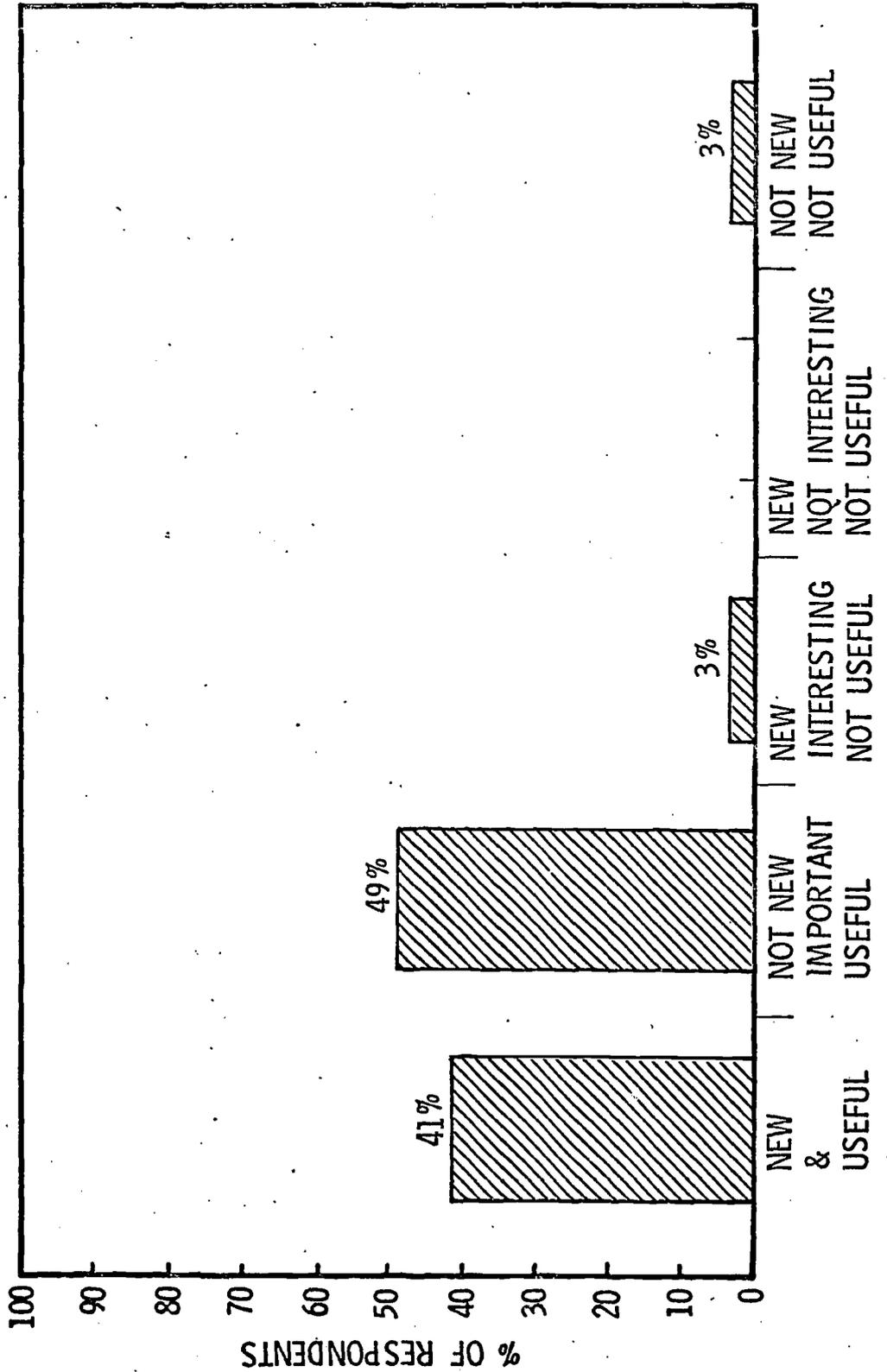
PROGRAM 13: ASPIRATION OF THE JOINTS

RATING OF INFORMATION



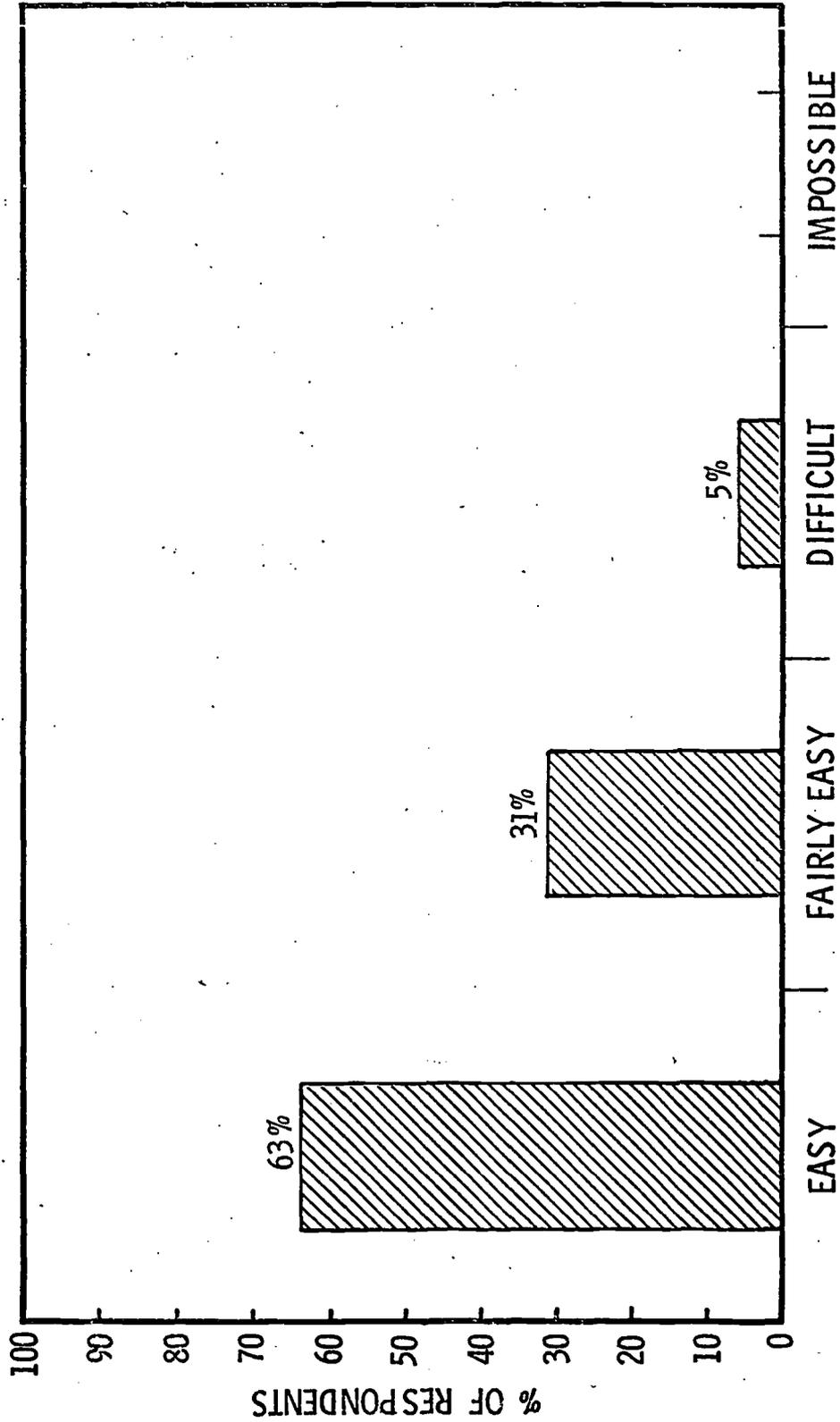
379

RATING PROGRAM INFORMATION

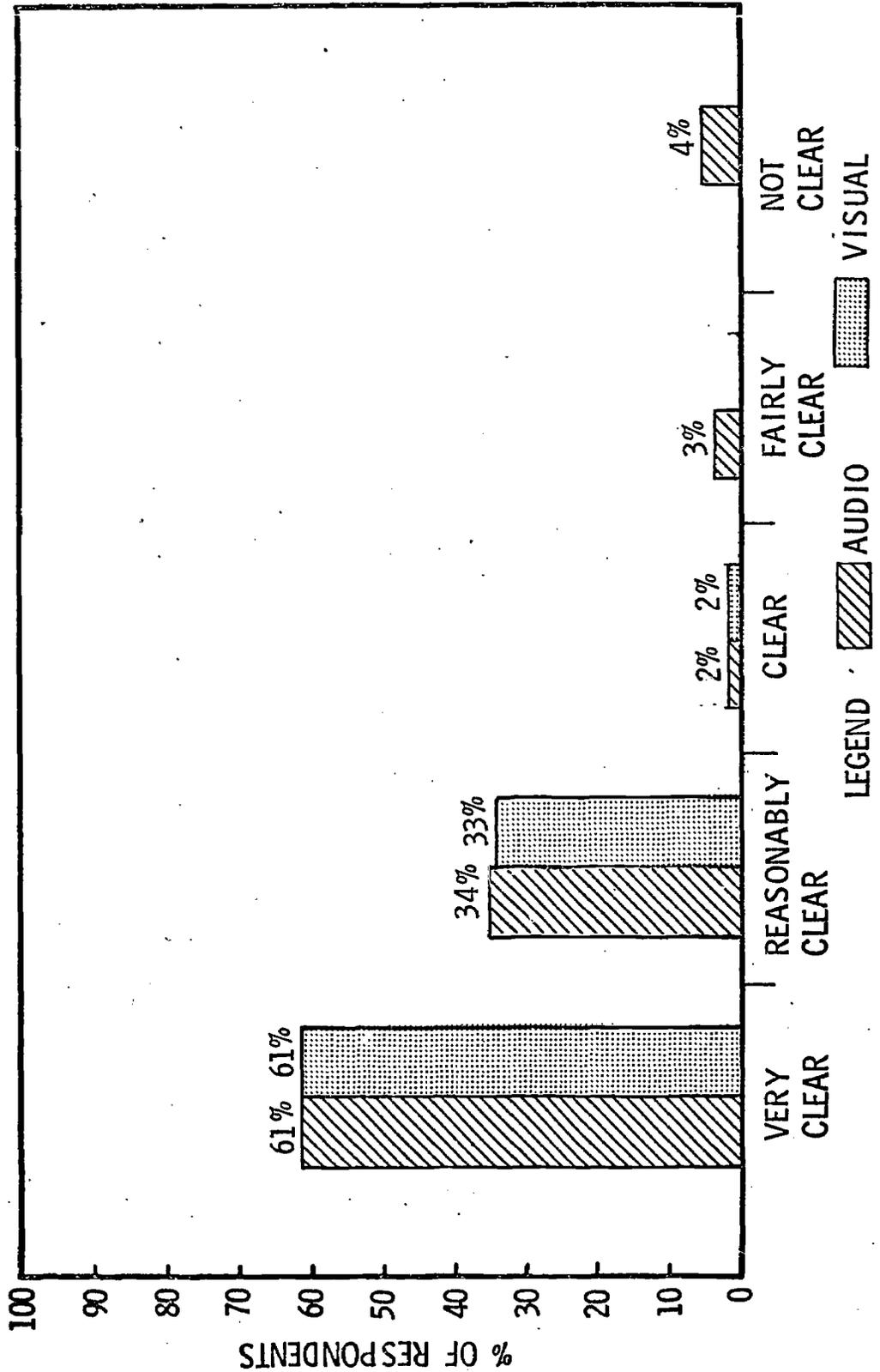


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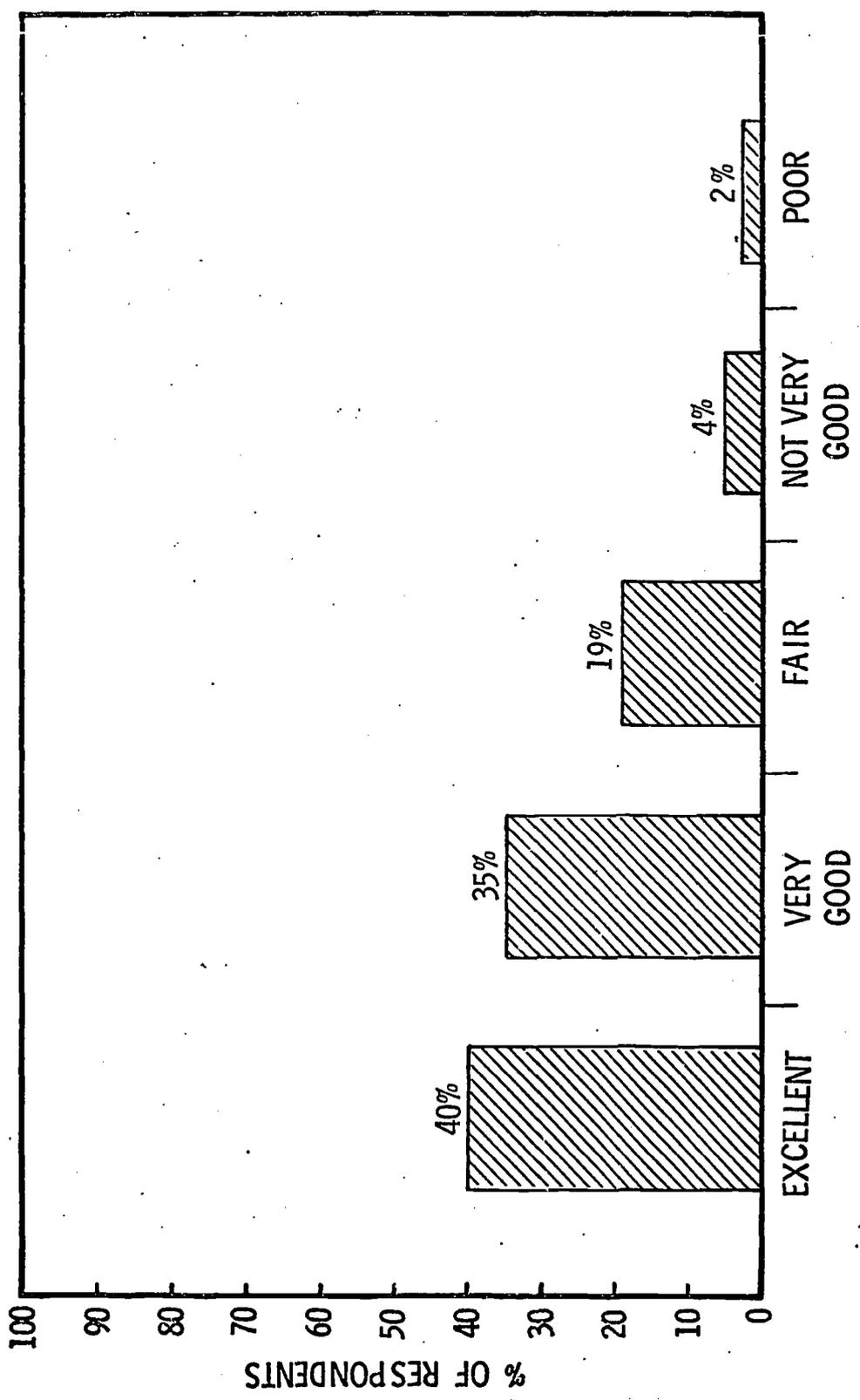
RATING OF PROGRAM DESIGN



COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS

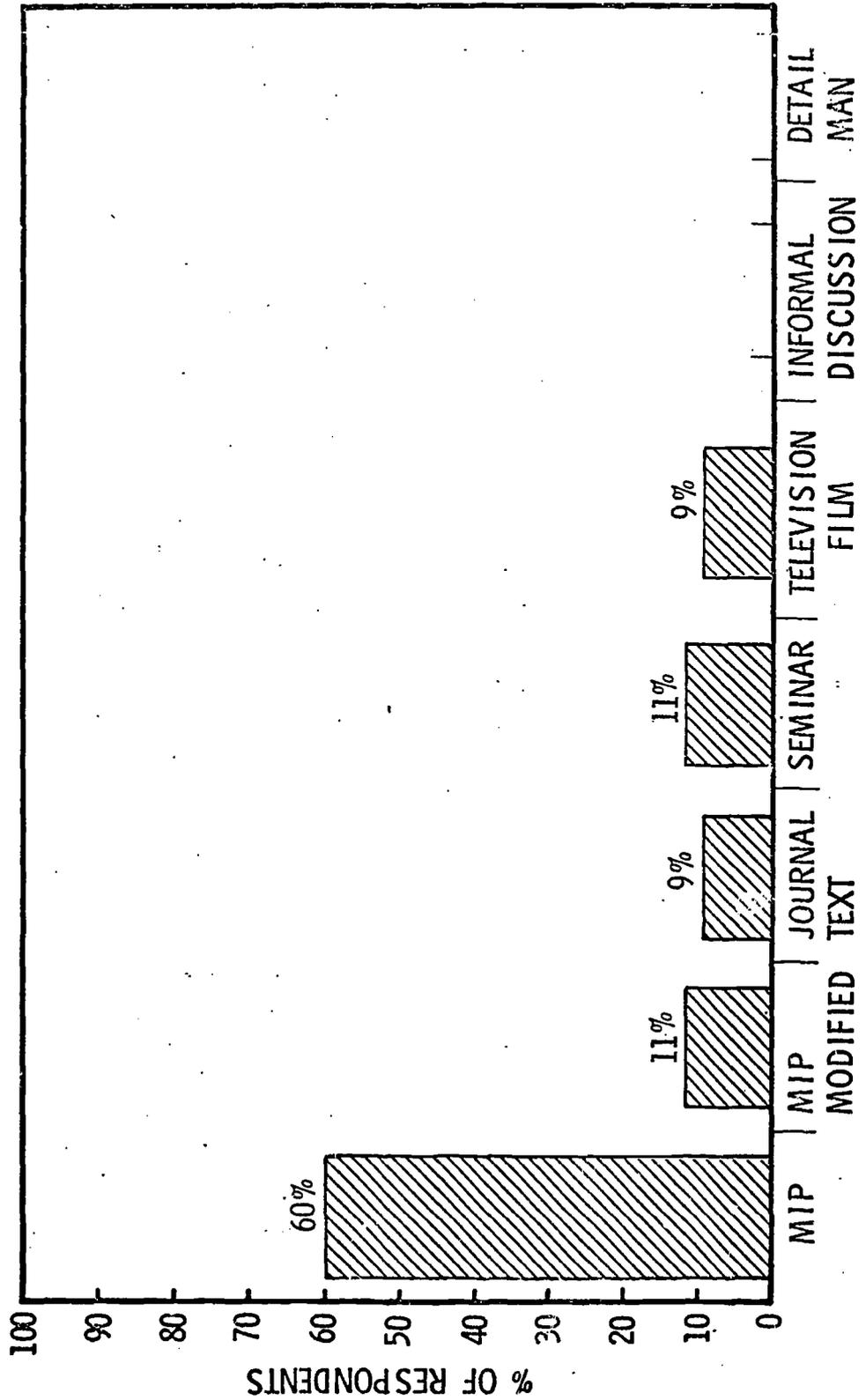


RATING OF ATTENTION QUALITY

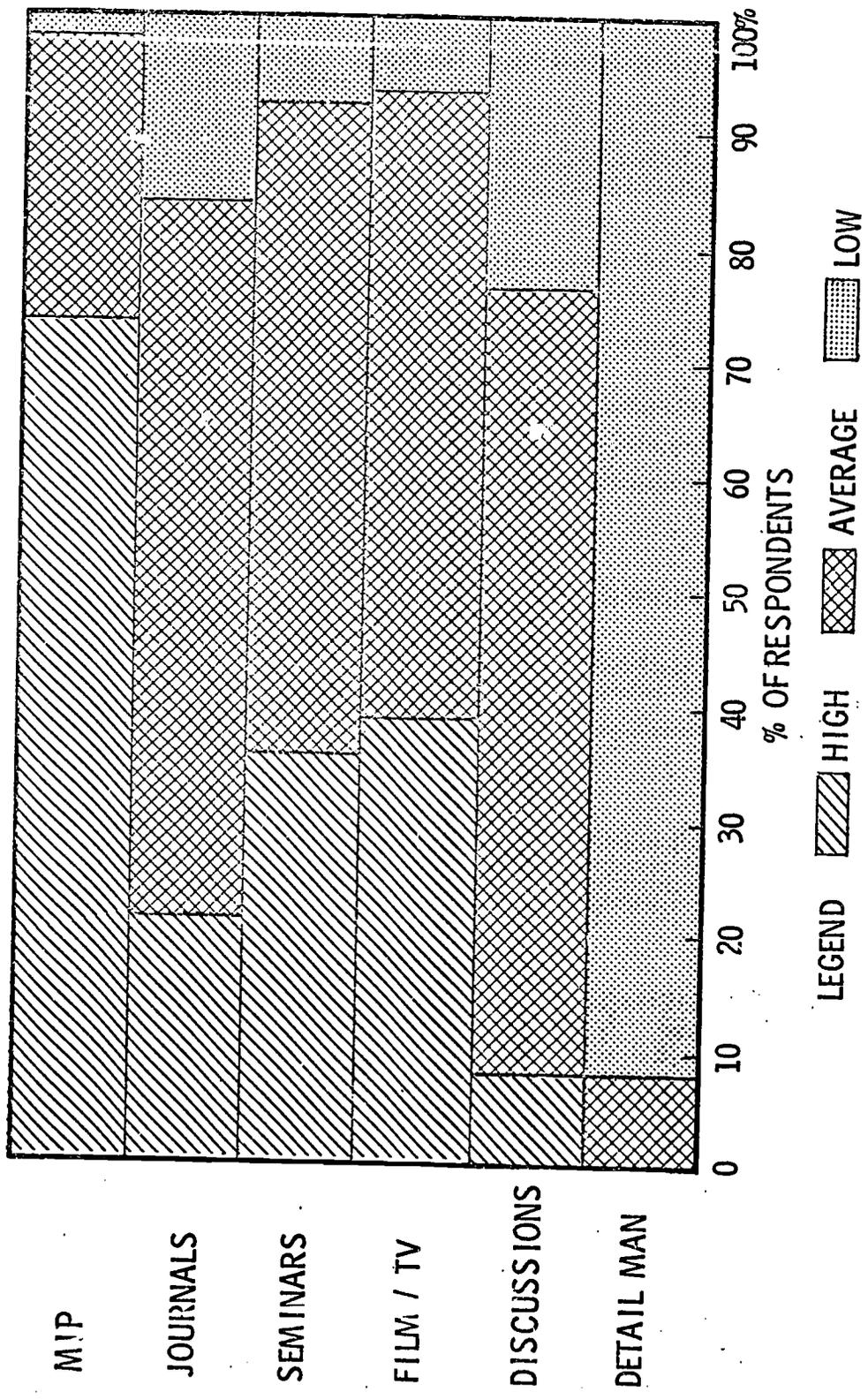


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RANK ORDER OF INFORMATION SOURCES

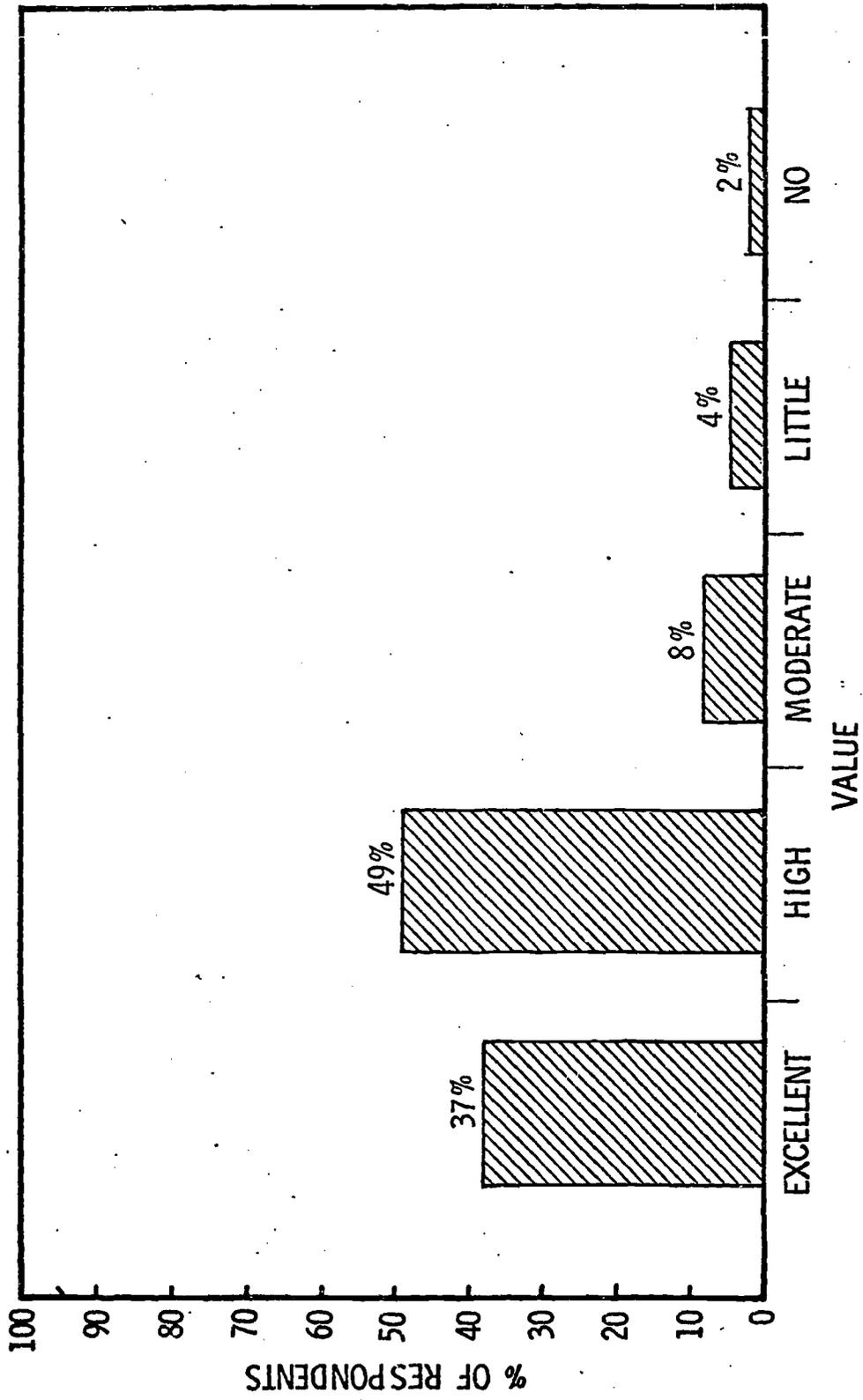


COMPARATIVE RATING OF INFORMATION SOURCES



385

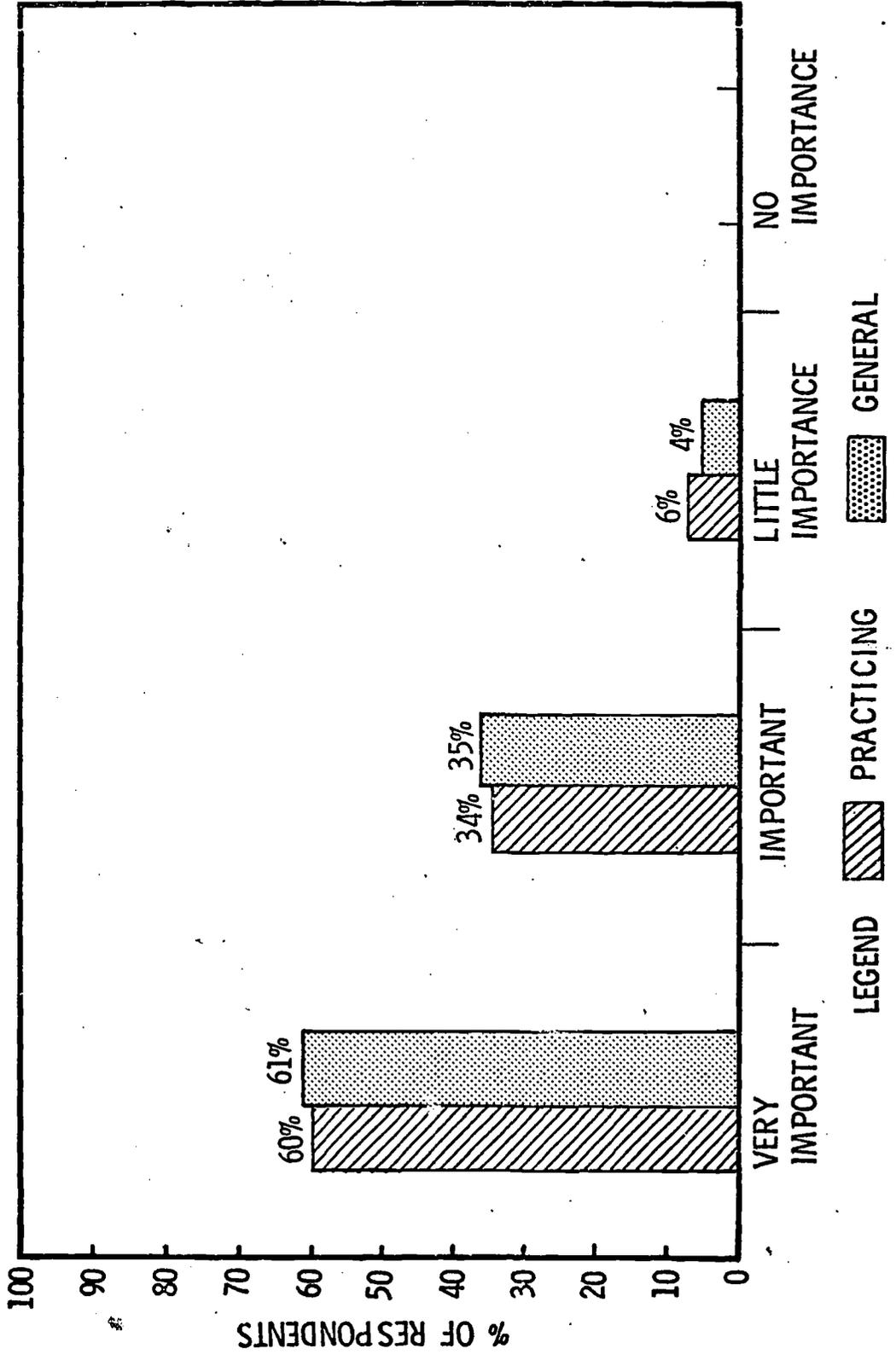
RATING OF TOPIC AND GENERAL QUALITY



386

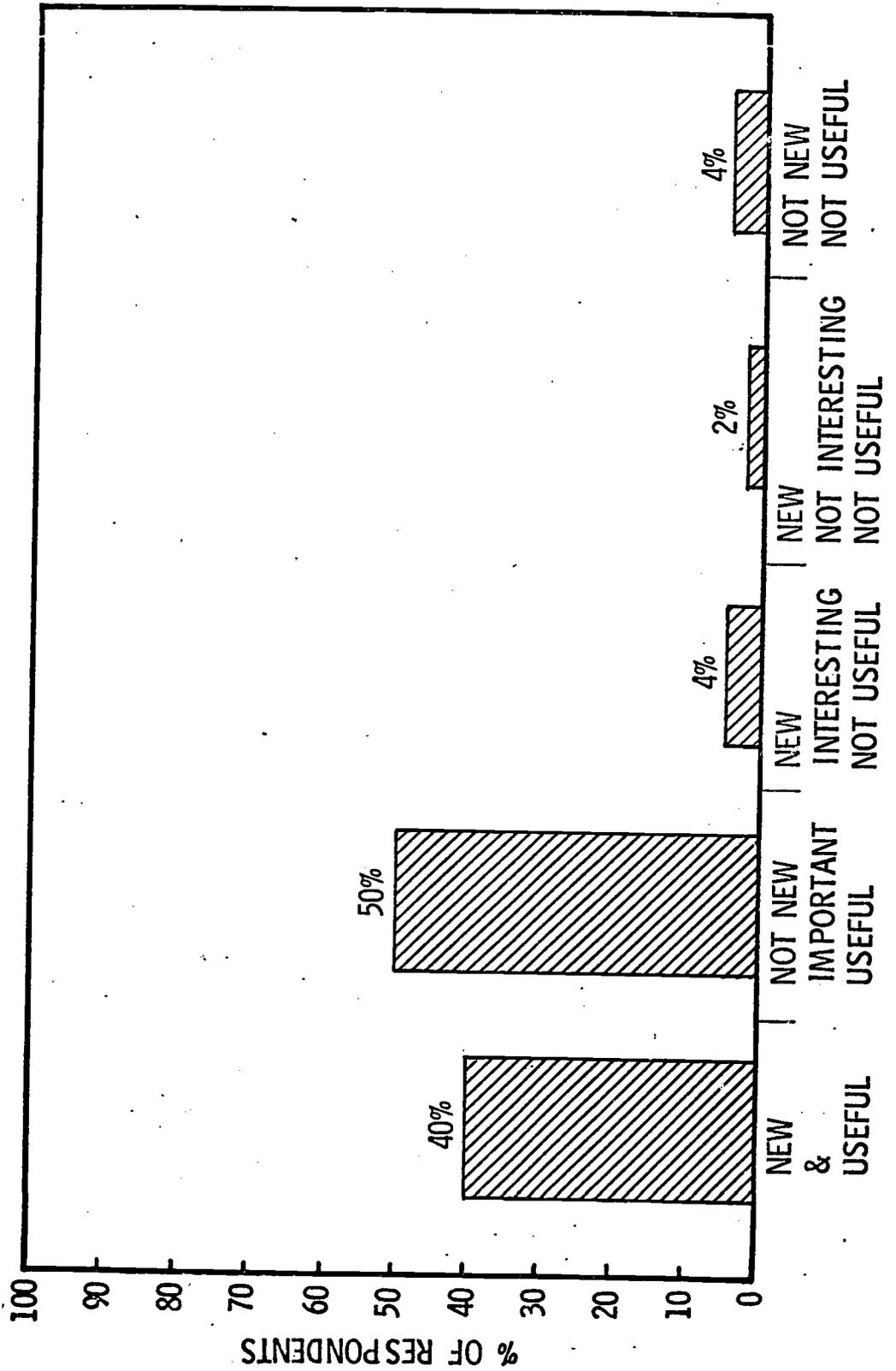
PROGRAM 14: ANEMIA

RATING OF INFORMATION



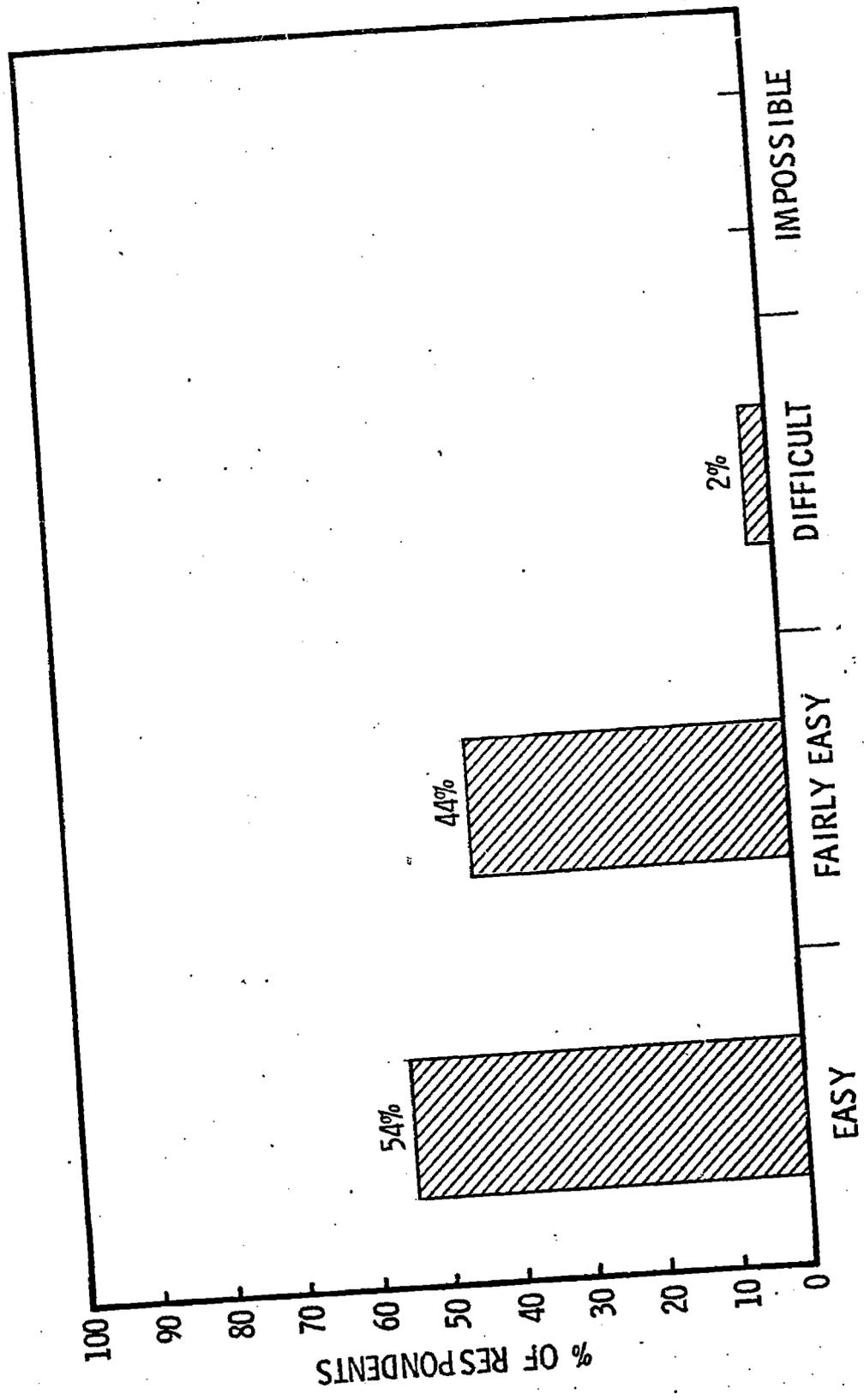
388

RATING PROGRAM INFORMATION



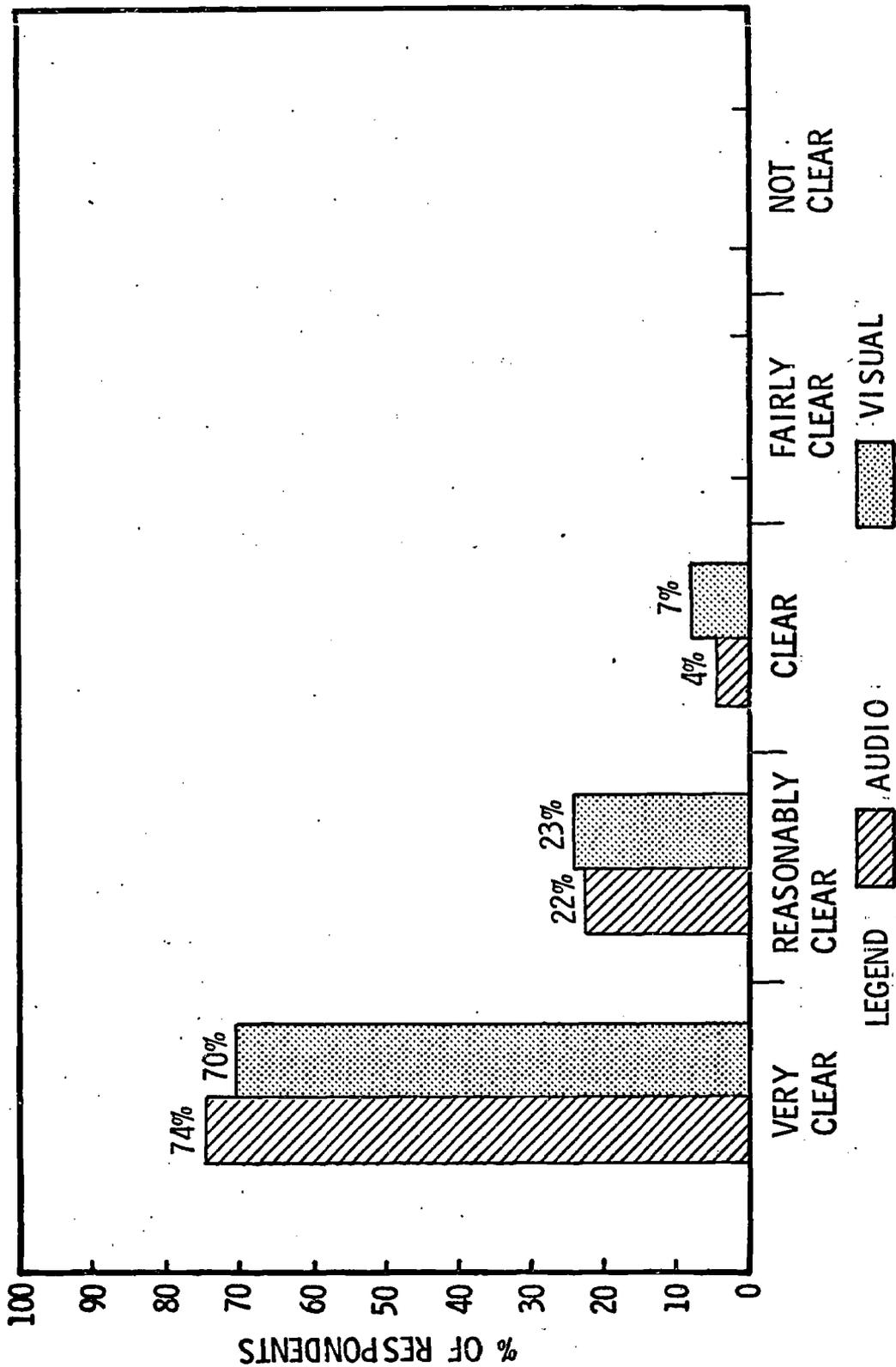
389

RATING OF PROGRAM DESIGN

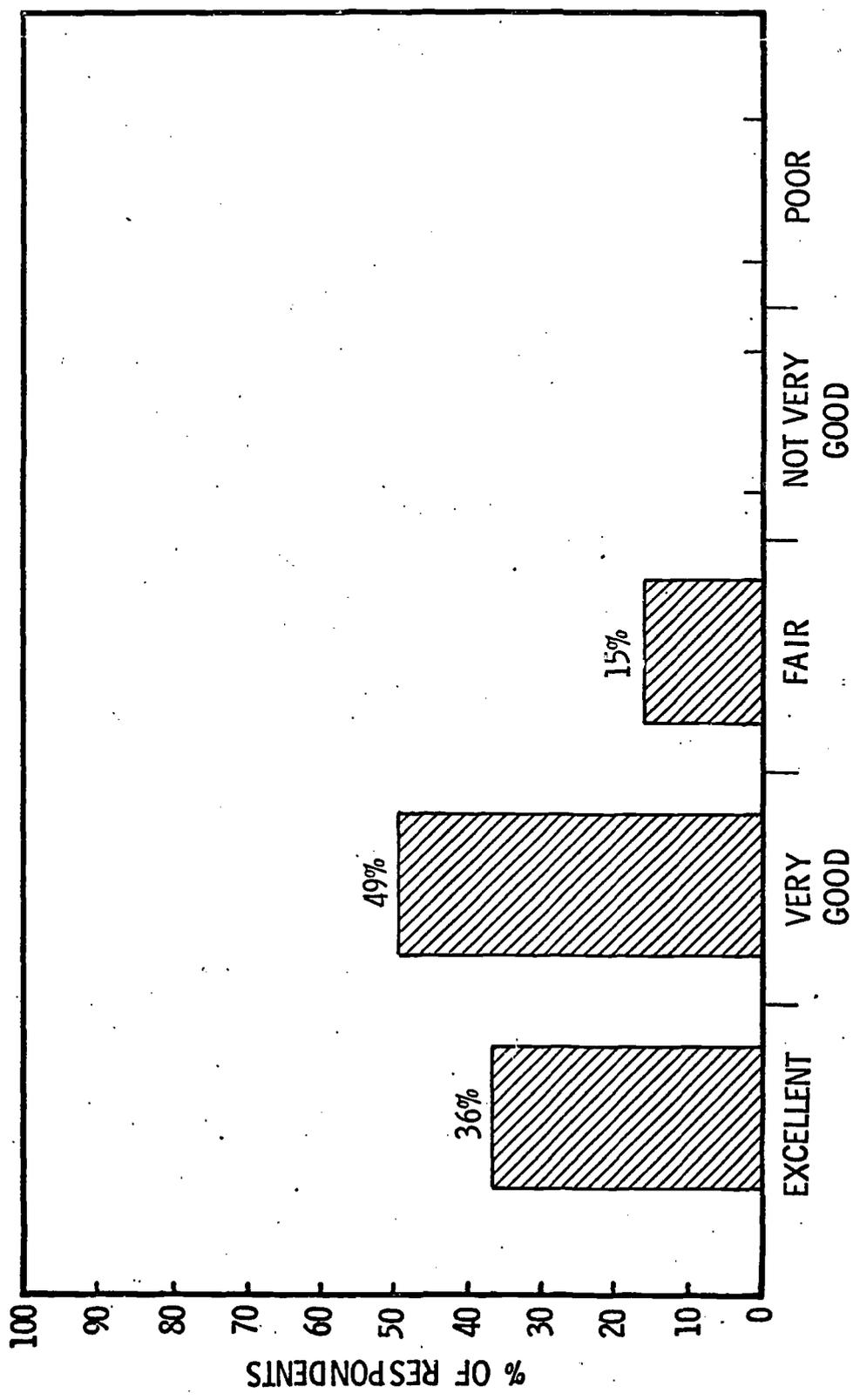


060

COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS

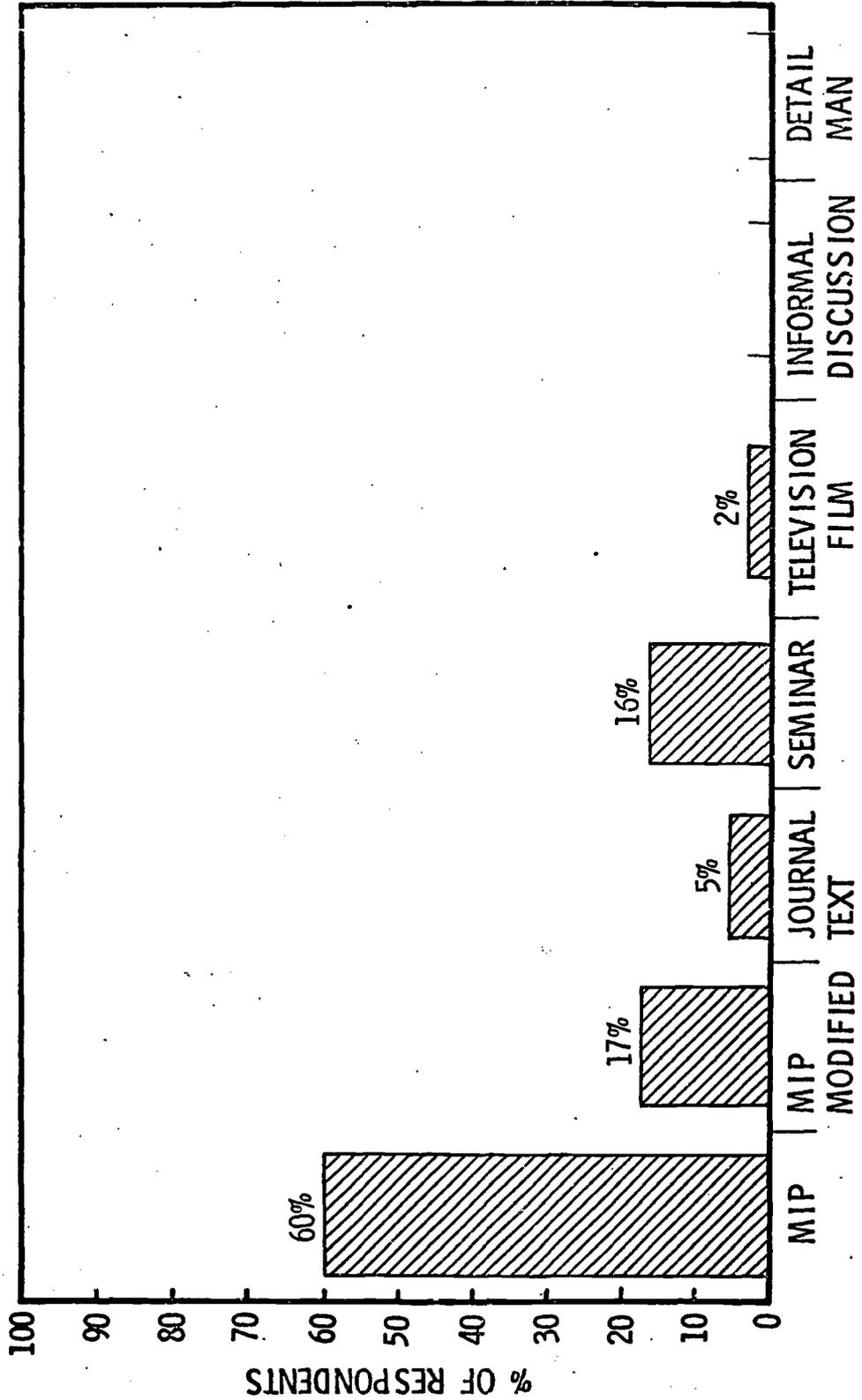


RATING OF ATTENTION QUALITY



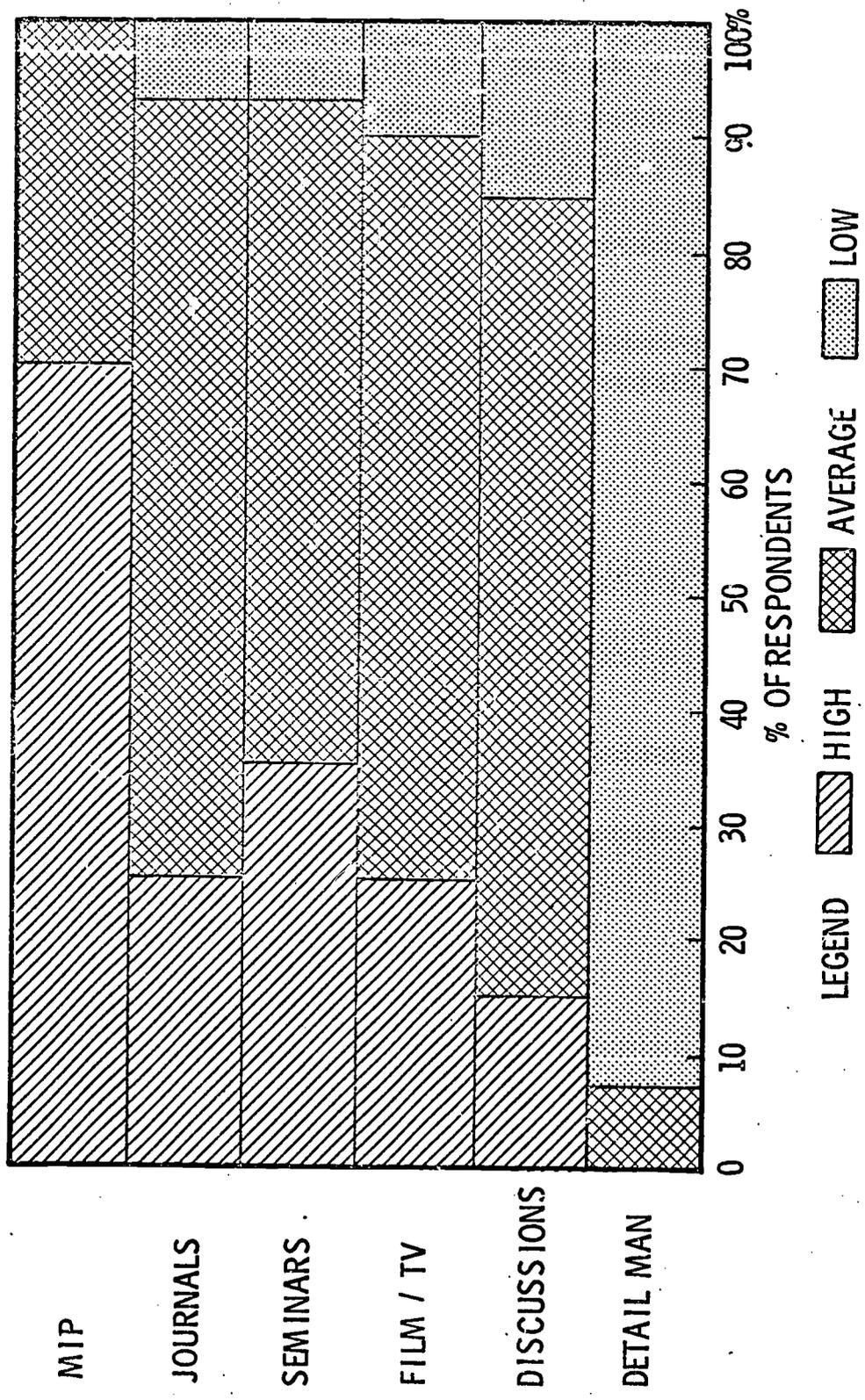
292

RANK ORDER OF INFORMATION SOURCES



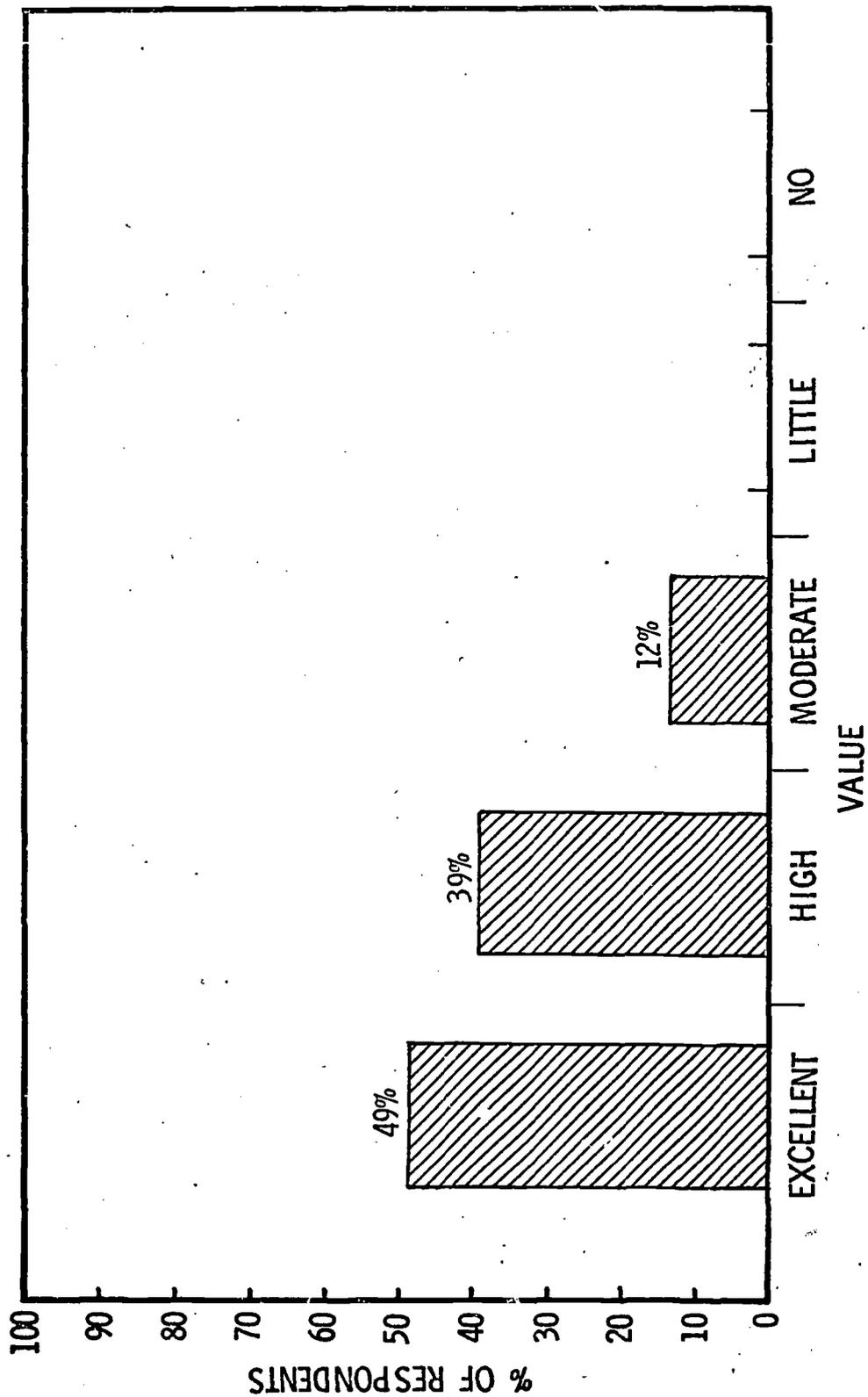
393

COMPARATIVE RATING OF INFORMATION SOURCES



394

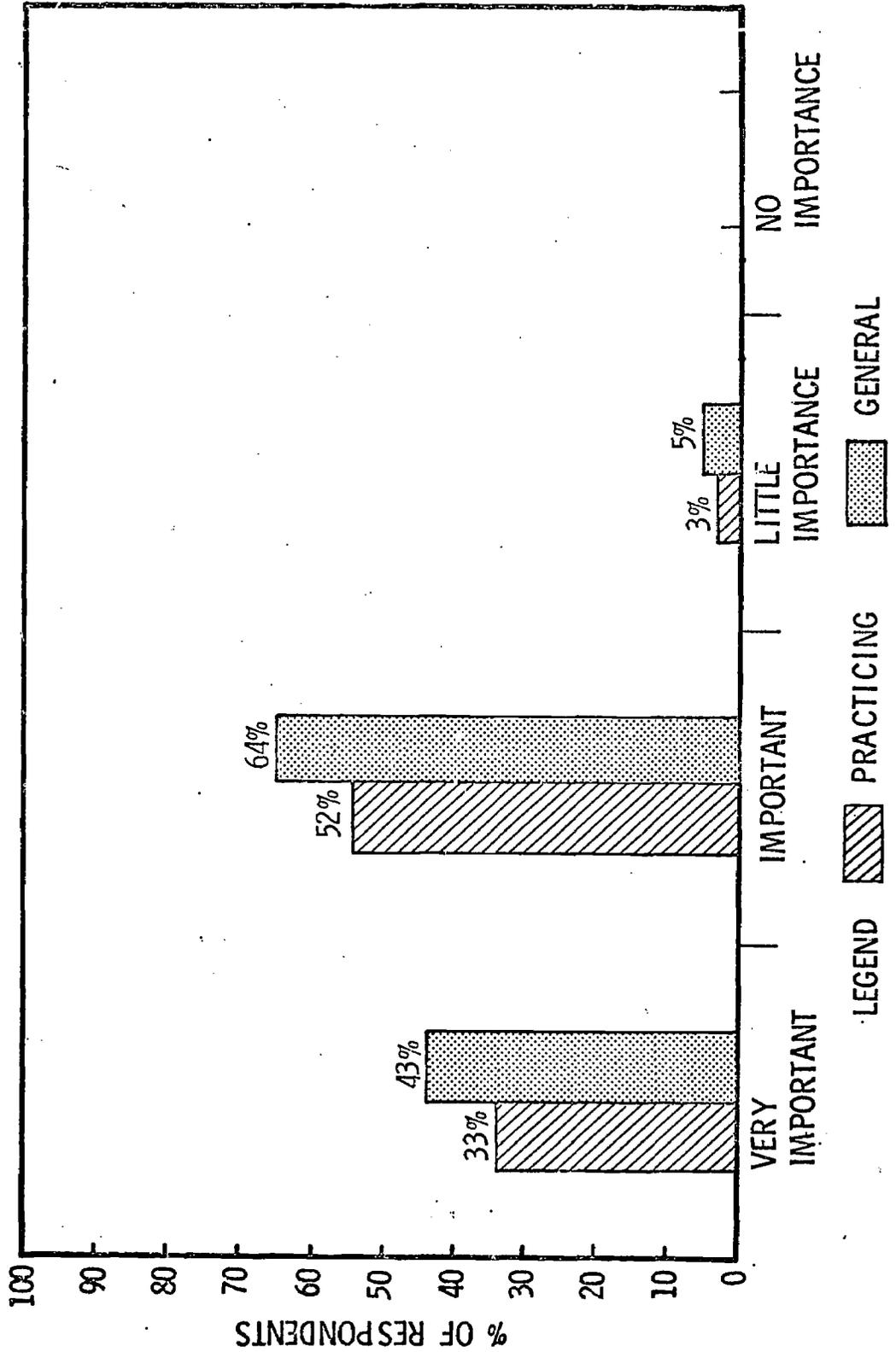
RATING OF TOPIC AND GENERAL QUALITY



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PROGRAM 15: EXAMINATION OF THE BACK

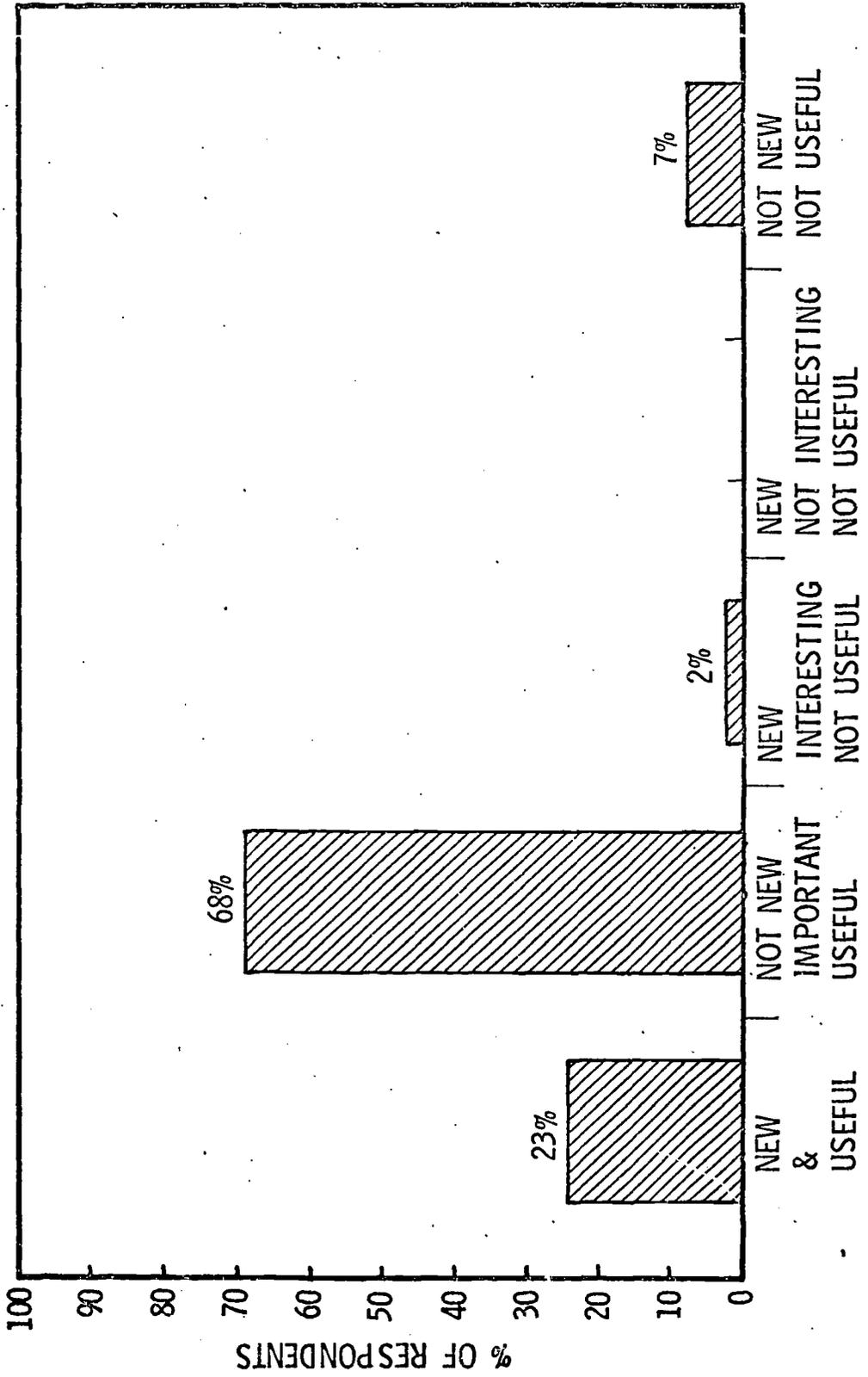
RATING OF INFORMATION



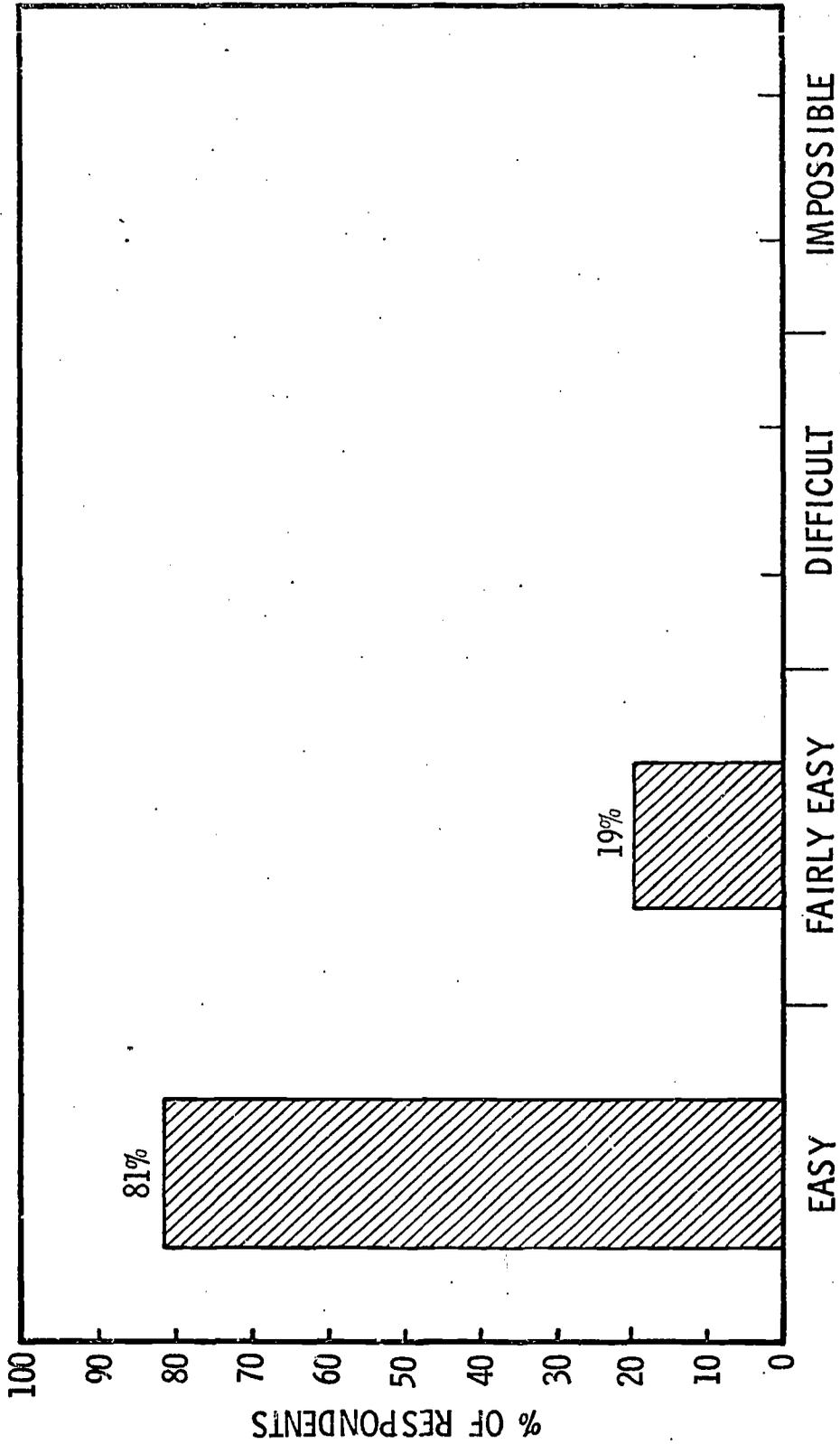
LEGEND
PRACTICING
GENERAL

397

RATING PROGRAM INFORMATION

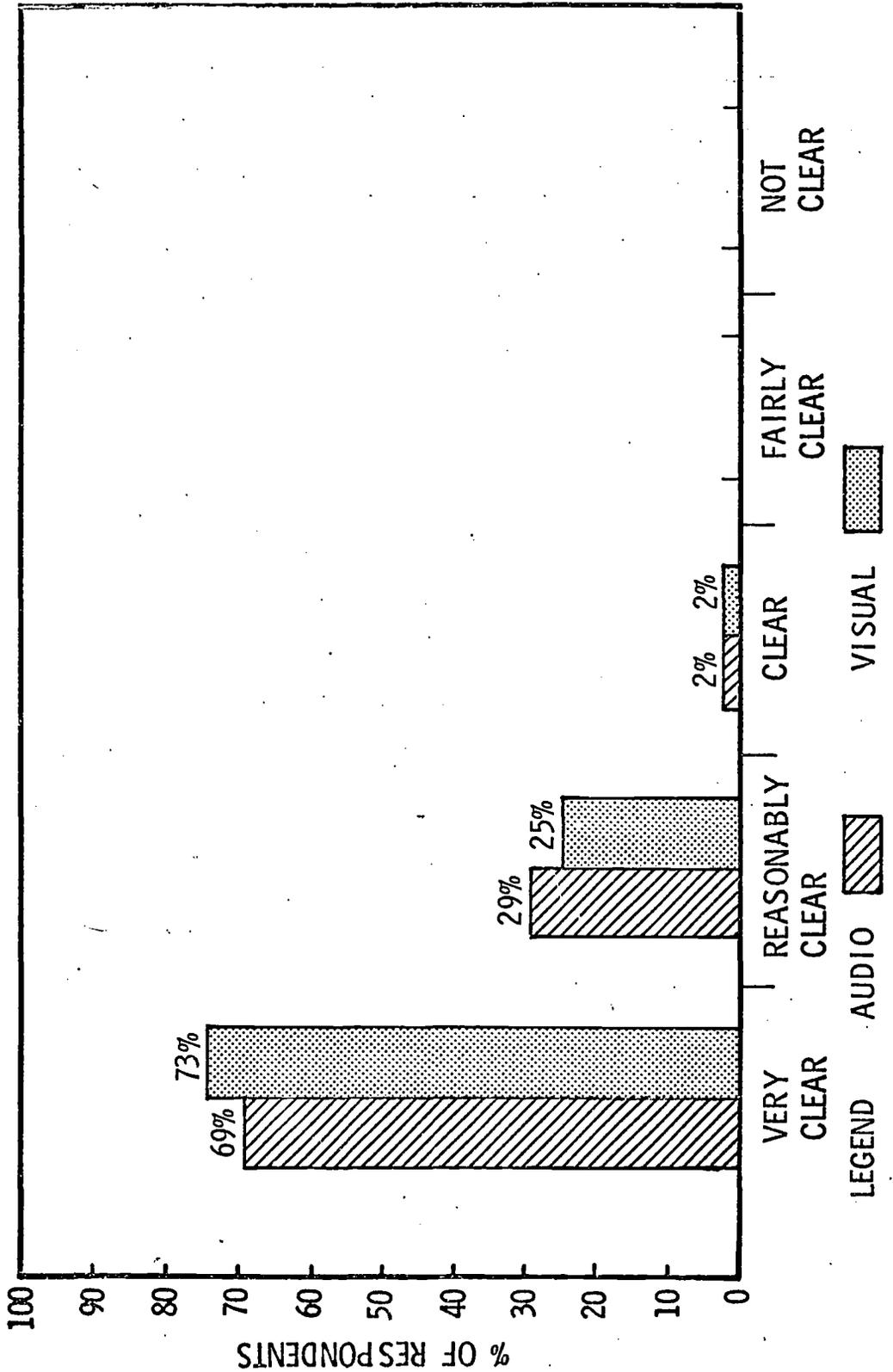


RATING OF PROGRAM DESIGN



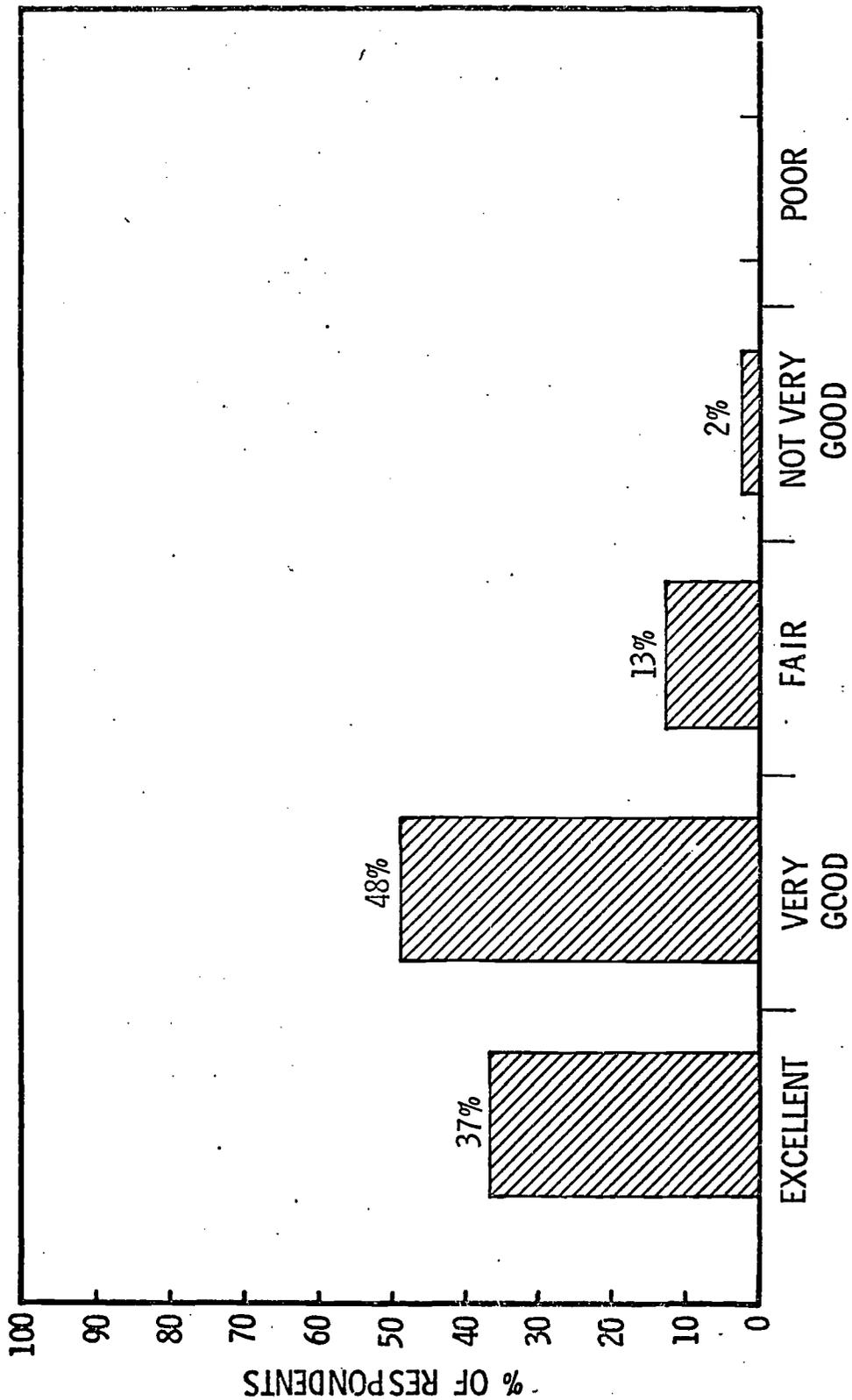
399

COMPARISON OF CLARITY VISUAL AND AUDIO ELEMENTS



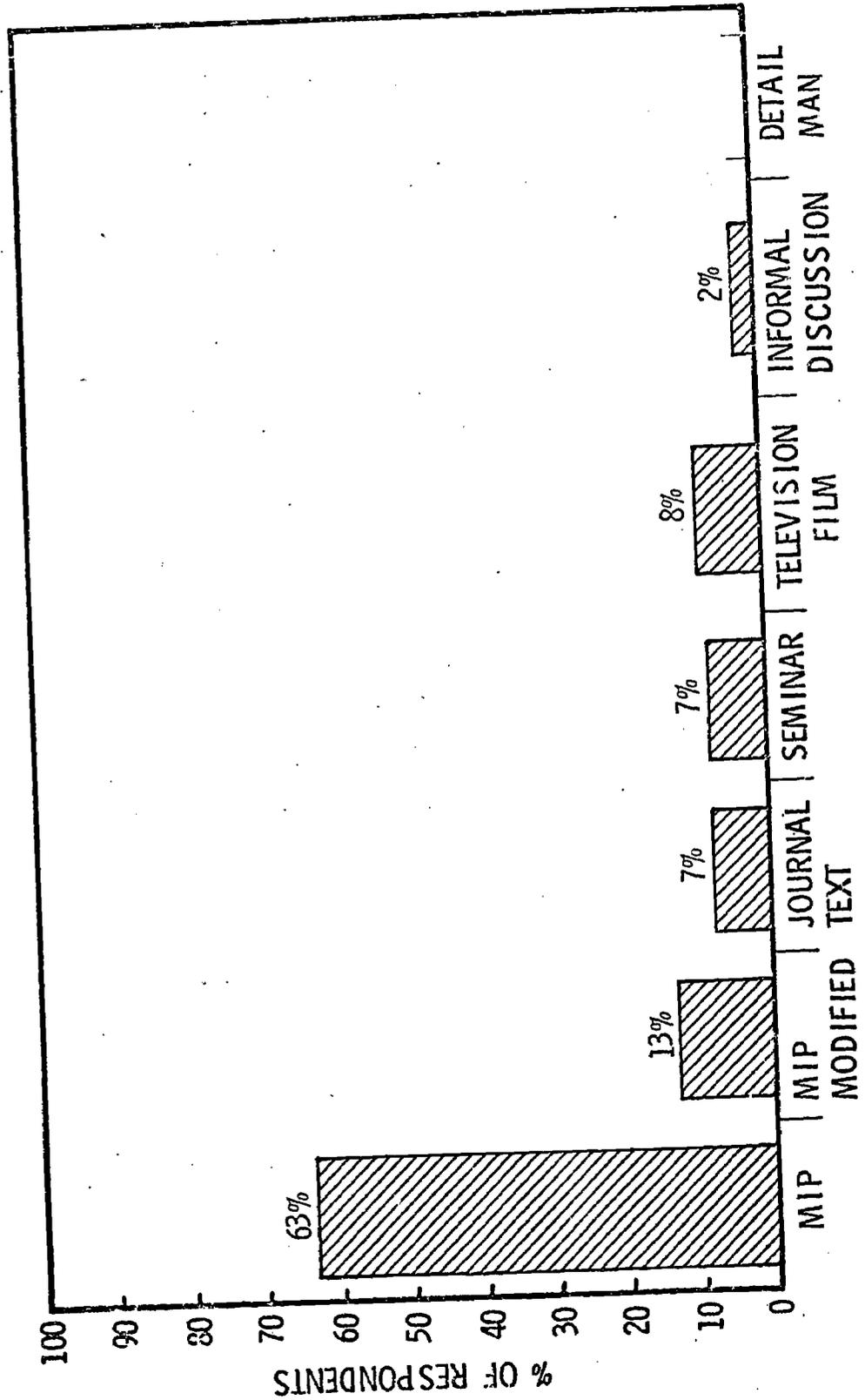
470

RATING OF ATTENTION QUALITY



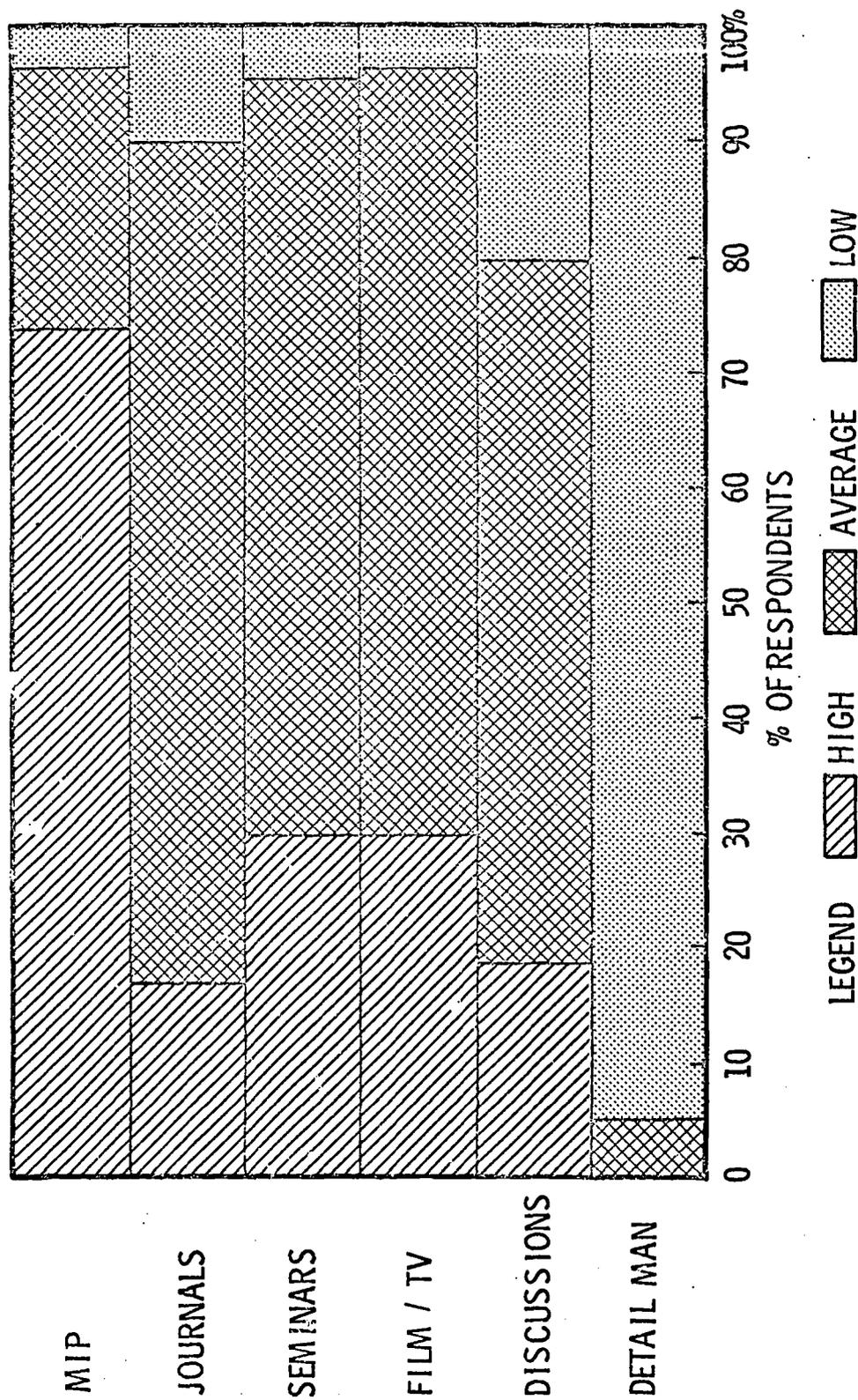
101

RANK ORDER OF INFORMATION SOURCES



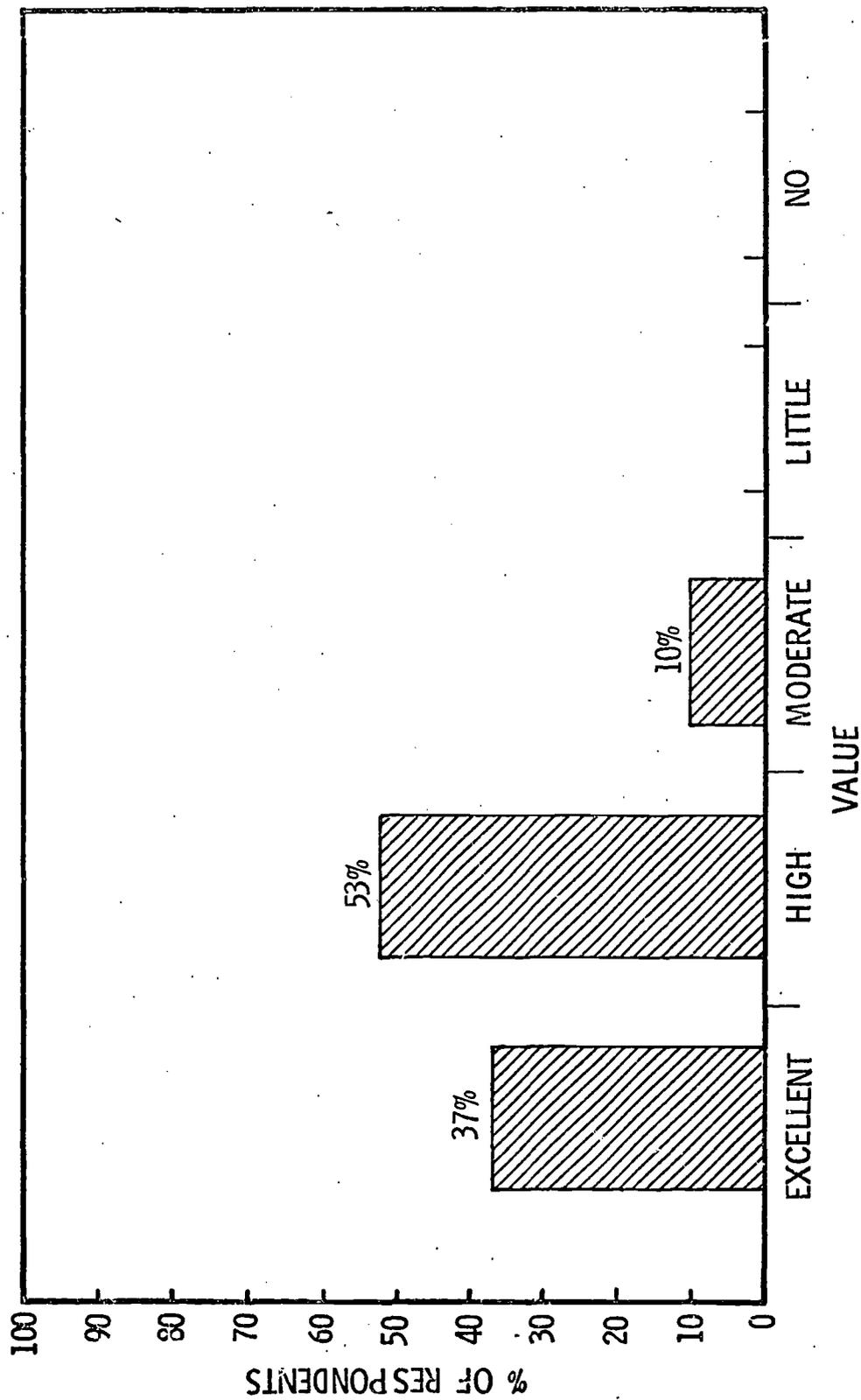
402

COMPARATIVE RATING OF INFORMATION SOURCES



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RATING OF TOPIC AND GENERAL QUALITY



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PRODUCTION AND DISTRIBUTION COSTS BREAKDOWN
(Excluding Project Staff Salaries)

PROGRAM DEVELOPMENT

	<u>Approximate Cost/Program</u>
A. Cost of film and development (in house) (R.G.B., and Garfield Studios)	\$165.00
B. Art supplies (H.G. Daniels)	\$ 60.00
C. Consultant	\$350.00
D. Researcher	<u>\$150.00</u>
	\$725.00

Commercial Reproduction: AUDIO

	<u>Approximate Cost/Program</u>
A. Narration: George Walsh	\$ 90.00
B. RCA	
Studio time: \$35/hr. (2 hr. program)	70.00
Editing: \$20/hr.	20.00
Tape reels: \$10/ea. (3/program)	30.00
7" LPM proc.: \$11/ea. (4/program)	44.00
M transfers: \$10/ea. (4/program)	40.00
Reference lacquers: N/C (2 program)	0.00
Printing records: \$39/record (250/program)	<u>101.00</u>
TOTAL AUDIO:	\$395.00

Commercial Reproduction: VISUALS

C. Identicolor/ R.G.B. Labs- Interneg film with processing	\$ 5.00
D. General Film Labs- Film loop printing: \$.1134/foot (1850 ft/program)	210.00
E. Hoffman- Encapsulating of filmstrips: \$0.65/ea. (500/program)	<u>325.00</u>
TOTAL VISUAL:	<u>\$540.00</u>
TOTAL COMMERCIAL REPRODUCTION COST PER PROGRAM:	\$935.00

Packaging and Distribution

	<u>Approximate Cost/Program</u>
A. Bert-Company Enterprises -	
Albums- incl. production and printing: \$0.36/ea. (125/program)	\$ 45.00
(total cost- \$1124.30 for 3125 albums)	
B. Packaging Sales Company -	
Album mailers without printing: \$92/100 (125 program)	10.00
(total cost- \$306)	
C. Don Figge -	
Return address labels: \$1.25/100	1.25
Program booklets covers: \$222/3250	8.00
24 page booklet: \$1/ea. (125/program)	125.00
D. Addressing; packaging; posting	<u>63.00</u>
TOTAL PACKAGING AND DISTRIBUTION COST PER PROGRAM:	
	\$ 252.25

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