

AN INVESTIGATION OF RELATIVE EFFECTIVENESS  
OF FILM, SLIDE-AUDIOTAPE, AND PRINT STIMULUS  
MEDIA FOR CONCEPT ACQUISITION

Dissertation for the Degree of Ph. D.

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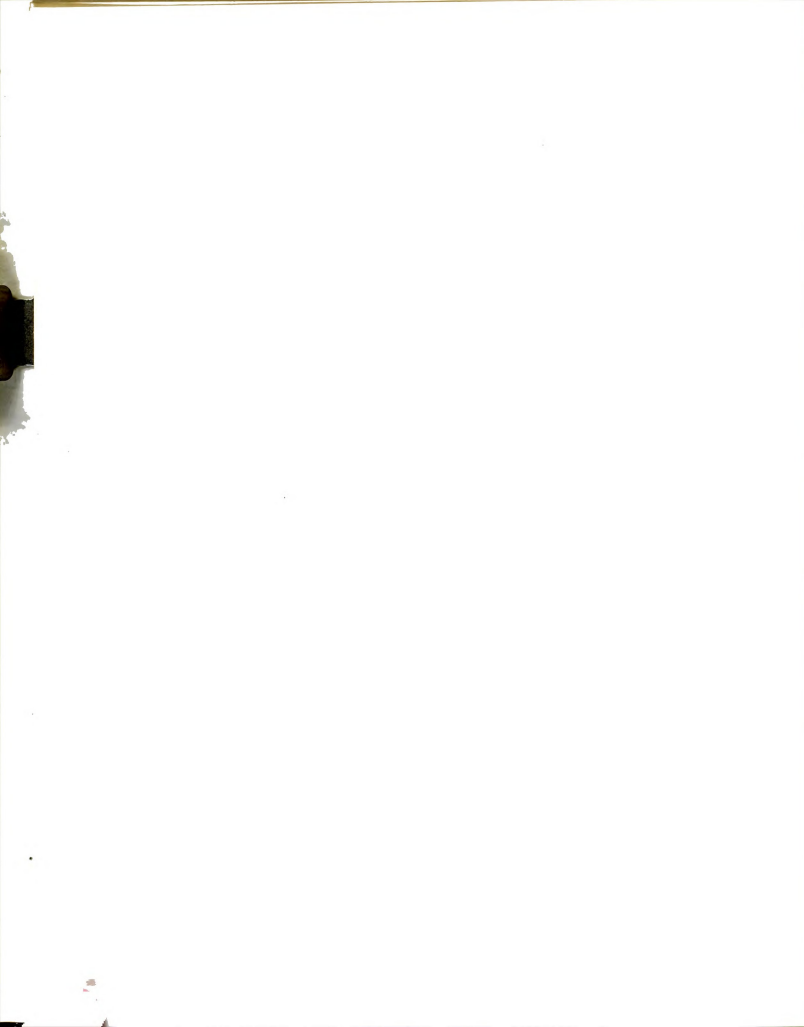
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## ABSTRACT

### AN INVESTIGATION OF RELATIVE EFFECTIVENESS OF FILM, SLIDE-AUDIOTAPE, AND PRINT STIMULUS MEDIA FOR CONCEPT ACQUISITION

By

Mary Ann Brady, RSM

This study investigated the relative effectiveness of three types of stimulus media used in conjunction with a printed overview and student guidebook. The instructional program was designed for acquisition of four interpersonal feedback concepts and appropriate valuing of the concepts by students enrolled in a basic education course.

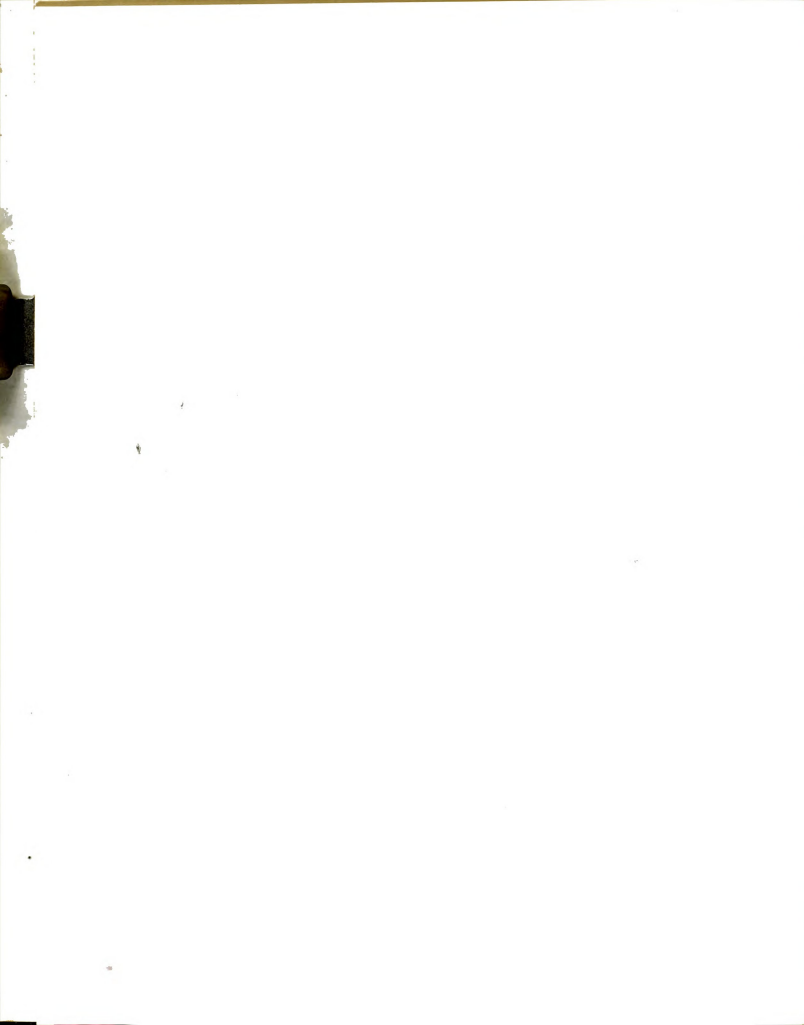
A second area of interest was to determine if learner attitude toward mode of instruction differed significantly among students who used: (1) varied types of stimulus media in equivalent instructional systems, or (2) identical stimulus media with varied types of interaction in parallel instructional systems.

In the natural learning environment, data were collected from six groups of students in each of the four treatments:  $T_1$ , printed scripts;  $T_2$ , 16 mm film;  $T_3$ , slide-audiotape, each of which contained a discussion component, and  $T_4$ , slide-audiotape which had no discussion component. Dependent measures used in the evaluation



included a filmed pretest and a filmed posttest to assess cognitive and affective learning, and a post-instruction questionnaire to assess attitude toward mode of instruction. The unit of analysis for interpretation of the data was the group mean. A multivariate analysis of variance and covariance was used to detect treatment effect.

At a .05 level, it was concluded that there was no statistically significant difference in the measures of concept acquisition, affect with respect to the concepts and attitude toward mode of instruction among the treatments.



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OF FILM, SLIDE-AUDIOTAPE, AND PRINT STIMULUS MEDIA  
FOR CONCEPT ACQUISITION

By

Mary Ann Brady, RSM

A DISSERTATION

Submitted to  
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MARY ANN BRADY

1976



## DEDICATION

This thesis is dedicated to the members  
of my Community, the Religious Sisters  
of Mercy, who have made possible my  
graduate studies.



## ACKNOWLEDGEMENTS

The writer is deeply indebted to Dr. Paul W. F. Witt, Chairman of the Guidance Committee, for sharing his gift of wisdom and extensive professional knowledge during the design and execution of this thesis. Sincere gratitude is also expressed to committee members Dr. Henrietta Barnes, Dr. Allen Abedor and Dr. Erwin Bettinghaus for their encouragement and assistance while this work was in progress.

Special thanks is given to Dr. Judith Henderson Lanier, Dr. Joseph Byers, Dr. Rita Costic, Dr. Robert Stone and all other faculty and staff members who worked with students participating in the United States Office of Education project to develop effective protocol materials during the 1974 field testing at Michigan State University. Without their direction and cooperation, this thesis could not have been completed.

For providing the expertise needed in production of the 16 mm film and slide-audiotape stimulus media, the writer appreciates the contributions of Ali Issari, Elizabeth Kay and other staff members of the Instructional Media Center, Michigan State University, who worked on the project.



An expression of gratitude is also extended to Jane Weber and Sister Mary Francelyn Walsh, RSM, for the typing and final editing of this manuscript.



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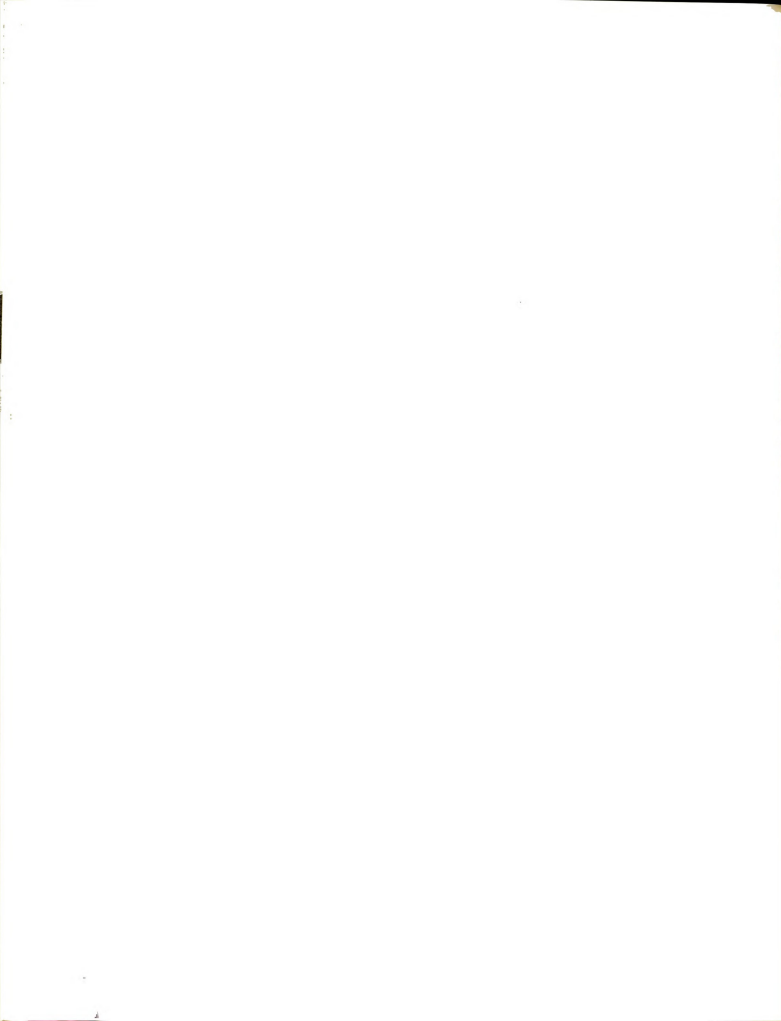
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## CHAPTER I

### INTRODUCTION

From informal observations made during the past twenty years while in the roles of both student and teacher, it has become increasingly evident to this investigator that it is more difficult to ask the right questions than to give the right answers for most matters of consequence. On this premise this study was developed from a question which has become more significant as alternative forms of instruction proliferate: "Which medium would be most effective for this learner to achieve this objective in this instructional system?" It is a right question. The right answer can be given only in segments as researchers form a complete theoretical framework against which decisions for practical applications can be formulated.

In the first book of Advancement of Learning, Francis Bacon states " . . . if a man will begin with certainties, he shall end in doubts; but if he will be content to begin with doubts, he shall end in certainties " (Hutchins, 1952, p. 16). In the light of widely varying results in published comparative evaluation studies of media usage, this investigation was designed and executed to contribute one additional segment in the framework of a theory of instructional media in an area of ambiguity and divergent conclusions.

### Background of the Problem

The instructional process is far more complicated than the research designs of the early evaluative comparison studies which attempted to examine it (Stickell, 1963; Schramm, 1973). Although the more recent development of statistical analysis techniques serves as a tool for more sophisticated handling of the interaction of variables, the total impact of the teaching-learning process is consistently greater than our current experimental techniques can precisely reflect. To date, the most successful approximations lie in designing interlocking investigations which closely control elements of the instructional system, while in turn permitting collection of data for each specific variable of interest.

The full complexity of an instructional system can be approached from four major considerations: (1) stimulus, (2) task, (3) learner, and (4) situation variables. A review of the literature in each of these areas discloses a volume of data in the general classification of evaluative comparisons of instructional media.

One problem of considerable scope in these studies has been the wide variation in results reported for similar investigations conducted in both laboratory environments and natural settings. It appears that given adequate control over variables, those studies which simulate the conditions in which learning will be applied show greater probability of transfer of the learning to the condition of later application (Burdin, Orlosky and Smith, 1974). Gliessman (1972) also concludes that for



assessment of learning, the method of testing after instruction should mirror the teaching methodology and the performance expected of the learner. It is this factor that has raised the question of realism in the learning environment and, specifically, of use of film as a stimulus medium.

A second problem area arises from the quality control factor within, as well as between the media being compared. The instructional designer makes numerous decisions such as use of advance organizers, pacing, total information load, cuing and appropriate practice for each task. In addition, the teacher may use the materials in a wide variety of ways differing from that proposed as a means of accomodating individual teaching style.

Results of studies investigating effects of structure, sequence and methods of usage of stimulus materials central to the learning task show trends in the results of similar studies in most areas investigated (Allen, 1971). However, there are no conclusions applicable to all learners or to all types of learning. Because of its complexity, concept acquisition has been a topic of further research efforts which will contribute important segments in the developing mosaic of a theory of instructional media.

An area of current interest in data collection and analysis is the provision for and use of independent learning situations which reflect the interaction between the individual traits of the learner and type of stimulus medium used (Davis, Marzoocco and Denny, 1970). Other



researchers such as Nunney and Hill (1972) have examined interaction of the learner with varied instructional media and the accompanying learner attitude toward mode of instruction. The latter point has not been extensively investigated with adults who have been exposed to a wide variety of mediated instruction in formal and informal learning environments.

### Purpose of the Study

There is a critical need for research to provide data from natural instructional settings for development of operational generalizations. In particular, comparative effectiveness studies of different types of stimulus media for achievement of specific instructional objectives must be extended to adults who have been exposed to varied mediated instructional experiences over an extensive period of time. Not only are research conclusions in these areas important for building a framework for a future of instructional media, but also for immediate use as research-based decision aids for practitioners who are concerned with providing the most appropriate instructional system for similar target audiences.

The purpose of this study was to undertake such an investigation to determine the relative effectiveness of: (1) each of three types of stimulus media--16 mm film, slide-audiotape and print--for concept acquisition and appropriate attitude toward the concepts and (2) the effect of instructor-directed group discussion of the stimulus situations

versus individual interaction without discussion, using the same stimulus media. A secondary purpose was to determine if learner attitude toward mode of instruction were significantly different having used varied stimulus media in equivalent instructional systems or having used identical stimulus media with varied forms of interaction in the instructional system.

#### Assumptions

It was assumed that the three forms of media--16 mm film, slide-audiotape and print--used as the stimulus component in the instructional system were equivalent in content. The vignette scripts used in the print form are exact transcripts of the sound tracks made with the 16 mm film. The audiotapes for the slide sets were also made directly from the film sound tracks. The slides were 35 mm still frames of the actors on the set at the time of the 16 mm filming.

In randomly assigning the seventeen instructors to the twenty-four sections of students in the four treatments, it was assumed that all instructors would be equally effective in using each type of stimulus medium for instruction. It was also assumed that the group dynamics in each section of students would have a relatively equal impact on the learning process.

Provision was made for total formal instructional time with guidelines given to instructors for maintaining the same relative balance between presentation stimulus materials and discussion time allotted

per class meeting ( $T_1$ ,  $T_2$ ,  $T_3$ ). It was assumed that variations in teaching style and timing would be insignificant with this framework and the use of a student guidebook for interaction with the stimulus situations presented.

### Delimitations

① The investigation was conducted using a sample drawn from college students enrolled in the various sections of one education course in one university. Although the total sample was large, for the purposes of the study the subjects could not be independent learners. This necessitated that the group be used as the unit of analysis for interpretation of the data. Conclusions were, therefore, based on the mean of the learners in the group which masked the response of the individual learners.

② Assessment of concept acquisition and appropriate affective response to the concepts was based on the ability of the subject to correctly label the four feedback concepts illustrated in a designated portion of the filmed vignettes. Not all subjects had used filmed exemplars for practice discriminations during the instruction. This is a confounding variable not accounted for in the comparison of achievement and attitude toward mode of instruction.

③ Only three representative types of stimulus media were investigated. It could not be generalized that all equivalent media would be equally effective for the objectives set in this study.



### Definition of Terms

In the communication process, the receiver decodes the signals sent by the source. Loss of meaning frequently results from problems at the semantic level when the receiver's interpretation does not correspond with the intended meaning of the sender. The process of definition is essential to insure optimal transmission of ideas when several interpretations of the encoding can be made. In such areas of possible ambiguity, operational definitions of terms based on usage in the literature are provided here to insure clarity of the study as it is presented in the following chapters.

#### Attitude Toward Instructional Systems

how the learner feels about the quality and value of the stimulus media, instruction, support system, management system and testing

#### Carrel Setting

room equipped with standard carrels for individual student viewing and listening to instructional films and tapes with an instructor available for consultation

#### Concept Acquisition

process of determining the criteria by which certain attributes have been placed into certain categories

#### Equivalent Forms of Media

having the same ordering of identical examples but presented in different forms

#### Exemplar

a sample which serves as a model of reality

#### Feedback

verbal and non-verbal sending of a message with reference to a given stimulus which expresses the sender's position with respect to that stimulus

Feedback - Interpersonal

the response or reaction a person gets from or gives to others regarding one's personal being or actions

Positive

shows approval and/or support of the stimulus behavior

Negative

shows disapproval of the stimulus behavior

Responsible

the sender is helpful (behavior change encouraged would be growth producing for the receiver) and skillful (specific and timely) in expressing his position with respect to the stimulus

Irresponsible

the sender is not helpful (behavior change would not be growth producing for the receiver) or not skillful (specific and timely) in expressing his position with respect to the stimulus

Graphic

of or relating to the written word or the symbols or devices used in writing or printing to represent sound or convey meaning

Group Discussion

a shared environment created by teacher and students for exchange of ideas with the teacher acting as leader

Instructional System

designates the largest integral gestalt under consideration even though it may be only a part of an ultimately larger whole

Equivalent

all components in the systems being compared are identical or analogous and occur in the same sequence

Parallel

nearly all components in the systems being compared are identical or analogous and occur in the same sequence

Interpersonal Process Laboratory

small group activity designed to: (1) develop the student's interpersonal communication skills, (2) help the student examine his system of values, and (3) teach the student to apply a teaching process model to the interpersonal aspects of instruction

Mode of Instruction

a formalized style or category of teaching selected from many possible patterns

Self-Paced Individualized Instruction

alone in a carrel with instructional materials provided, the student views stimulus media and interacts with the guide-book having no time constraints other than a total period of given time

Staff

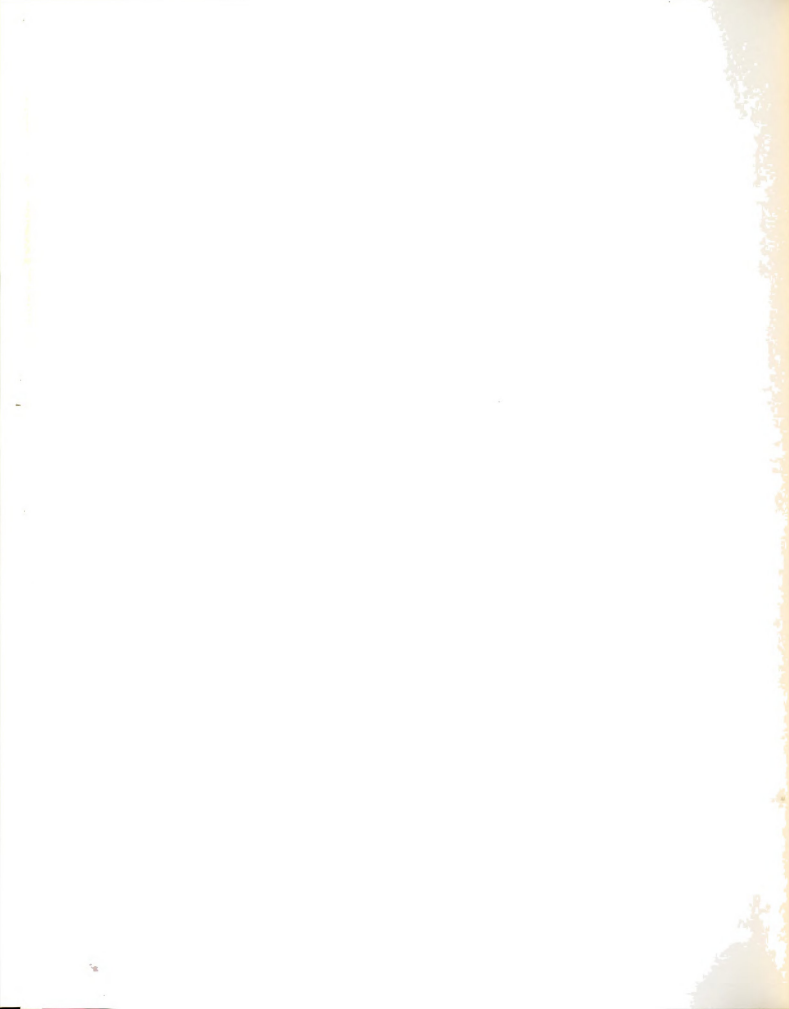
faculty members who developed the protocol materials used in the instructional systems and graduate assistants who administered the treatments

Organization of the Study

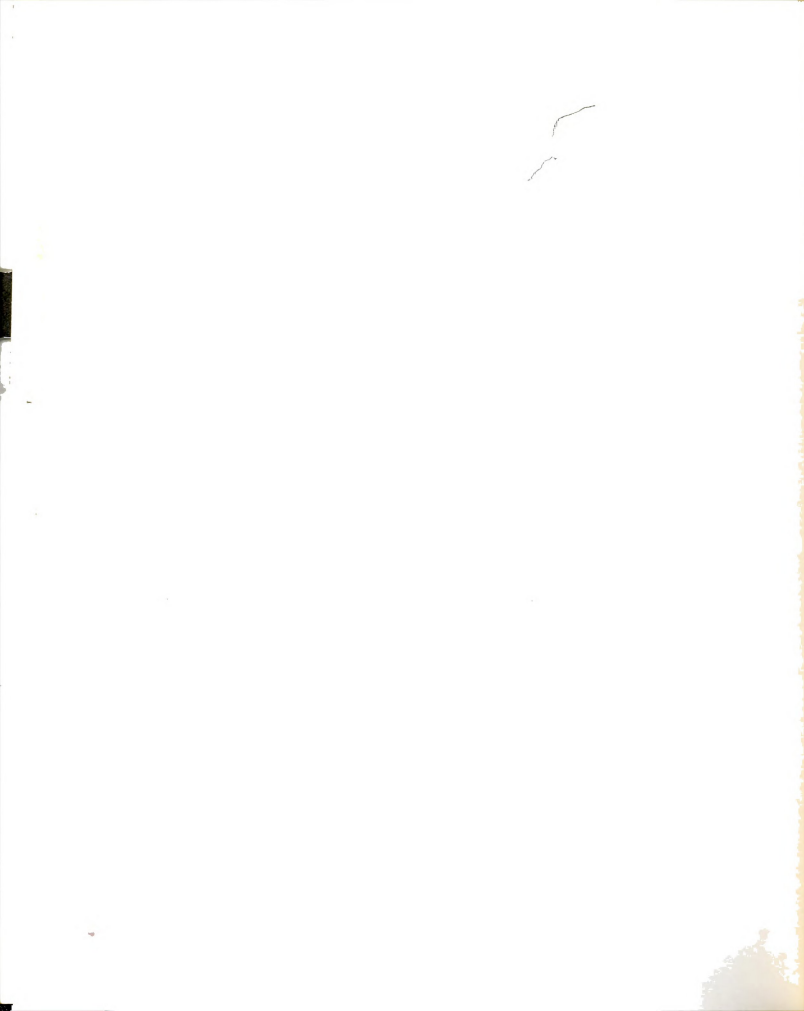
This field-based study was designed to collect data in the natural learning environment for which an instructional program for the teaching of feedback concepts was developed. \* Equivalent stimulus media were produced together with an overview paper and student guidebook for a common organizational framework for all treatments. Dependent measures used in the evaluation included a filmed pretest, a filmed posttest and a questionnaire. The unit of analysis in determining the differential treatment effect on each dependent variable was the group mean. A multivariate analysis of variance or of variance and covariance was employed to test the hypotheses at the .05 level of significance.

---

\*The instructional program was designed as part of a larger project to develop effective protocol materials for teacher education. The final report of this project, Contract no. OEG-0-70-2029 (725), is in preparation by Joseph Byers, Judith Henderson Lanier and Henrietta Barnes.



This chapter has introduced the background of the problem, stated the purpose, assumptions and delimitations of the study and operationally defined the key terms. The remaining chapters comprise the design and execution of the study in four major divisions: Chapter II presents a review of the pertinent literature; Chapter III describes the experimental design and procedures; Chapter IV contains a presentation and analysis of the data; Chapter V includes a discussion of the results, generalizations, implications and recommendations for future research.



## CHAPTER II

### REVIEW OF PERTINENT LITERATURE

In this chapter, the literature related to the thrust of this study is reviewed from two perspectives which deal with the theoretical framework of the investigation. The first, instructional media research, is treated by principal emphasis: (1) evaluative comparisons, (2) variables within a stimulus medium, and (3) variables within an instructional system. The second presents current learning theories and representative studies concerned with concept acquisition.

This arrangement accentuates the importance of a multi-theoretic base from which relevant questions and operational generalizations can be formulated, yet avoids the complexity of a simultaneous view of different focal points. Research in communications supported by social psychology and the social sciences, together with the contributions of educational and experimental psychologists brings increased sensitivity to the application of theories of learning to practical problems of instruction. The function and role of instructional technology within the total context of a teaching-learning system are developing from an integration of the resultant principles and theories such as those applicable to this investigation.





### Evaluative Comparisons of Instruction

From the early 1920's to the early 1950's, research in instructional media was almost exclusively directed to evaluative comparisons of instructional film with conventional methods of teaching. Although many of these studies fail to meet the highest standards of research design, the collective findings of similar types of investigations show trends which serve as valuable guidelines for further inquiry.

The most comprehensive review of early research in this area is the benchmark work of Hoban and van Ormer (1950) which examined nearly two hundred experimental and survey studies conducted between the years 1918 and 1950. Analysis of these investigations begins the development of a body of generalizations relating to: (1) the effectiveness of films in promoting learner achievement of educational objectives and (2) the effectiveness of films as compared with current teaching techniques with or without other media. The comparative aspects of these studies furnished the base upon which the entire audiovisual movement was justified. A review of the findings confirmed the overall effectiveness of film and other forms of mediated instruction (Moldstad, 1974).

Stimulated by reports that "conventional methods" of teaching with highly trained instructors were no more and often less efficient than information transmission dependent upon audiovisual presentations, the military services took the lead in instructional media research during and for several years after World War II. This became a



transitional period in comparative investigations as prominent experimental and educational psychologists delved into factors involved in film effectiveness with new sophistication in the measurement techniques employed in the analysis.

The series of studies by Hovland, Lumsdaine and Sheffield (1949), the report of the Army Air Forces Aviation Psychology Program by J. J. Gibson (1947), the Instructional Film Research Program conducted by C. R. Carpenter from 1947-1955 under the direction of the Navy's Special Devices Center (Carpenter, 1953; Carpenter and Greenhill, 1956) and A. A. Lumsdaine's research program for the Air Force Research and Development Command from 1950-1957 (Lumsdaine, 1961) reflect a systematic, programmatic effort to deal with psychological, production and utilization variables at a new level of precision.

Influenced by the success of the Armed Forces in their use of instructional films, Nebraska's educational leaders selected W. C. Meierhenry (1952) to administer The Nebraska Program of Educational Enrichment through the Use of Motion Pictures. The program was to be a comprehensive means of improving the instructional program of high school students. The resultant study indicated increased learning on the part of experimental groups using films, especially the bright students.

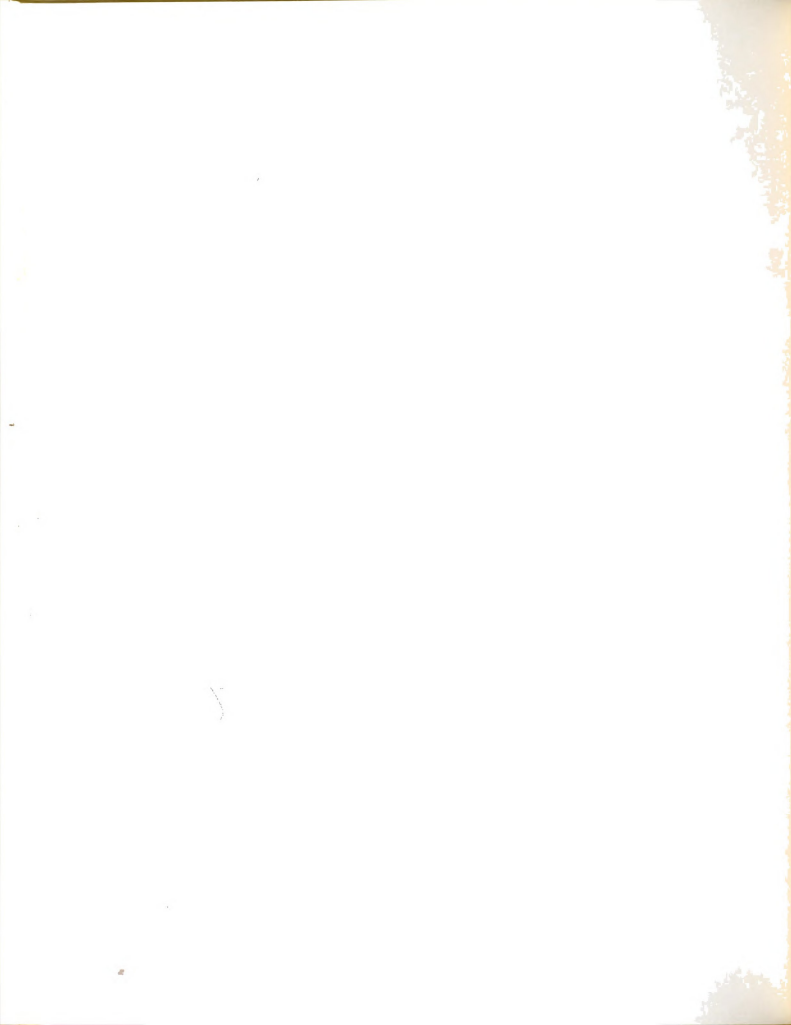
Following World War II, two important projects in instructional film research were supported jointly by educators and leaders of the motion picture industry to explore methods of production

and use of instructional films. Mark A. May (1949) was prominent in both efforts, first as a member of the Commission on Motion Pictures and later as director of the Yale Motion Picture Research Project. The latter compared the effects of alternate ways of utilizing film and measured learning of factual information, acquisition of skills, and modification of interests, attitudes and opinions. Unfortunately, these studies did not build on past film research and were uneven in methodology.

The period from the mid-fifties to the mid-sixties was characterized by intensive research gradually shifting from the use of film to the use of television for the stimulation of learning. Reid and MacLennan (1967) abstracted a substantial sampling of 350 experimental studies published from 1950 to 1964 on instructional television and instructional film. The largest category of these studies compared the performance of learners instructed via television with others instructed face-to-face by a teacher using conventional methods.

Stickell (1963) examined 250 similar comparisons in his doctoral dissertation. Because of the uneven quality of experimental design, 240 were classified as partially or completely uninterpretable. Of the remaining 10 studies, none reported a significant difference (.05 level) in learning achieved by those who were instructed using television rather than conventional means.

A monograph by Chu and Schramm (1967) of Stanford's Institute for Communication Research is the broadest review of the literature on



instructional television. The inclusion of less rigidly designed experiments not meeting the requirements of Stickell, permitted sampling from several hundred experiments conducted under a wide variety of conditions. The general findings in comparative effectiveness studies confirmed the "no significant difference" results of the former review. This was in itself significant, for most users considered motion pictures and television to be quite similar presentation devices in that the two media are frequently used in the same way. It was apparent that if differences in effectiveness of instructional modes do exist, more refined research methods must be developed to delineate clearly the variables which account for these differences.

The most recent evaluative research cycle began in the early 1960's as interest in programmed instruction gained impetus. In contrast to the mass communication application of film and television, programmed instruction encouraged individualization of instruction. Although most of the effectiveness studies compared the programmed materials with face-to-face instruction by a teacher, gradually the interactive effects of learner, task and program variables affecting student achievement were also explored.

In an extensive review of the literature published between 1966 and 1971, and in citing other significant reviews, Campeau (1974) found that studies comparing programmed with conventional instruction have yielded mixed results with few significant differences reported across a wide range of subject matter and age groups (Schramm, 1964;

Campeau, 1966; McKeachie, 1967; Briggs, 1968, 1970). No significant difference was found in the majority of carefully screened studies of adult learning (Campeau, 1974).

In general, comparative evaluations of programmed instruction and conventional instruction confirm previous findings of no significant difference in effectiveness of presentation modes when each is treated as a whole. Although these results are regarded as negative by some educators, there is a practical value in knowing that alternative methods of presentation are available for use with little or no apparent gross difference in learner achievement.

#### Cognitive Domain

A major division of the literature to be considered for purposes of this study deals with evaluative comparisons of varied stimulus media used to promote learning of adults. Investigations designed to measure specified variables present within each instructional setting as well as the unique attributes of the media were of interest.

Factual and conceptual learning. In training seamen to take soundings, Vernon (1946) reports findings on the role of silent filmstrips and sound films in conceptual learning. Comparisons of film, film and filmstrip, filmstrip, and "normal instruction" were made in various classes of above and below average intelligence and with the best and poorest instructors. Variables found to be reliably most influential in promoting learning were: (1) the filmstrip, (2) the film,



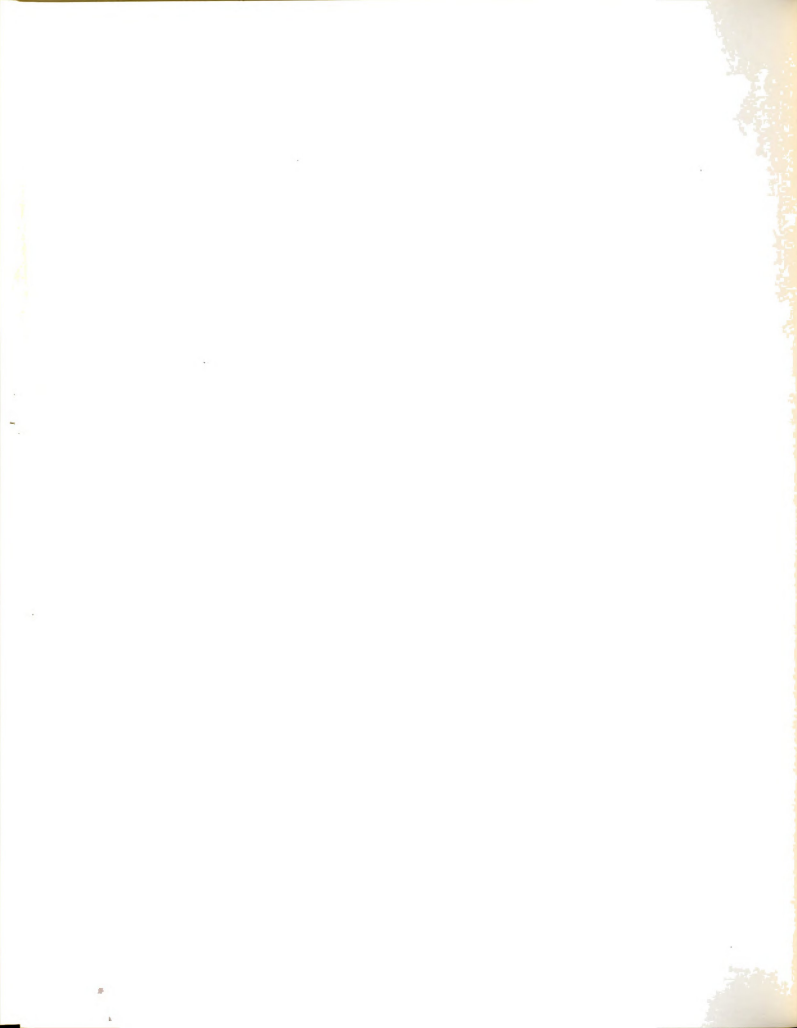


(3) a good instructor, and (4) high intelligence. The significance of this study is that either the film or the filmstrip not only increased learning of detailed facts but also extended understanding on the conceptual level (Hoban and van Ormer, 1950).

J. J. Gibson (1947) found that aviation cadets learned and remembered more about the system of position firing from a training film than they did from a classroom lecture with slides or from study of a well illustrated manual. An analysis of test items showed that the film did its most superior teaching in dynamic items dealing with a sequence of events or with variations of one procedure with another.

Two units of a course in nursing arts were used in a study by L. E. Heidgerken (1948) which compared the integration of: (1) sound films, (2) filmstrips made from the films, and (3) films and filmstrips with conventional methods of instruction. Each of the three modes were then compared with conventional methods alone. The films were designed to illustrate and demonstrate concepts and principles rather than to teach specific techniques or procedures. The effects of using the media at two different predetermined points in the unit--at the beginning and middle, or middle and end--were compared. Results of the data showed no significant difference between any of the three combinations and the conventional method of teaching the units, or between any of the three combinations and the different times of using the media.

Frank Hartman (1961) extensively reviewed the literature dealing with presentations using various information channels: (1) pictorial,



(2) auditory-verbal, and (3) print, including combined channels. In comparing the effectiveness of audio and print for meaningful prose (educational talks, fiction, essay, and advertisements), twenty-three studies were cited. Audio was found superior in eleven, print in nine, and in three there was no significant difference in results. With only two exceptions, all of the studies favoring print measured learning of adults using complex stimulus material. The studies supporting the relative effectiveness of the audio channel used as subjects either young children, or adults and older children with simpler information. The generalization appears to be that " . . . the effectiveness of print relative to audio increases as the difficulty or complexity of the material increases provided the subjects are literate" (Hartman, 1961, p. 238).

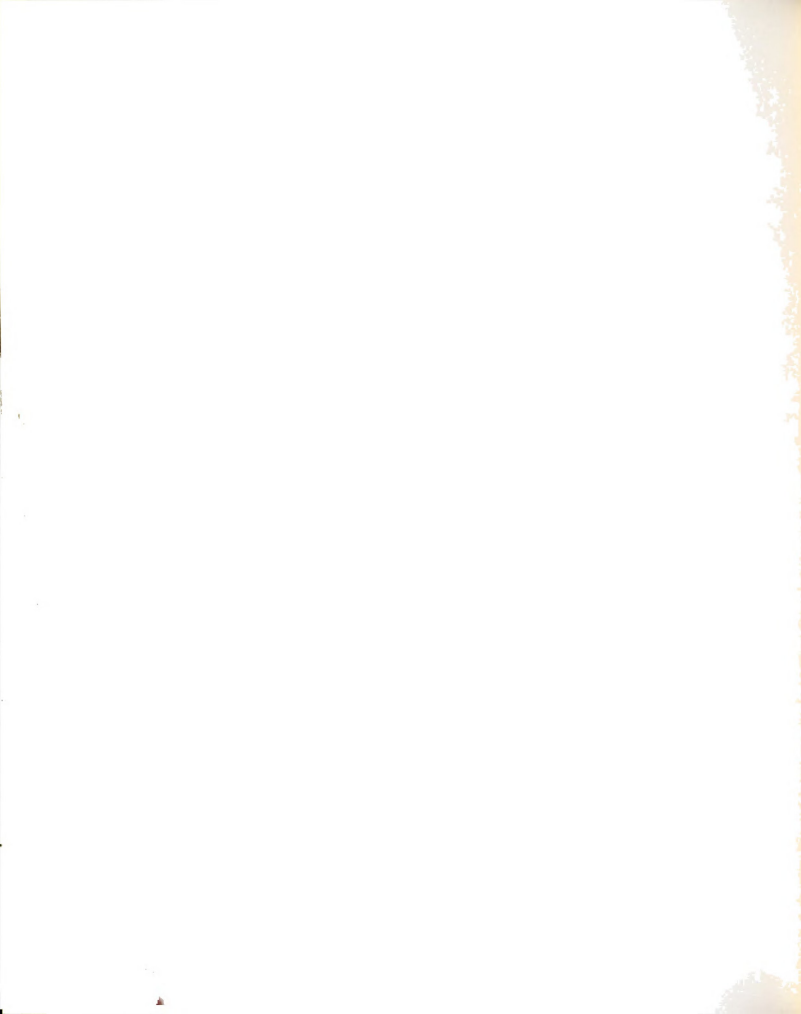
Based on their review of the research on learning from television, Chu and Schramm (1967) concluded that there is no consistent evidence that motion pictures enhanced learning more than still visual images. However, it was noted that in two studies using college or military participants, moving images were superior for learning tasks or sub-tasks in which continuity of the subject matter presented played an essential part in acquisition of the knowledge or skill. In addition, it was suggested that measured effects of visuals on learning depend on: (1) the nature of the task, (2) familiarity with the concepts being taught, and (3) test format.



Smith (1968a, 1968b) conducted a series of experiments in which one study compared televised with non-televised instruction in an engineering course at twenty-seven technical colleges in England where the British Broadcasting Company television series was used. There were no significant differences between groups on the attainment test used to assess the instructional effects of the two treatments. However, correlational analyses showed that television broadcasts had greater impact on students above average in ability and increased the general student performance level in mechanics. The investigator suggested that visual presentation of content might be an advantage in subject matter requiring understanding of spatial relationships.

As a further refinement in research comparing visual material for instruction, Dwyer (1973) designed a study to determine the degree of effectiveness by which illustrative material presented via different channels facilitates student achievement of different instructional objectives. College students were selected as subjects; the content was an instructional unit on the human heart. The three methods of presentation (television, slides and programmed instruction) used the same script but within each of the methods the subjects were sub-divided into one control and four treatment groups. Illustrative materials for each treatment varied in complexity from simple line drawings to photographs of an actual heart specimen.

General test results indicated that the three methods of presenting the content material without additional illustrations were equally



effective in facilitating student achievement on all five criterial measures. Results of adding illustrative materials in each method showed that students viewing simple line illustrations on television or slides achieved significantly higher scores on the drawing test than students using programmed instruction. In treatments using detailed drawings or photographs of a model of an actual heart specimen, the critical tests for identification, terminology and comprehension showed that the programmed instruction method was significantly better than either television or slides. It was noted that the internal pacing of the programmed instruction might have been the determining factor in facilitating achievement. As the illustrations became more complicated, individual students controlled the time needed to absorb additional information.

General findings. Research evidence supports the conclusion that all forms of instructional media investigated can teach facts and concepts over a wide range of subject matter content, learner characteristics and conditions of use as well as or better than conventional teaching methods. In reviewing audiovisual communications for the Encyclopedia of Educational Research, Allen states: "Although a frequent criticism of instructional film is that learning from them is 'passive' and interferes with thinking and the development of concepts and inferences, there is no experimental research to support this negative supposition" (Allen, 1960, p. 117).





From much of the data, it appears that effectiveness of a particular medium is more dependent upon variables in the learner and the nature and quality of the message than upon the characteristics of the channel of communication (Carpenter, 1954).

### Affective Domain

In the majority of studies conducted to assess the influence of instructional media on learning, little distinction was made between acquisition or use of information and the learner's affective response. As interest increased in measurement of the latter, investigations were designed to isolate variables which seemed to influence attitudes, opinions, beliefs and motivation. Unfortunately, interchange of these terms has caused a lack of clarity in reporting specific results although some general influencing factors can be identified.

Attitude toward content. The term attitude is usually reserved for dispositions which are aroused by social situations. Common to most definitions is the concept of a tendency to react in a certain manner. Attitude is more passive and generalized than interests; usually more difficult to change than opinion. When aroused, it functions as a "set" through which the process of motivation operates (Hoban and van Ormer, 1950).

A typical study of attitude involves use of a scale such as Osgood's Semantic Differential or a battery of questions for data collecting; whereas, a study of opinion is usually concerned with one



question about an issue. Bell, Cain and Lamoreaux (1941), using a scale of beliefs, reported a consistently large initial influence of motion pictures on an attitude if the film content is closely related to the specific attitude. This effect was found to be persistent with little or no diminution over a period of months.

Ramseyer (1938) studied the attitudinal effect of four expository United States government films with seventh-grade through college-age students and with a sample from the general adult population. In all cases the attitude changes were modifications toward the bias of the film. The effect was greatest among the student subjects. Two reasons were suggested for the results: (1) students are predisposed to accept ideas presented in formal instruction and (2) the films conformed more closely to student social norms than to adult norms in general.

The effect of Riefenstahl's Nazi propaganda film, Triumph of the Will, exemplifies the impact of film as a medium to influence toward the bias of the message whether or not the audience is pre-disposed to acceptance. In appraising the effect, Frank Capra (1971) stated: "Triumph of the Will fired no gun, dropped no bombs. But as a psychological weapon aimed at destroying the will to resist, it was just as lethal" (p. 328). Through the Why We Fight series of documentary films produced for the United States War Department, Capra also employed the medium of motion film for mass communication with a persuasive dimension (Hovland, 1949).

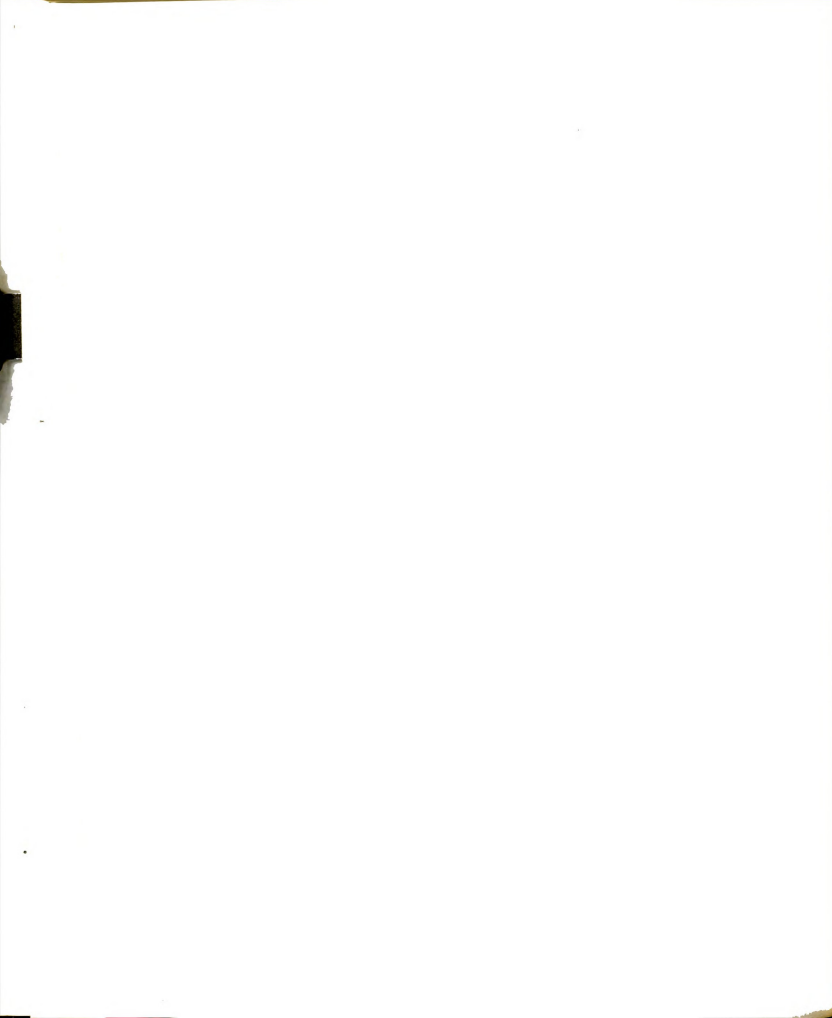


If a stimulus attempts to promote an attitude in conflict with the social norm, evidence shows that the existing attitude is frequently reinforced instead of changed. Wilner (1950) found that Southerners prejudiced against Blacks were not persuaded to change their attitude but were strengthened in their beliefs after viewing the film Home of the Brave. Cooper and Dinerman (1951) reported in a study of an attitudinal film that, depending on the general predisposition of the audience, results were contrary to those expected.

Because exposure to persuasive messages that attack one's present beliefs may raise appropriate defense mechanisms, Festinger and Maccoby (1964) verified that persuasion increases to the extent that the receiver of the message can be distracted from the intent of the message.

A relative effectiveness study by Leroy Ortigiesen (1954) compared filmstrips, sound films and printed materials in: (1) teaching information about and (2) changing attitudes towards soil conservation. It was found that filmstrips were significantly more effective in achieving cognitive objectives than sound motion pictures, and both were more effective than printed materials. Filmstrips and sound films were as effective in changing attitudes as were printed materials.

Irving R. Merrill (1962) tested subjects for flexibility and rigidity, then exposed equal groups to an informational, attitudinal or control (non-related) film to determine immediate and long term (ten week) effects.



Support was found for the hypothesis that the initial effect of the attitude film is manipulation of the cognitive, not the affective, component of attitude and that defensive avoidance occurs when strong fears form. Rigid and flexible groups did not differ on any of the measures (Reid and MacLennan, 1967, p. 132).

These data are of special interest in planning content and structure of instructional media to provide optimum conditions for the learner to meet the objectives.

If individuals are predisposed to accept or reject a given message, their interpretation and valuing of the communication is likewise influenced. The Kishler (1950) and Greenhill and McNiven (1956) studies show a relationship between the degree to which the viewer perceives the film to be of use to him and what is learned from the film.

In general, findings show that instructional media influence attitudes and opinions if the content of the media is closely related to the existing beliefs and social norms of the audience. Messages designed to affect attitudes are most successful when stimulating or reinforcing existing beliefs of the learner. Little or no success has been found if the content is contradictory to the social norms held. It appears that the more specific the message, the greater the influence in reinforcing attitudes or affecting change.

Attitude toward mode. With the introduction of each new type of instructional technology, the literature reflects interest in student and teacher attitudes toward that mode of instruction. However, because of the difficulty in controlling variables of appropriateness of selection

and quality use of the medium, the results are often of little value beyond the experiment itself. The wide variation of findings can be represented in a small sample of typical reports.

In the Heidgerken (1948) study cited earlier as comparing the effectiveness of sound film, filmstrips, and film and filmstrips combined, data were also collected on: (1) the perceived value of each mode of instruction and (2) the desirability of more extensive use of the approach experienced by the subject. Analysis of results showed no agreement on the value of filmstrips or whether students preferred filmstrips or motion films, although the latter received the highest average preference rating. There was no significant difference in the amount of learning between any of the media-exposed groups and the control group having conventional instruction.

Attitudes towards discussion, lecture-discussion and television-discussion methods of teaching modern literature to college students were examined by Becker, Dunlap and Gerber (1957). A questionnaire showed that the discussion sections were most favorable to the course; the television-discussion sections were least favorable; the students were more favorable to the lecture-discussion method than were the faculty. There were no significant differences among the cognitive test scores of the students.

A comparison of the effectiveness of a series of four teacher-made sound filmstrips versus classroom lectures for graduate engineering students was investigated by Dworkin and Holden (1959). No





significant difference between the two methods of teaching was shown in comparing examination grades of matched pairs of students. On a questionnaire administered to determine attitude toward the modes of instruction, seventy-five percent of the students stated that they " . . . were willing to accept sound filmstrips . . . as substitutes for the live teacher-lecture" (Dworkin and Holden, 1959, p. 384). Some of these students qualified this response with statements that the rate of delivery must be reduced.

Caparo (1956) determined effects of four variables on learning and attitude of Air Force Cadets in an Instructional Television Air Science II course: (1) varying class size from 19 to 110 had no significant difference on learning or attitude, (2) using proctors of three hierarchical status levels had no significant difference on learning or attitude, (3) using a two-way communication system for discussion after the television lecture showed no significant difference in learning or attitude as compared with no communication with studio instructor, and (4) assessing attitude over a period of time showed a consistent favorable response to the television course.

A pilot study of attitudes of students assigned to an instructional television course compared with students receiving in-studio, face-to-face instruction was reported by Walton (1963). There were no significant differences in measures of concentration, participation (from instructor ratings), attitude toward the course or achievement in the course. Rumford (1960) found essentially the same results in his

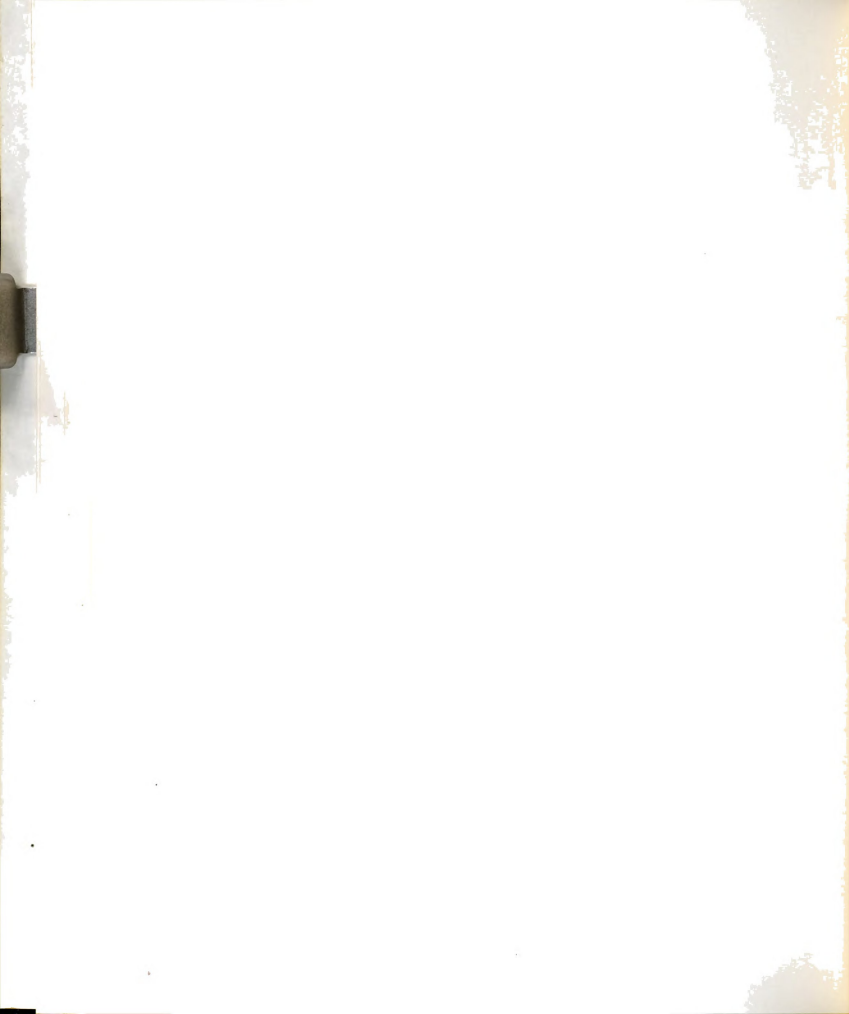


study of an elementary education methods course presented to one group as a televised series of lectures and observations, while the control group received direct instruction and personal observation opportunities. No significant differences in attitude or learning between groups were noted.

In the television study conducted by Smith (1968b) which was cited earlier, an analysis of the data from the eight colleges which had contributed both experimental and control groups showed significant differences in both attainment and attitude. Students who had viewed the British Broadcasting Company television broadcasts did better on the course test and had more favorable attitudes toward the course than those who had not seen the broadcasts.

In investigating the effectiveness of five different modes of audio-narration in combination with motion pictures and still slides, Allen, Cooney and Weintraub (1968) found no significant difference when considering the visual presentation variables. In terms of attitude toward the presentation modes, there was an indication that motion sound films were perceived more positively than slides.

In general, data on student attitudes toward mode of instruction are inconsistent and show little or no relationship between attitude and measured learning. Preference for specific modes of instruction appears to vary not only with individuals but also with respect to content, instructors involved and physical environments available.



### Summary

Early instructional media research was typified by evaluative comparisons in an attempt to prove their effectiveness in the teaching-learning process. Results of studies dealing with information transmission through specified media as compared with the current teaching practice did verify that knowledge had been gained by the learner. Quantifying the results was nearly impossible. The ambiguity of the base line "current teaching practice" alone confounded comparisons. In addition, incomplete analysis of variables present in the experimental settings posed substantial problems in generalizing from the results.

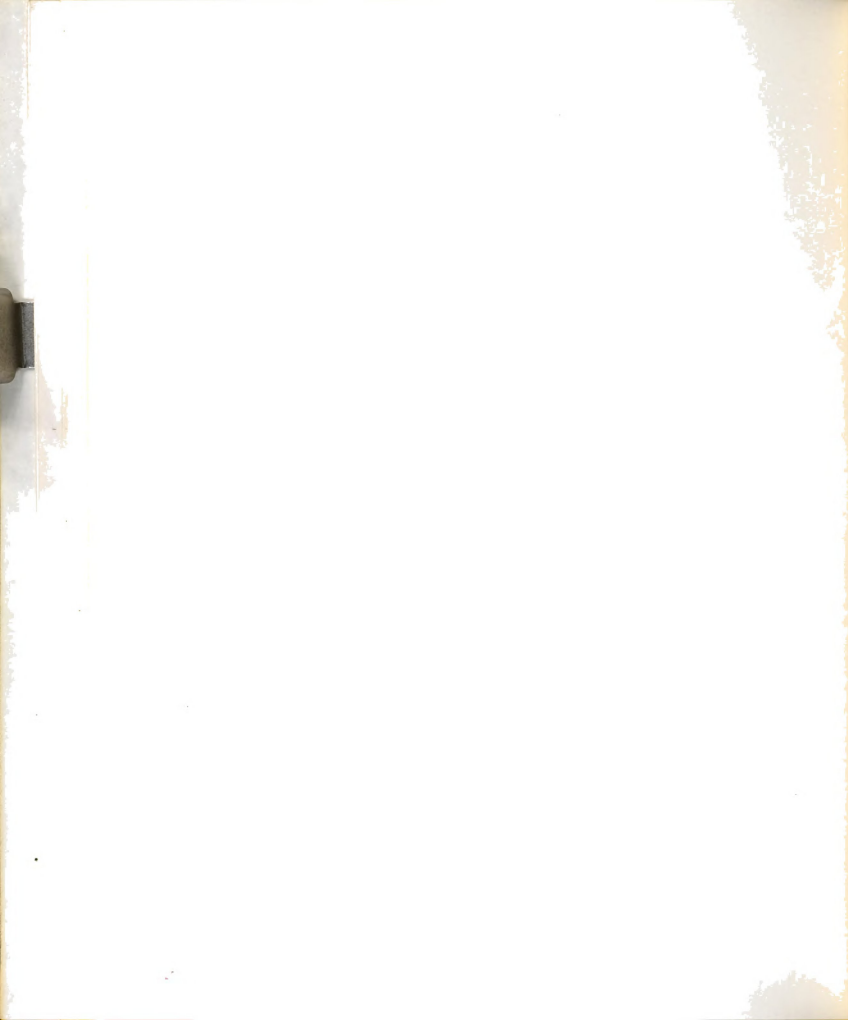
In his review of this literature, Schramm (1973) concludes:

There is almost a complete lack of studies intended to ascertain under what conditions and for what purposes one medium may be superior to another. And a high proportion of all the experiments that do address themselves to the problem are deficient in some way, either in design or in realism. We can therefore look only for a trend, rather than a conclusion, in the existing literature (p. 62).

These considerations lead to media research which turned from comparisons of alternative methods of achieving objectives to a study of the characteristics within each method of instruction. An extensive effort was made to establish principles for selecting and utilizing specific modes for achievement of specific educational objectives.

### Variables within Media

Most experimental designs in the early evaluative comparison studies had not separated for analysis the factors which might



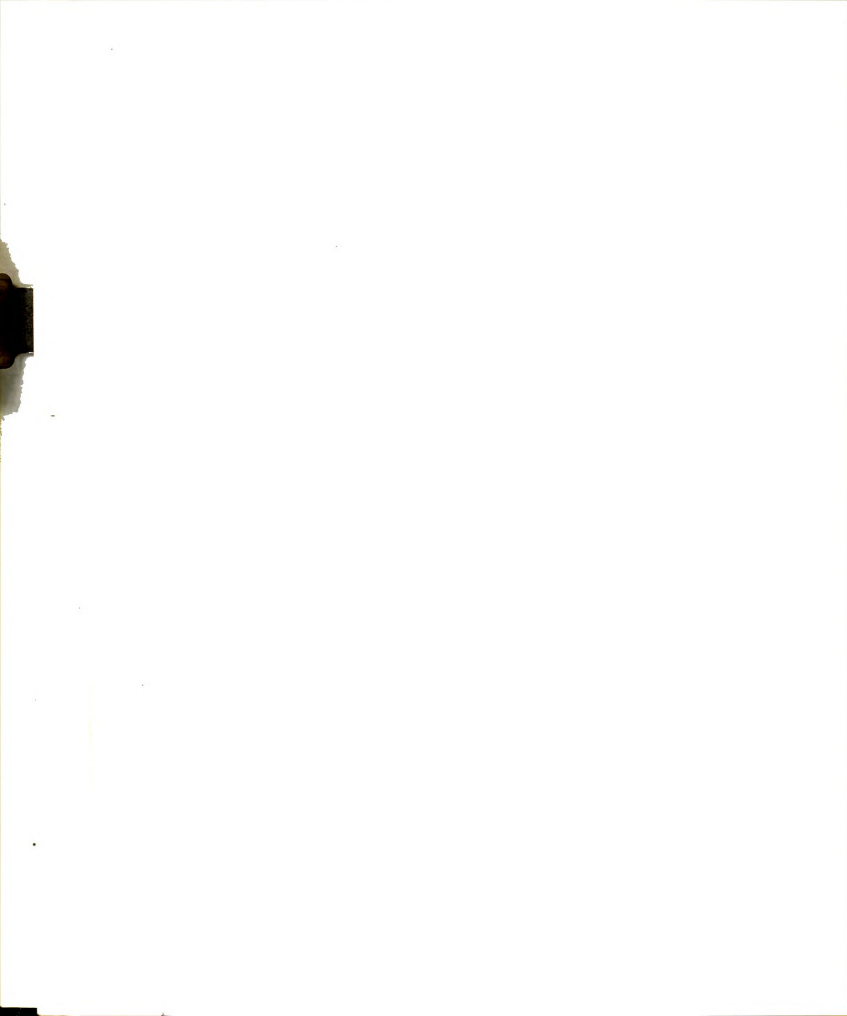
contribute to the improvement of learning. With the refinement of multi-variate analysis in research methodology, a more accurate interpretation of findings regarding the unique attributes of instructional media were studied under controlled experimental conditions. A large number of investigations examined these characteristics.

### Realism and Relevance

Edgar Dale (1969) developed and, over a thirty year period, refined a visual analogy, the cone of experience, to illustrate the broad base that direct purposeful experiences provide for communication and learning. The model is based on the premise that inputs of information can be graded from symbolic to real. "If a symbol is to stand for something, it must stand on something--a firm foundation of relevant experience (p. 109)." Whether or not instructional materials should be produced with reality as a product goal has led to a large segment of media research on realism and relevance in concept learning.

This question is currently of interest in the development of protocol materials for use by students in teacher education courses. "Protocol materials were originally conceived to be a documentary record (on audiotape, videotape or film) of the actual behavior of teachers and pupils in classroom and other school settings" (Gliessman, 1972, p. 3). This material was to serve as the stimulus for interpretation of concepts conjoined to their referents in behavior instances. Unedited documentation proved to be costly and frequently unclear





conceptually. Either use of film clips or realistic staging of events was promoted to maintain a natural behavioral environment for embedding the specific instruction (Cruickshank, 1974).

Other theories suggest that addition of cues to approach realism may be unnecessary (Instructional Film Research Program, 1954) or distracting (Miller, 1957) by eliciting competitive responses opposed to the task. Bruner, Goodnow and Austin (1956) proposed that attributes of an object or situation need not be in realistic detail for the learner to categorize appropriately. Travers (1964) points out that input of information are coded and much information available to the senses never enters the perceptual system.

In a recent attempt to compare student attainment of instructional objectives using visuals of varying degrees of reality, Francis Dwyer (1973) presented equivalent content to learners in the formats of television, slides or illustrated programmed instruction to complement equivalent oral and verbal instruction. The degree of effectiveness of five visual sequences of varying reality (from line drawings to photographs of a real object) was studied within each of the three modes of presentation. Results showed no significant difference in effectiveness of the three methods of presenting the content as measured by general student achievement. Analysis of separate critical tests showed that the degree of reality in the illustrations in the three methods differentially affected student achievement in drawing, identification, terminology and comprehension. The number of relevant and irrelevant



cues and the pacing of the instructional program were suggested as factors contributing to the varied results. It appears that the mode or presentation, together with the degree of reality in visuals, interacts and influences achievement of specific instructional objectives. These results confirm and extend earlier studies in which selected production variables were controlled to approach reality more closely as compared with alternate production techniques.

The studies of Restle (1957) and Trabasso (1963) offer strong support for increasing the number of cues for a concept identification task. Based on an hypothesis which assumes that combinations of stimuli can be expressed mathematically by assigning and adding relevancy weights of cues, the investigations concluded that speed of learning depends on the number of cues and how noticeable they are.

Color. The lack of evidence to support use of color to improve instruction as reported in educational media research (Chu and Schramm, 1967) is at variance with the enthusiasm with which it is selected by educators. Mielke (1972) suggests that studies not finding significant differences in color versus black-and-white presentations often have measured general learning which was too comprehensive for an adequate analysis of the data. "A nonsignificant difference between two groups on one particular measure by no means implies that there would be nonsignificant differences on other measures" (p. 375).



The work of VanderMeer (1954) illustrates the typical findings of no significant difference in general learning when subjects view color versus black-and-white instructional film. However, he noted that results of delayed verbal tests were significantly higher for the color group in three of five comparisons of retention. Students preferred color to black-and-white but no correlation between preference and learning was found.

In two studies of learning via television, Kanner (1968) investigated contributions of color to learning in eleven different subject matter areas by American army trainees. In ten out of the eleven comparisons, the subjects showed no significant differences in posttest results after viewing black-and-white as opposed to a varied amount of color in the training materials. Essentially the same results were found in an extension of this research with still visuals (Katzman and Nyenhuis, 1972). Addition of color to a black-and-white slide presentation did not significantly affect general learning; however, it did appear that higher order learning is enhanced somewhat and peripheral or irrelevant material is recalled more accurately with the color variable.

The latter finding had also been reported by Schaps and Guest (1968) who conducted a factorial experiment on retention of learning using television: color versus black-and-white commercials by color versus black-and-white television program by interval between exposure and testing (immediate versus forty-eight-hour delay). Measurements



within the various treatments showed that recall of both relevant and irrelevant (attention-getting and mood-setting devices) events in the color commercials was significantly greater than in the same commercials in black-and-white. These data illustrate a critical point for further research analysis; i. e., that fixation on so-called relevant learning alone does not account for what is actually taking place. "At least on an intuitive basis, it seems clear that the presence or absence of color in instructional materials should influence student attitude toward these materials and the subject matter" (Booth, 1974, p. 410). Preliminary findings in research on color effect by National Instructional Television demonstrate possible added impact in the affective domain.

Cues. In questioning the value of positive versus negative examples in learning process, Jaspen (1948) designed a study using film as the presentation mode for perceptual motor learning. Results of the film version which included negative examples among the crucial cues were markedly superior to the control version of proper procedure only.

Cues used as attention-gaining rather than attention-directing devices were investigated by Neu (1951). A different combination of relevant or irrelevant, visual or sound cues were used in each of four modified versions of a standard film about measuring instruments. Tests showed that the control version without special devices was





significantly superior as an instrument for learning. The version with irrelevant sound effects was most distracting and least effective, although subjects tended to remember irrelevant visual cues most clearly. These findings were supported by Harris (1962) in later experimental studies using film and instructional television. Bourne et al. (1965) found that increasing the number of irrelevant cues has a detrimental effect on concept identification, especially if the relevant cues are not redundant.

Baker and Popham (1965) studied the value of embellished visual presentations based on the suggestion of Lumsdaine and Gladstone (1958) that the viewer is more receptive to such materials. The embellished slide set included related but not realistic colored cartoons illustrating the key verbal content of the accompanying audio tape. The control slide set consisted of the same verbal material printed on slides having plain colored backgrounds. Results confirmed two of the expected differences in affective response: viewers favored the embellished version of the program on measures of interest and those of enjoyment. There were no significant differences in other affective or cognitive measures. In testing achievement of cognitive objectives, Dwyer (1973) found that adding to simple illustrations to approach reality did not significantly affect learning. He suggested that " . . . the initial impact of the realistic detail in the visuals may have had the net effect of distracting students from the essential learning cues" (p. 449).

In general, studies of variables in the technical quality of instructional media indicate a wide variation in production techniques which have little or no effect on learning. As long as the relevant cues are readable by the learner, it appears that the addition of technical refinements in stimulus materials is unnecessary.

Most advocates of mediated instruction take the position that the use of audiovisual materials brings the learner into close contact with reality by presenting stimulus patterns in much the same way as they are presented by the environment. It would seem, however, that the concept of bringing the student into close touch with reality is not an assurance that he will be more proficient in dealing with reality as a result of having had this prior experience. More comprehensive study is needed in this area of research.

#### Structure and Sequence

Interest in efficient organization of instruction has contributed notably to a better understanding of the hierarchical characteristics of subject matter content. As the programmed instruction movement has demonstrated, planning of structure and sequence requires extensive investigation of related variables. Use of pacing, appropriate practice and advance organizers have been research areas of major concern.

Pacing and Practice. Learning theorists such as Gagné (1965) hold that appropriate sequencing of text material is a sound principle of instructional design although few studies have shown performance



superiority with sequencing (Roe, 1962; Tobias, 1972). Anderson (1970) suggests, as a reason for this lack of research verification, that sequence effects of logical structure may be adversely affected by the high density of practice. Randomizing presentation of similar material takes advantage of distributed practice effects (Reynolds and Glaser, 1964). Gestalt psychologists accept practice and repetition for fixating responses but do not consider them necessary conditions of learning. Practice can help the learner to mature the structure of the procedure or concept being taught and also to individuate its functional parts so that they are seen in their proper role in the structure. In these cases, the amount of practice is less important than the kind of practice (Luchins, 1961).

Methods of providing practice such as the insertion of questions in written instructional material appear to increase the amount of learning from the text (Frase, 1970; Rothkopf, 1966; Rothkopf and Bibicos, 1967). Placement of questions before the content passage focuses the learner's attention on specific items to the detriment of other aspects, whereas post-questions facilitate both question-related and incidental material (Mouly, 1973). It has generally been found that question-pacing improves relevant retention over incidental retention with frequent questions tending to depress retention of incidental material. Optimal pacing of questions varies with the learner's ability to store verbal information (Koran and Koran, 1975).



In an experiment with undergraduate students using a programmed text, Dyer and Kulhavy (1974) manipulated both sequence and distributed practice effects by varying the location and order of the experimental frame throughout a body of nonrelated placebo text. The results across the four treatment groups showed little effect on amount of recall whether practice was massed or distributed, but criterion performance was significantly suppressed by the disordering procedure. The investigators reasoned that attending behavior is a pivotal factor. Subjects did not maintain high levels of attention when both disorder and distribution were manipulated. As Tobias (1972) points out, sequence effects are most powerful when subjects have little preknowledge and find the content difficult. The conclusion to the study suggested that sequence should be an important consideration in instructional design if presentation familiarity is low and the material is nonredundant.

In general, factors which regulate the magnitude of the practice effect are: (1) the amount of practice, (2) reinforcement or correction of responses, and (3) sequence of judgments from simple to increasing discrimination. In addition, cognitive learning is also a function of several variables including incentive conditions, characteristics of the textual material (Fraser, 1970) and learner characteristics (Rothkopf, 1972).

Advance organizers. The theory that relevant introductory procedures have motivational as well as the practice effects of





repeating material in a different symbolic form is supported by a study of Hovland, Lumsdaine, and Sheffield (1949). Military trainees learning map reading with filmed instruction were randomly divided into two treatments: (1) discussion of the film content prior to film showing and (2) review of content after film showing through testing followed by discussion of correct answers. Both treatments resulted in small but reliable increases in informational learning with both high and low intelligence groups. Increased learning from the discussion prior to the film was evident not only on items testing discussion content but also on items taught only in the film. Stein (1953) found that a pretest on the instructional content of the film increased learning even without knowledge of test results. The viewers were in effect told what they were to learn, thus providing an organizational framework for subsequent learning.

Ausubel (1963) proposed the theory that to the degree that an individual's knowledge in a particular field is organized, stable and clear, new material will be more easily learned and retained. Use of advance organizers for developing adequate cognitive structures for specific learning tasks has been shown to result in: (1) improved concept acquisition (Ausubel and Fitzgerald, 1962), (2) fewer errors during learning and testing (Merrill and Stolurow, 1966), and (3) greater transferrability of concepts (Groteleuschen and Sjogren, 1968).



Critics of the cognitive structure theory, however, point out that many studies which show increased learning using introductory procedures also provide increased time for learning without accounting for the use of that variable. In addition, Gagné (1965) and his followers hold that overviews should not be generally recommended since conditions of learning require lower levels of knowledge before the learner can move upward to the more complex.

In an extensive review of the literature, Barnes (1972) concludes that the controversy between deductive methods (i. e., use of advance organizers) and inductive methods (i. e., discovery approach) remains unresolved, especially regarding the important issue of transfer. Conflicting theories based on experimental evidence demonstrate the difficulty in identifying and controlling for the influence of the many complex variables in an instructional program.

To avoid the earlier research ambiguities, Barnes (1972) designed a study which would yield data on independent variables, both individually and in interaction with each other. The investigation measured the effects of an advance organizer and the comparative effects of deductive and inductive methods of ensuing guided film instruction on the learning of undergraduate college students. It was found " . . . that the presence of an advance organizer produced a significant improvement in both acquisition and transfer of the concept under investigation" (p. 78).



## Summary

In general, results of studies which compare learning effect of variables within a stimulus medium have shown wider variations in amount of learning measured than have comparisons between modes of instruction. In either case, recognition of specific learning effects is dependent upon the identification and control of all variables in such a way that the measured performance is not an average efficiency over many unknown functions. With this realization, investigators began a serious attempt to design studies which factored out variables which may have been operating to disguise the actual cause-and-effect relationships in the process of learning.

## Variables within Instructional Systems

Since the late 1950's there has been increasing interest in the use of scientific methods to improve educational practice. Miller (1957) typified this trend in emphasizing the need for research guided by theory and the practitioner guided by research. A more scientific approach in formulating theories which would serve as convergent lenses to structure an otherwise unmanageable complexity was seen as the first step in this process (Mielke, 1972).

In media research, a large number of theoretical orientations have been identified stemming from educational psychology, areas of applied psychology, the social sciences, communication research and the diverse groups within these areas. Intellectual connections are



easily generated from one field of inquiry to another as each component area experiences its own information proliferation. However, attempts to synthesize findings into a theory of instructional media must deal with these same connections as interactive and sometimes contradictory postulates.

In an extensive review of theory, research and practice in instructional media, Saettler (1968) concludes that there is a basic need for a scientific approach in delineating principles from which a framework of instructional technology theory can be synthesized. A historical distinction is drawn between the audiovisual movement whose primary concern was use of specific media and " . . . a technology of instruction primarily oriented toward psychological principles and empirical data based on the total teaching-learning process (p. 193)." Although Saettler clearly makes this point, educational literature in general does not.

Within the context of theory construction, Snelbecker (1974) discusses four general developmental stages in current research interests which contribute to the integration required.

1. Delineation of educational objectives in measurable terms, specifications of methods and self-corrective evaluations of instructional experiences as encouraged by the operant theory and techniques of programmed instruction

2. Development of interaction analysis systems for classification and objective reporting of teacher-student behaviors

3. Broadening instructional principles from a "hardware" technology orientation to a systematic evaluation of combined human and non-human resources in effective instruction





#### 4. Scientific means for testing principles of curriculum construction and instructional design

These stages evidence a transition from the audiovisual research, which was concerned with comparative effectiveness studies of variables within a medium of instruction, to a major focus on the relationships of stimulus and task to the characteristics of the learner. Both theorists and researchers currently emphasize the need to examine all variables in the instructional system if a fund of scientific information is to be developed.

Snelbecker (1974) holds that the most dominant characteristic of learning research at the present time is this fact-gathering phase. There has been limited synthesizing of findings from other than narrowly defined miniature models. The challenge of the last quarter of this century is to assess how data from various research areas will be integrated into comprehensive theories such as a theory of instructional technology.

#### Interaction of Stimulus, Task, Learner and Situational Variables

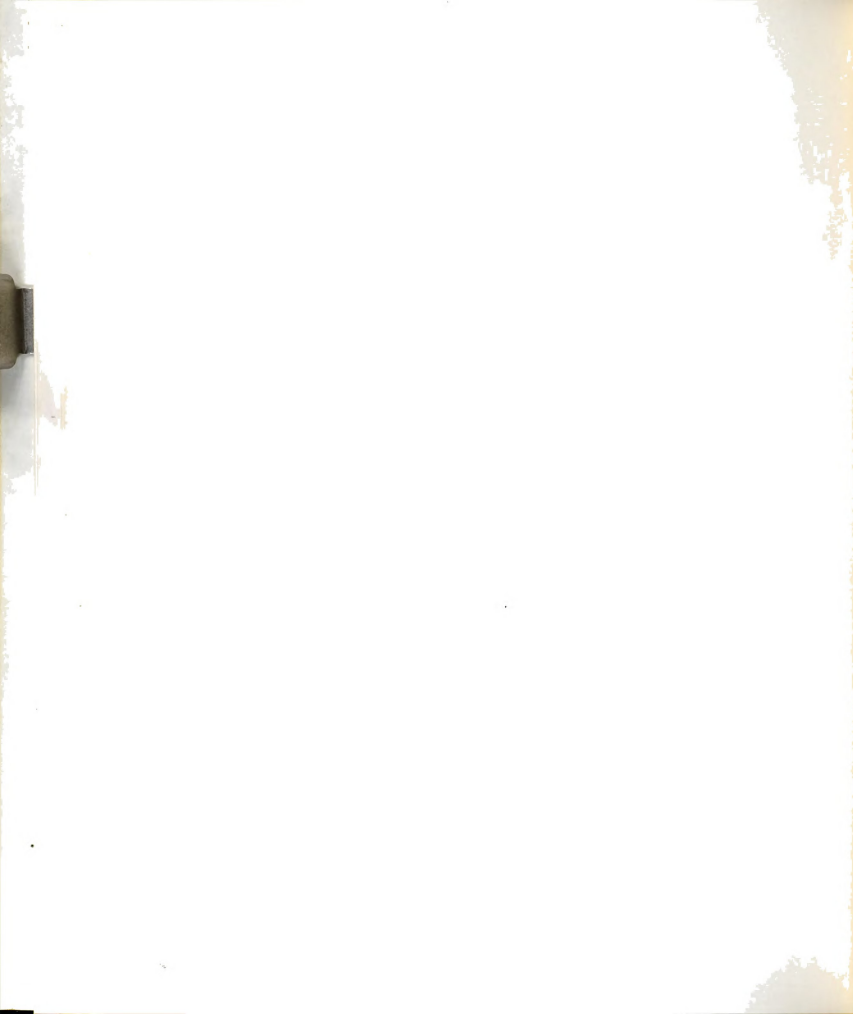
Theorists and researchers are currently concerned with the need to discover the unique attributes of instructional media and their relationship to the performance of different learners. A study of this complex interaction of stimulus, task, learner and situation variables has been attempted in a number of investigations during the past few years. Campeau (1974) cites several multivariate designs such as the



work of Siegel and Siegel (1966) with televised university instruction; Snow and Solomon (1968), Cronback and Snow (1969), Tallmadge and Shearer (1969), and Snow (1970) with methods for detecting individual differences to assign learners to treatment conditions; Briggs and others (1966), Gagné' (1968), and Briggs (1970) with procedures for analyzing components of the experimental task; and Solomon and Snow (1968) and Briggs (1970) with methods of specifying media variables.

In discussing efforts such as the above, Allen (1971) states that " . . . the significance of the present research is that careful investigation [sic] of the design element in mediated instruction are being made and that these searches are being conducted within a theoretical framework, thus laying a foundation for a theory of instructional media" (p. 12).

Instructor influence. Whether or not all interactions of a system can be studied under controlled conditions has been questioned with good reason. There has been no doubt about the need for the information. In reviewing recent audiovisual research, Campeau (1974) found that much of the variation in the effective utilization of film was due not to the understanding of the medium and how to use it, but to the instructor's understanding of the teaching-learning process and the skill with which a learning environment is established. These factors had not usually been included in the basic principles of film usage or considered in measurement of student achievement.



Vernon (1946) found that one of the four significant variables in his comparison of two modes of instruction, film and filmstrip, was the quality of the instructor. Even though the instructor was not present during the experiment, his influence "carried over" regardless of the mode of instruction. " . . . Classes with good instructors have better morale and are more alert and attentive, so they learn better even when they are not personally instructed" (p.156-157). This effect was verified by Schramm (1964) in discussing four case studies of programmed instruction. Variability of teachers proved to be an extremely strong source of differential results in terms of replication of student attainment.

In reviewing acceptance of mediated instruction by students, Twyford (1969) considers the importance of favorable attitudes toward the medium of instruction in determining the extent to which its unique advantages can be realized. Holmes (1959) was reported as finding the instructor to be important in shaping student opinion toward television. It appeared that student attitude toward televised instruction more accurately described attitudes toward the instructor, situation or content. Hoban (1965) similarly found that a major deterrent to enrollment in televised college courses was not negative attitudes toward the specific characteristics of television instruction, but attitudes toward the lack of personal interaction with instructor and class peers.

Individualization and group process. A segment of research concerned with manipulating and controlling student response deals with the

degree of student interaction elicited by the stimulus. The term participation has been used extensively in media research to indicate a group of techniques providing for conscious activity by the learner as he is exposed to the communication. Whether or not this activity needs to be overt has been the subject of several significant investigations.

Michael and Maccoby (1953) specifically compared covert practice (thinking the answers) with overt practice (writing the answers) in film instruction to find no significant difference in learning the information communicated. Both types of participation added reliably to learning of items specifically practiced as compared with no-participation control groups. In a recent review of student-response aspects of programmed instruction, Campeau (1974) found similar results in that overt responses were not advantageous unless the responses were difficult or novel or unless the responses themselves had to be learned (i. e., vocabulary).

Allen (1957) reviewed in detail a large number of studies on this method of facilitating learning, concluding that in general: (1) learner participation during a film showing will greatly increase learning from the film, (2) overt verbalization of responses by the learner during the film increases learning, (3) mental practice of skills demonstrated or information communicated will increase learning under certain conditions, and (4) if practice divides attention between observation of the



film and performance of the activity, pacing must be slow enough to eliminate the distraction caused by divided attention.

Although the Michael and Maccoby (1953) study found no significant difference in use of overt versus covert practice, their investigation showed that the most important factor influencing learning while using informational film was the learner's immediate knowledge of correct responses. Similarly, Suppes and Ginsberg (1960) reported that active correction of errors leads to more rapid concept attainment.

These results appear to be essentially the same whether interaction and knowledge or results are achieved through conventional group teaching techniques or are individualized as in programmed instruction as shown by the 190 programmed instruction reports reviewed by Schramm (1964). Unfortunately, much of the research does not include in the design of the study such individual difference variables as aptitude, personality and interests, which could provide correlates of learning scores. It would be of interest to know if individuals benefited differentially from the procedures, conditions or techniques used, although the mean performance of the groups was not significantly affected.

Briggs (1968, 1970) attempted to find some correlations in studies that related learner characteristics to variables in programmed instruction. No clear pattern of interaction emerged between personality, intellectual or attitudinal traits of learners and variables such

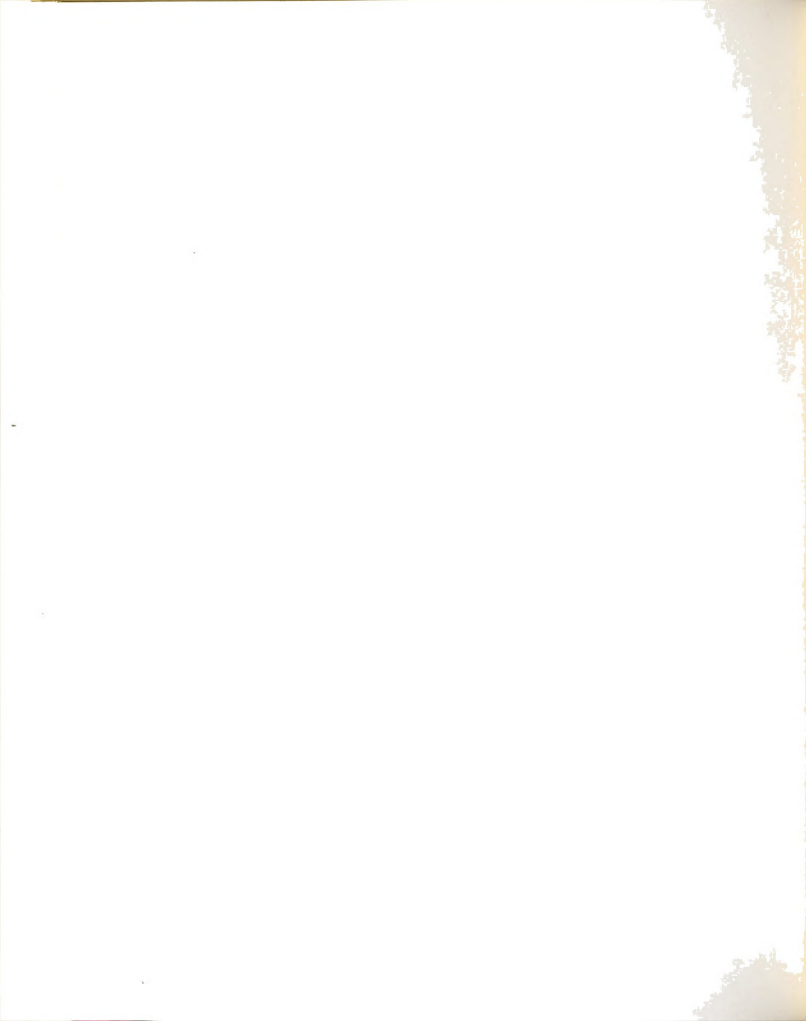




as pacing, branching and size of step. Briggs suggested the lack of pattern in results was due to the wide variety of learning tasks, skill in developing the programs, prior learning of subjects, age range and lack of precise definitions of variables under study.

The effect of individual differences in cognitive style on factual and conceptual learning has been studied by men such as Gardner (1953), Glaser (1972) and in great depth by Nunney and Hill (1972) who are currently continuing several facets of their investigation. Empirical evidence has led to few conclusions concerning the relationships among cognitive style, learning conditions and learning outcomes (Coop and Sigel, 1971; Kogan, 1971). Perhaps the difficulty in gathering reliable data has been due to individual differences in style not being matched with learning conditions or lack of precision in the style of tests themselves (Robinson and Gray, 1974).

In an investigation of the relation of student characteristics to performance in a personalized method (Keller, 1974) of teaching psychology, Calhoun (1975) examined variables including: (1) personal experience, (2) knowledge and motivation, and (3) psychology background. After comparing these characteristics with pretest and post-test scores, the only positive correlation found was the student's expected grade and the level of final course achievement. "Thus, how well a student did overall in the Keller-type course in this study seemed to be more a function of his initial goals and expectations than his specific background or general experiences" (p. 17).



The literature on group interaction and effects on learning is voluminous. Early observations suggest that group participants are motivated to learn as a result of social facilitation. In his now classic experiments on group decision-making, Lewin (1958) found that it is sometimes easier to change a group than an individual. It also appears that group discussion permits certain types of social learning not possible with other strategies. Changes in attitudes, emotions and interpersonal relations brought about as a result of group interaction have been recorded by many investigators (Davies, 1966).

An overview of research shows in general that discussion techniques are not optimal for realizing lower-order cognitive objectives. The strategies are most successful in achieving affective and higher-order objectives. " . . . Studies have suggested that the superiority of groups over individuals in problem-solving tasks, at least, is also due to the rejection of erroneous solutions through group discussion" (Davies, 1973, p. 165).

Situational testing and transfer of learning. The complexity of interactive elements in instructional systems has made accurate assessment of learning an overwhelming task both in the teaching situation and in attempts to measure transfer. A further complication has been the tendency of researchers to design more efficient controls by using laboratory settings for collection of data. Results of investigations carried out in an artificial situation have often been in conflict



with similar work in a natural setting. This discrepancy raises the question of the value of data from experimental variations controlled to the degree usually associated with laboratory studies, since these usually cannot be generalized to the natural learning environment.

It has been pointed out (Ellison, 1973) that assessment of instructional objectives for maximum validity must be made through the use of tests designed to fit the method of teaching and performance expectation as well as content. In courses in which visual skills are important objectives, media presentations might be expected to be a superior form of instruction, yet research shows few examples of visual evaluation techniques used to determine effectiveness. Postman and Schwartz (1964) found that method of practice and type of verbal materials employed in prior practice influenced learning to learn. Greatest achievement resulted from use of the same practice method and class of materials in the initial and subsequent task. It appears to follow that in evaluating instruction, paper and pencil tests suffer some validity if visual media presentations are used as the instructional delivery mode.

Theories regarding the transfer of learning are based on reliable evidence that transfer does occur. Concepts and principles show higher positive transfer than factual information and facilitate attainment of successive concepts of the same class (Wittrock, 1963; Klausmeier, Harris and Wiersma, 1964). General learning transfers more readily to new situations than specific information but the individual must



perceive the new situation as being similar to that in which the initial learning occurred. It appears that the more similar the instructional situation is to the conditions of later application, the higher the probability of positive transfer (Cruickshank, 1974).

In the Annual Review of Psychology, Gagné' and Rohwer (1969) acknowledged that studies of human learning, retention and transfer are not yielding adequate empirical evidence. Isolated findings with regard to practical applications are useless until integrated into a theoretical scheme which takes account of additional variables found in natural situations.

#### 2A) Summary

The review of literature related to the intent of this study has consistently shown that the learning process is far more complicated than the research designs that have attempted to examine it. In many studies it appears that unrecognized variables may have been operating to bias results and in much of the early media research, frequent finding of no significant difference in the results of evaluative comparative studies reflected averaged variables.

As investigators perceived the greater variance of learning within a mode rather than between varied modes of teaching, the unique attributes of the instructional media in relation to conditions of use, nature of the task and characteristics of individual learners were emphasized. Until the recent refinement of statistical tools, it was





impossible to deal with the amount of data generated by separation of factors which were contributing to the measured effects. Further, as these factors interact, the total impact is greater than typical investigations have been able to interpret.

γ √ To approach the complexity of any facet of instructional media research requires an awareness of past contributions to the field and of trends in current investigations.) Only through interlocking experiments of manageable scope can sound principles be formulated to provide a basis for instructional practice. It is from this base that the study presented in the following chapters was designed and executed.



### CHAPTER III

#### METHODOLOGY

The overall purpose of this study was two-fold: first, to determine if significant differences in learner attainment of specified cognitive and affective objectives result from (a) use of varied forms of media for delivery of identical verbal stimulus situations in equivalent instructional systems or (b) use of varied types of learner interaction with identical stimulus media in parallel instructional systems; second, to examine attitudes of learners toward mode of instruction after use of a given combination of stimulus media and type of interaction. The research design, procedure of the study and methods used to analyze the resultant data are discussed in this chapter.

##### Experimental Design and Procedures <sup>2</sup>

A field-based study was designed to collect data in the natural educational environment for which the instructional program was developed. Although this approach increased the difficulty in controlling variables, the more intricate design necessitated by diverse instructors and fixed groups of university students was vital to the intent of the study.

A summary of the experimental treatments is presented in Table 1; the cognitive and affective measures are listed in Table 2.



Table 1. --Independent variables: experimental treatments

| Treatments                                                  |                                                              |                                                              |                                                                 |
|-------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|
| T <sub>1</sub>                                              | T <sub>2</sub>                                               | T <sub>3</sub>                                               | T <sub>4</sub>                                                  |
| Printed Script,<br>Overview and<br>Guidebook;<br>Discussion | 16 mm Sound Film<br>Overview and<br>Guidebook;<br>Discussion | Slide-Audiotape,<br>Overview and<br>Guidebook;<br>Discussion | Slide-Audiotape,<br>Overview and<br>Guidebook;<br>No Discussion |
| Group 1<br>" 2<br>" 3<br>" 4<br>" 5<br>" 6                  | Group 7<br>" 8<br>" 9<br>" 10<br>" 11<br>" 12                | Group 13<br>" 14<br>" 15<br>" 16<br>" 17<br>" 18             | Group 19<br>" 20<br>" 21<br>" 22<br>" 23<br>" 24                |

Table 2. --Dependent variables: cognitive and affective measures

| Measures                             |                                      |                                    |                                    |
|--------------------------------------|--------------------------------------|------------------------------------|------------------------------------|
| Cognitive                            |                                      | Affective                          |                                    |
| Pretest                              | Posttest                             | Pretest                            | Posttest                           |
| Form 17*<br>Multiple Choice<br>Items | Form 23*<br>Multiple Choice<br>Items | Semantic<br>Differential<br>Scales | Semantic<br>Differential<br>Scales |
|                                      |                                      |                                    | Post-Instruction<br>Questionnaire  |

\*Forms 17 and 23 were logically equivalent.



### Setting

The primary setting for all participants in the study was one of the eight assigned locations of the randomly selected interpersonal process laboratory (IPL) sections of an introductory educational psychology course, Education 200--The Individual and the School, as designated by Michigan State University administrative personnel. Section totals ranged from nine to sixteen students with a modal enrollment of fourteen students.

For subjects participating in T<sub>4</sub>, the individualized non-discussion treatment, a room of wet carrels ordinarily available throughout the course for mediated instruction was utilized. Six of the thirty carrels were equipped with Kodak carousels coupled to Wollensak cassette tape recorders with auto-advance mechanisms activated by electronic signals on the audiotapes.

During the three-week period of instruction, the carrel room was supervised by the researcher who, together with a rotating staff of graduate assistants, aided students in the operation of equipment and use of the accompanying instructional software. Pre-assessment and post-assessment instruments were administered in the IPL sessions.

No grades were given students for this instructional sequence. The course, based on a mastery learning model, was operating on a pass-deferred credit system.





## Subjects

The subjects for the study were drawn from Michigan State University students enrolled during the spring term, 1974, in Education 200--The Individual and the School. This introductory level course was required of all elementary education and secondary education majors.

By means of the course registration lists, twenty-four sections (natural groups) of students were selected at random from the thirty-seven sections scheduled. A total of 321 students comprised the original sample. Of this number, 307 sets of data were accepted for analysis. Absence during the administration of the pretest or posttest or the miscoding of answer sheets required elimination of the other students. A total of 262 post-instruction questionnaires was completed. Approximately 21 percent of the subjects reported having had some formal instruction on the use of feedback concepts in interpersonal communication, 64 percent did not recall any prior instruction and 15 percent did not respond to the question.

Student background data were obtained from registration records which included twenty-eight students who did not participate in the study. It was assumed that these students did not differ significantly from those who completed the instruction. The data are reported in percentages which reflect the basic composition of the sample population.

The modal age was twenty-one years which included 39 percent of the subjects; 25 percent were twenty-two years of age and 11 percent



were twenty-three years of age. Approximately 45 percent had sophomore class standing; 32 percent were junior class members. Of those who indicated sex on the data cards, 33 percent were male and 67 percent female. Mean grade point average of the sample was 2.8 on a 4.0 point scale: 34 percent had maintained 2.6—3.0 points; 29 percent averaged 3.1—3.5 points; 10 percent achieved a 3.6—4.0 point average.

The majority of the subjects were interested in some aspect of education as a profession. Major fields declared by subjects included 21 percent elementary education, 9 percent special education, 8 percent child development and teaching and 16 percent named various secondary education subject matter areas.

#### Instructors

The twenty-four IPL sections of students selected as the research sample population were under the direction of seventeen teaching assistants who worked closely with the central staff of the course, Education 200. All but one of these assistants had previous experience in directing at least one other IPL group. The average experience was 4.3 terms. In addition, six assistants had public school teaching experience with an average of five years completed prior to attending Michigan State University.

Treatments were randomly assigned to the sections with the exception that the seven instructors directing two sections were each



assured two different treatments to minimize instructor effect. To preserve the natural setting, the discussion component was not rigidly prescribed beyond the framework set by the student guidebook and control of class time. Three instructors directed two discussion groups, each using a different form of mediated stimulus situations. Of the six groups assigned to the individualized non-discussion treatment, four were administered by the instructors who also directed a treatment with discussion. This randomly assigned distribution lessened the effect of discussion quality varying with instructor and treatment.

#### Instructional Materials

The printed materials for instruction used in all treatments consisted of individual student copies of an overview of fundamental concepts of interpersonal feedback and a student guidebook with provision for written responses. Equivalent materials containing identical verbal stimulus situations in a total of twenty-six vignettes of interpersonal communication were provided in three forms, one of which was used in conjunction with the guidebook in each treatment: (1) 16 mm sound films, (2) slide-audiotape sets, or (3) printed scripts.

Copies of the printed scripts were available from the instructors to students in film and slide-audiotape treatment groups. All printed materials were mimeographed copies of typed originals on 8-1/2 by 11 inch paper. A description of each component follows.



Overview paper. After a brief motivational narrative and an extensive discussion of basic definitions, the key attributes present in each of the concepts were introduced in turn for: (1) responsible positive feedback, (2) responsible negative feedback, (3) irresponsible positive feedback, and (4) irresponsible negative feedback. A summary sheet of the basic elements to consider while distinguishing and labeling instances of feedback was provided for future student reference. The entire paper served as an advance organizer for the instructional content of the unit. (Appendix A contains an excerpt of the overview which summarizes the feedback concepts.)

Student guidebook. Practice in evaluating written exemplars of feedback in interpersonal communication was provided for each concept. Instruction was given in the form of correct answers with detailed rationale. Following the written vignettes illustrating each type of example, subjects were directed to view films (or slide-audiotapes or to read additional vignette scripts depending on treatment group) and to evaluate the feedback using the guidebook for directed interaction and to check responses. The instruction was sequenced from simple to more complex discriminations. (See Appendix B for guidebook table of contents, directions and sample practice exercises.)

Equivalent stimulus materials. Having developed the conceptual framework for the feedback process in interpersonal communication, a

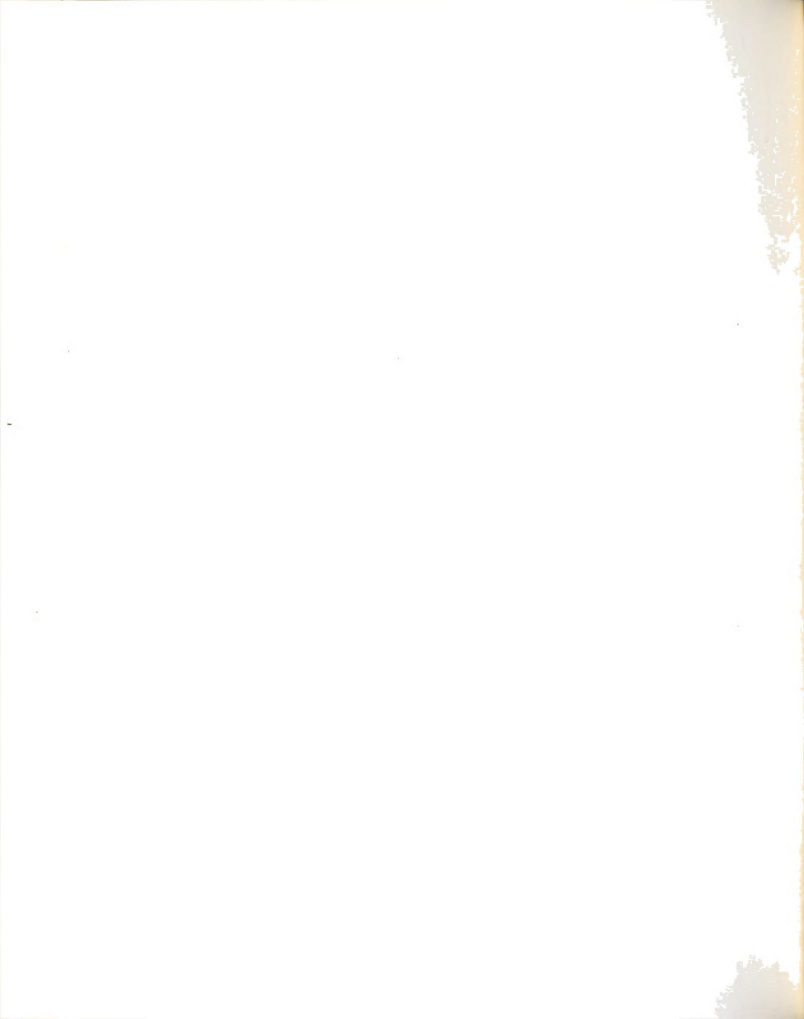




team of the course staff members completed a set of twenty-six vignette scripts in which feedback statements illustrated the four feedback concepts. These scripts were used by the Instructional Film and Multimedia Production staff of the Instructional Materials Center, Michigan State University, to produce six 16 mm sound films in color. The final version of each film incorporated four to six vignettes as practice items for discriminating concepts in conjunction with the student guidebook. Actual viewing time for each film was approximately five minutes.

As the vignettes were filmed, 35 mm slides were simultaneously taken by professional photographers from the Instructional Resources Center, Michigan State University. The researcher selected from these slides and from the original 16 mm film frames, the visuals most representative of the final version of the films. These visuals were duplicated and synchronized with the film sound by means of electronic signals on the cassette audiotape duplications of the film soundtracks. Approximately eleven slides were used per film. There was no essential difference between the instances of interpersonal communication in the 16 mm films and those of the slide-audiotape sets except motion.

The film versions of the original scripts were transcribed and typed on 8-1/2 by 11 inch paper. Mimeographed copies were provided for use with the guidebooks. Thus, the identical verbal interpersonal



communication was made available in three forms: print, slide-audiotape, and 16 mm film, for purposes of this investigation. (A sample vignette script is in Appendix C.)

### Instrumentation

The conduct of the study required instruments which would provide data for each subject regarding: (1) cognitive and affective entry level with respect to the concepts, (2) cognitive and affective post-instruction level with respect to the concepts, and (3) reaction to and evaluation of the instructional program as experienced in a given treatment.

Cognitive assessment. In addition to the twenty-six filmed vignettes used for instructional examples of the concepts, twenty vignettes were similarly produced for assessment purposes. After pilot viewing sessions, two groups of eight logically equivalent films were selected for use as item stems in alternate forms of an assessment instrument. Four additional film items, one example of each type of feedback, were added to each assessment form to make a twelve-item total. This increased the number of discriminations and afforded a direct comparison of pretest and posttest responses for the identical items while conserving production time and costs. (Appendix D contains a complete list of vignettes used in the assessment process.)

Each subject was provided with an 8-1/2 by 11 inch mimeographed copy of directions for use of the assessment instrument, an



explanation of its purpose (pretest or posttest) and a written vignette to be used as a practice item. For each test item, a description of the stimulus behavior and a copy of feedback lines were printed above the list of six multiple-choice responses: (1) responsible positive, (2) irresponsible positive, (3) responsible negative, (4) irresponsible negative, (5) none of the above, (6) more than one type of feedback. After viewing the stimulus situation, the respondent was directed to circle only one of the multiple choice answers listed. (The cognitive assessment format is shown in Appendix E, p. 128.)

Affective assessment. Immediately following the cognitive evaluation of each item, a semantic differential scale of seven possible rating points for each of three paired words was given: good-bad, unfair-fair, friendly-unfriendly. (Sample affective assessment format is in Appendix F.) Respondents were directed to darken one number on each of the three scales to indicate their first and immediate feeling about the verbal behavior of the person giving the feedback in that stimulus situation. These responses were a measure of the affect elicited by the feedback statements with respect to the concepts as they were perceived in a lifelike context.

A questionnaire (Appendix G) consisting of fifteen items was distributed to each subject after completion of the posttest. Embedded in the instrument were seven items relating to mode of instruction. A semantic differential scale of seven for each pair of bipolar adjectives

relating to each item was used to determine a quantitative rating for assessment of attitudes toward a given treatment. Clarity of objectives, helpfulness of the overview, degree of interest in the instructional activities, ease with which the concepts were learned, amount of instruction given, fairness of the posttest, and need for group discussion of the concepts were aspects of the instruction included in setting up the attitude scales. Other information obtained from the questionnaire was reported in the descriptive portion of the study.

### Instructional Procedures

✓ The design of the study required that a natural learning environment be used for the collection of data. Use of the overview and student guidebook provided the basic organizational framework for the instruction. To avoid interjection of a different instructor into the groups for administration of the treatments, an extensive training program was designed for orientation of the course instructors to the instructional procedures as planned by the staff of developers.

Instructor training. Prior to involvement in the study, the seventeen instructors of students enrolled in the twenty-four IPL sections which constituted the total sample population, were briefed as to the philosophy of the protocol materials; the purpose of each treatment; content of the overview, student guidebook, and vignette scripts; and the method of administering the assessment instruments.

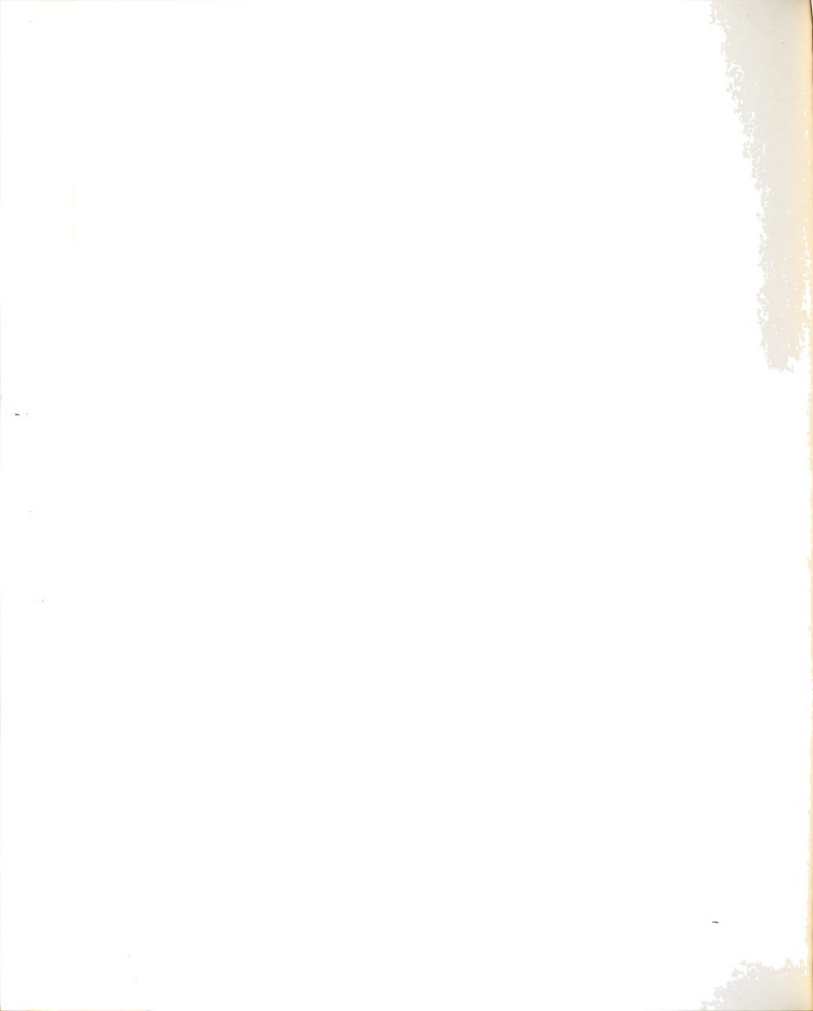




To insure instructor uniformity in pacing and presentation of the instructional materials to students, the four weekly meetings of the Education 200 course staff which were held immediately before and during the instructional sequence were designated as training sessions. Under simulated class conditions, the instructors were given the assessment pretests and posttests; they used the overview and the student guidebook; they participated in discussion of the exemplars of the concepts with staff members who had developed the stimulus materials. These sessions provided ample opportunity for resolution of difficulties encountered in the ongoing program, clarification of the mechanics of administering the treatments and discussion of instructor log entries of interest in formative evaluation of the sequence by the staff.

Student instruction. Including the two assessment sessions, three weeks of class time of approximately 220 minutes per week were scheduled mid-term for use of the protocol materials on feedback concepts. Each instructor administered the randomly assigned treatments within the following constraints.

1. Administration of the pretest with response time of 1-1/2 minutes per item; no discussion of responses
2. Discussion of overview during a class session
3. Use of guidebook and integrated stimulus media (film, slide-audiotape or print) in sequence as structured
4. Maximum amount of practice and discussion of each segment of the instruction determined by length of class sessions ( $T_1$ ,  $T_2$ ,  $T_3$ ); no limit to use of carrel facilities for individualized instruction except for scheduled date of posttest ( $T_4$ )



5. Administration of the posttest with response time of 1-1/2 minutes maximum per item; no time limit for questionnaire

To assure control of the variables pertinent to the study without disturbance to the natural setting, there was no regulation of teaching style, methods of using the treatment media or techniques of discussion other than those stated in the constraints.

Although individualized instruction in the carrel room was foreign to the IPL sections of Education 200, all students had used or were using the facilities for mediated instruction in other units of the course. Students in the individualized instruction treatment (T<sub>4</sub>) followed the established pattern for use of the carrels. Instructors provided time for the work by shortening or eliminating some of the IPL group sessions scheduled during the three-week period of this study. Individual student reservations of specific carrel times were encouraged.

#### Treatments

For purposes of sharing equipment and maintaining its security when not in use, the twenty-four IPL sections constituting the sample population were grouped according to given geographic locations on campus. Each group of six sections in closest proximity to one another was then randomly assigned one of the four treatments. A summary of the media and methods of instruction used in these<sup>4</sup> treatments is presented in Table 3.

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Table 3. --Treatment media and methods of instruction

| Instruction and Testing                                                                                                                                                                                                                                 | T <sub>1</sub> | T <sub>2</sub> | T <sub>3</sub> | T <sub>4</sub> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|
| <b>Pretest:</b><br>16 mm sound film<br>(12 multiple choice items in which the<br>item stems are filmed instances of the<br>4 feedback concepts; 3 semantic dif-<br>ferential scales for each item)                                                      | X              | X              | X              | X              |
| <b>Instructional Materials:</b><br>Overview and Student Guidebook<br><br>Equivalent stimulus media<br>(26 vignettes as exemplars of feedback<br>concepts):<br><br>Print<br><br>16 mm sound film<br><br>35 mm slide-audiotape                            | X              | X              | X              | X              |
| <b>Learner Interaction with Stimulus Media:</b><br>Instructor guided group discussion<br><br>Self-paced individual carrel study<br>with no discussion                                                                                                   | X              | X              | X              | X              |
| <b>Posttest:</b><br>16 mm sound film<br>(12 multiple choice items and 3<br>semantic differential scales in<br>alternate form of pretest)<br><br>Post-Instruction Questionnaire<br>(15 items which included 7 pertinent<br>semantic differential scales) | X              | X              | X              | X              |



The following statistical hypotheses, stated in the null form, were tested by means of experimental comparisons involving variations in presentation form of stimulus media or type of learner interaction within the instructional system.

1. There will be no significant difference in concept acquisition of subjects who have used one of three forms of stimulus media: print, 16 mm film or slide-audiotape, within equivalent instructional systems

2. There will be no significant difference in concept acquisition of subjects who have used slide-audiotape stimulus media with or without a discussion component within parallel instructional systems

3. There will be no significant difference in valuing interpersonal feedback concepts among subjects who have used one of three forms of stimulus media: print, 16 mm film or slide-audiotape, within equivalent instructional systems

4. There will be no significant difference in valuing interpersonal feedback concepts between subjects who have used slide-audiotape stimulus media with or without a discussion component within parallel instructional systems

5. There will be no significant difference in attitude toward mode of instruction among subjects who have used one of three forms of stimulus media: print, 16 mm film or slide-audiotape, within equivalent instructional systems

6. There will be no significant difference in attitude toward mode of instruction between subjects who have used slide-audiotape stimulus media with or without a discussion component within parallel instructional systems

#### Data Analysis

All data collected for statistical treatment were hand-coded by the research staff from student answer sheets to standard computer grid sheets from which key-punched cards were generated and analyzed via the Michigan State University CDC 6500 computer.

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All cognitive (concept acquisition) and affective (concept valuing) test data were compared individually and also averaged for each treatment. Subjects within a treatment group were not independent learners; therefore, it was necessary to use the group mean as the unit of analysis for testing the hypotheses. Although this masked individual differences within treatments, any treatment effect would be detected through an analysis of variance using the mean and standard deviation for each section. The .05 level of significance was adopted for all comparisons. Posttest scores were compared with pretest scores controlling for initial differences by using the pretest as the covariate.

A multivariate analysis of covariance was performed using Jeremy D. Finn's computer program for multivariate as adapted for use on the Michigan State University CDC 6500 computer (Scheifley and Schmidt, 1973). One primary purpose of the Finn program is to determine what characteristics or combination of characteristics best reflect the population differences which are being studied. It was assumed that characteristics of each treatment group had a multivariate normal distribution, with different means but common variances and covariances. Essentially, the analysis allows the researcher to extend tests of significance from single population characteristics to sets of population characteristics using univariate tests of significance such as the t-test.



### Summary

The design and experimental procedures of the study preserved as far as possible the external validity of the findings by collecting data in the natural learning environment. Variables which posed threats to internal validity were controlled by the random assignment of treatments to the sample population and by production of the equivalent stimulus materials and administration of the treatments under the direction of staff members who had developed the conceptual framework of the instruction.

The statistical hypotheses were formulated after a review of relevant research literature. A .05 level of significance was set to test these hypotheses. The unit of analysis was the group mean. Data were examined by multivariate analysis of variance and covariance to detect treatment effect.



## CHAPTER IV

### PRESENTATION AND ANALYSIS OF THE DATA

The data collected pertinent to the objectives of the study are presented in this chapter. Statistical procedures are described and results of testing the hypotheses are reported in the sequence in which the three major areas of investigation were pursued: concept acquisition, affect with respect to the concepts and attitude toward mode of instruction.

#### Experimental Data

The research design provided for treatments which dovetailed to yield a set of paired comparisons as data from each dependent measure were examined. Findings relative to the effect of varied forms of stimulus media on learning and attitudes of subjects from the comparison of  $T_1$  and  $T_2$  with  $T_3$  were combined with similar data from  $T_4$ . From the latter contrast, the effect of different types of learner interaction ( $T_3$  versus  $T_4$ ) within the instructional system was determined. Results are presented and discussed following the statement of each hypothesis.



### Analysis of Data Relative to Concept Acquisition

The dependent measures, pre-assessment and post-assessment instruments, used to test the effect of treatment on concept acquisition were developed by the course staff concurrently with the instructional materials. Of the total twelve items, four were identical and the other eight were logically equivalent to the alternate form. It was not necessary to the study to determine the reliability or validity of the instruments as the purpose of the investigation was a comparison of the treatment effects rather than an evaluation of the instructional systems. Since all groups used the same pretest and posttest forms, any significant difference between treatments could not be attributed to these common elements.

All treatments were given the pretest which was used as a covariate with the posttest to control for initial differences in groups in the analysis of the scores. If the pretest contributed to the instruction, any interaction between testing and treatment was equally applicable to all groups. Effects of multiple-treatment interference were controlled by administering all tests and conducting all treatments as simultaneously as possible within a three-week period.

Hypothesis 1. There will be no significant difference in concept acquisition of subjects who have used one of three forms of stimulus media: print, 16 mm film or slide-audiotape within equivalent instructional systems.

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Table 4 presents pretest and posttest means and standard deviations for the three treatments using varied forms of stimulus media. Correlation of the pretest with the posttest was .518. The variance and standard deviation of the pretest and posttest for all treatments combined are shown in Table 5.

Table 4. --Pretest and posttest means and standard deviations of concept acquisition for each of four treatments

| Treatment Groups                           | N | Pretest   |       | Posttest  |      |
|--------------------------------------------|---|-----------|-------|-----------|------|
|                                            |   | $\bar{X}$ | S.D.  | $\bar{X}$ | S.D. |
| T <sub>1</sub> Print                       | 6 | 7.561     | .843  | 8.339     | .547 |
| T <sub>2</sub> 16 mm Film                  | 6 | 6.597     | .515  | 8.371     | .691 |
| T <sub>3</sub> Slide-Tape                  | 6 | 6.852     | .522  | 9.051     | .622 |
| T <sub>4</sub> Slide-Tape<br>No discussion | 6 | 7.349     | 1.158 | 8.501     | .773 |

Table 5. --Pretest and posttest variance and standard deviation of concept acquisition for all treatments combined

| Measure of Variability | Pretest | Posttest |
|------------------------|---------|----------|
| Variance               | .647    | .440     |
| S.D.                   | .805    | .663     |

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The multivariate analysis of the data is presented in Table 6.

The value of .058 was not statistically significant at the .05 level.

Hypothesis 1 was therefore not rejected.

Table 6. --Analysis of covariance of main effects between pretest and posttest of concept acquisition

| Sources | df | MS    | F     | P     |
|---------|----|-------|-------|-------|
| Between | 3  | 1.004 | 2.966 | <.058 |
| Within  | 19 | .339  |       |       |

Hypothesis 2. There will be no significant difference in concept acquisition of subjects who have used slide-audiotape stimulus media with or without a discussion component within parallel instructional systems.

Because of the interaction of stimulus media with the discussion component in the first three treatments, it was of interest to determine how much each factor was contributing to concept acquisition. Elimination of group discussion in T<sub>4</sub> (individualized instruction using slide-audiotape stimulus media) as compared with T<sub>3</sub> (group discussion slide-audiotape treatment) provided data shown in Table 7. A t-test between means for the two treatment groups on the posttest yielded a value of .992 which is not statistically significant at the .05 level.

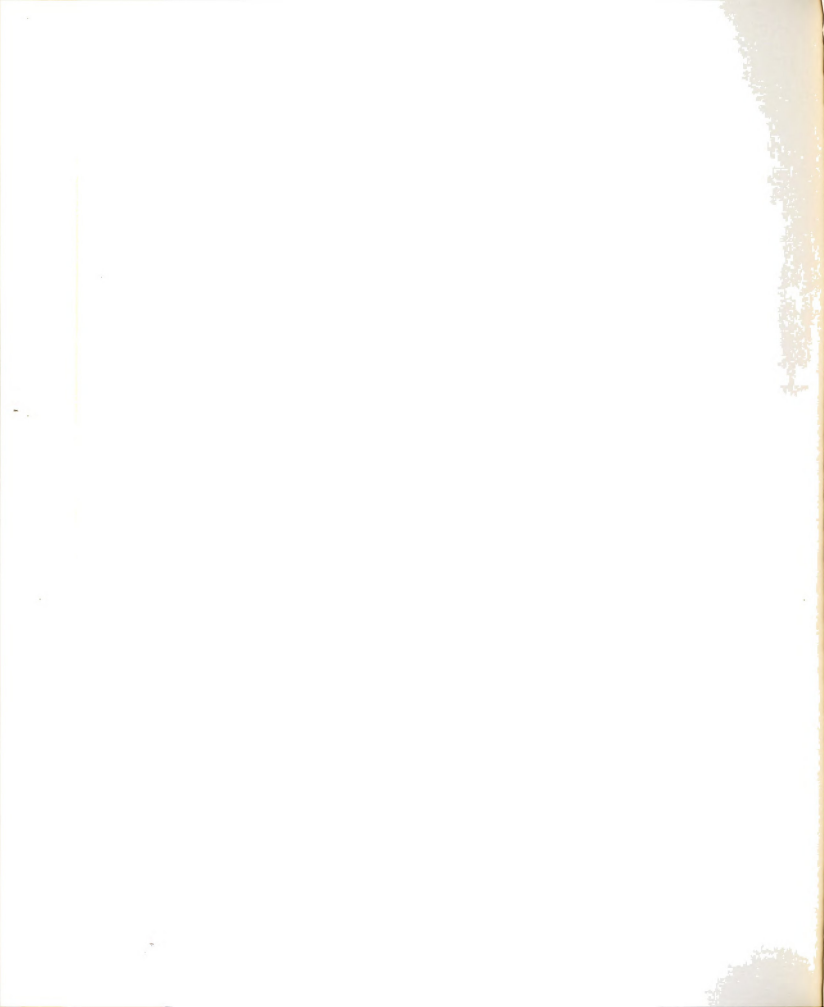


Table 7. --Pretest and posttest means and standard deviation of concept acquisition for discussion versus non-discussion treatment groups

| Treatment Groups                                | N | Pretest   |       | Posttest  |      |
|-------------------------------------------------|---|-----------|-------|-----------|------|
|                                                 |   | $\bar{X}$ | S.D.  | $\bar{X}$ | S.D. |
| T <sub>3</sub> Slide-Audiotape<br>Discussion    | 6 | 6.852     | .522  | 9.051     | .622 |
| T <sub>4</sub> Slide-Audiotape<br>No discussion | 6 | 7.349     | 1.158 | 8.501     | .773 |

In addition, a t-test was run between means of the pretest for the two treatment groups in order to verify that there were no significant entry level differences. This value was .827 which was not statistically significant at the .05 level. Hypothesis 2 was therefore not rejected.

Analysis of Data Relative to Affect  
with Respect to Concepts

The pre-assessment and post-assessment measures used to test the effect of treatment on concept acquisition also measured affect of subjects with respect to the concepts. Immediately following each cognitive discrimination of the interpersonal feedback stimulus items, subjects were directed to indicate their affective response by marking a value on each of three semantic differential scales: good-bad, unfair-fair, friendly-unfriendly. To analyze the data all scales for each stimulus item were totaled and averaged to yield that respondent's affect



quantified on a scale of -1 to +7. An analysis of variance using group means with the pretest as covariate yielded significance values which tested for difference among treatments with respect to each of the four concepts: responsible positive, responsible negative, irresponsible positive and irresponsible negative.

Hypothesis 3. There will be no significant difference in valuing interpersonal feedback concepts among subjects who have used one of three forms of stimulus media: print, 16 mm film or slide-audiotape, within parallel instructional systems.

Hypothesis 4. There will be no significant difference in valuing interpersonal feedback concepts between subjects who have used slide-audiotape stimulus media with or without a discussion component within parallel instructional systems.

Hypothesis 3 and Hypothesis 4 specifically complement each other. In the area of affect with respect to the concepts, the former considers the treatment effect of varied forms of stimulus media and the latter uses the data from one form of media, slide-audiotape, to compare treatment effect with discussion as a variable. One set of tables will therefore present the assessment. Because the affect of the subjects is concept-related in that responsible feedback should elicit a favorable affect and irresponsible feedback an unfavorable affect, it was of interest to examine the data from each concept individually.

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Table 8 presents for each treatment, the mean values indicating the affect of the subjects with respect to the concepts. If from pretest to posttest the mean value for responsible positive and negative feedback increases, and the mean value for irresponsible positive and negative feedback decreases, it could be concluded that the instruction influenced the affect of subjects in the appropriate direction. Inspection of Table 8 shows that only for the concept of responsible negative feedback was the appropriate change evidenced.

Although the staff considered the pretest and posttest items relatively equivalent in discriminations required, these results may reflect a difference in difficulty level from one test form to the other. A further breakdown of the data into the four exemplars which were identical in pretest and posttest was therefore considered. This information is presented in Table 9. The mean values for the affect of the subjects show that three of the four concepts in all treatments have an appropriate direction of change. Only the irresponsible positive item was valued less appropriately in the posttest than in the pretest.

To determine if a significant difference in learner affect with regard to valuing the concepts results from treatment, a multivariate analysis of covariance was conducted. Table 10 reports the statistical results. There was no evidence of a significant difference among the treatments. The values for the individual concepts ranged from .243 to .560 which were not statistically significant at the .05 level. Both Hypothesis 3 and Hypothesis 4 were therefore not rejected.

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Table 8. --Pretest and posttest means of affective response to the four concepts for each treatment

| Treatment Groups                                  | N | Pretest   |           |           |           | Posttest  |           |           |           |
|---------------------------------------------------|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                                   |   | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ |
|                                                   |   | Res +     | Res -     | Irr +     | Irr -     | Res +     | Res -     | Irr +     | Irr -     |
| T <sub>1</sub> Print                              | 6 | 5.907     | 4.745     | 3.016     | 3.466     | 5.386     | 4.920     | 3.683     | 3.836     |
| T <sub>2</sub> 16 mm Film                         | 6 | 5.864     | 3.310     | 3.169     | 3.471     | 5.293     | 5.112     | 3.833     | 3.941     |
| T <sub>3</sub> Slide-Audiotape                    | 6 | 5.909     | 4.574     | 3.057     | 3.553     | 5.352     | 5.089     | 3.790     | 3.799     |
| T <sub>4</sub> Slide-Audiotape<br>(No discussion) | 6 | 5.765     | 4.522     | 3.229     | 3.546     | 5.214     | 4.600     | 3.696     | 3.880     |



Table 9. --Means of affective response toward the identical pretest and posttest exemplars for each treatment

| Treatment Groups                               | N | Pretest   |           |           |           | Posttest  |           |           |           |
|------------------------------------------------|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                                |   | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ | $\bar{X}$ |
|                                                |   | Res +     | Res -     | Irr +     | Irr -     | Res +     | Res -     | Irr +     | Irr -     |
| T <sub>1</sub> Print                           | 6 | 5.541     | 3.964     | 3.145     | 4.261     | 5.627     | 4.286     | 3.367     | 3.814     |
| T <sub>2</sub> 16 mm Film                      | 6 | 5.362     | 3.629     | 3.209     | 4.380     | 5.598     | 4.561     | 3.486     | 4.223     |
| T <sub>3</sub> Slide-Auditape                  | 6 | 5.402     | 3.435     | 3.109     | 4.443     | 5.485     | 4.463     | 3.331     | 3.651     |
| T <sub>4</sub> Slide-Auditape<br>No discussion | 6 | 5.435     | 3.590     | 3.319     | 4.295     | 5.508     | 4.048     | 3.553     | 3.939     |



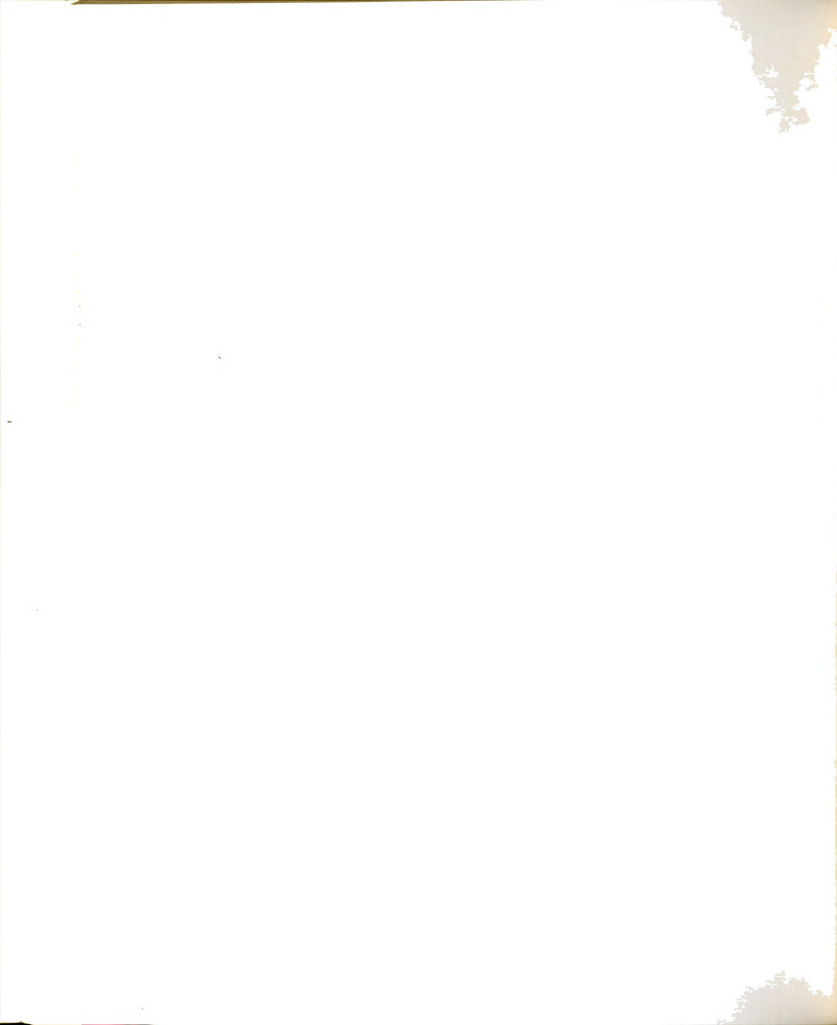
Table 10. -- F-ratio for multivariate test of equality of means of treatment groups with pretest covariates and posttest items

| Concept                | df      |        | F     | P     |
|------------------------|---------|--------|-------|-------|
|                        | Between | Within |       |       |
| Responsible Positive   | 9       | 36.657 | .922  | <.518 |
| Responsible Negative   | 9       | 36.657 | .870  | <.560 |
| Irresponsible Positive | 9       | 39.090 | .926  | <.512 |
| Irresponsible Negative | 9       | 34.223 | 1.363 | <.243 |

Analysis of Data Relative to Attitude  
Toward Mode of Instruction

The third aspect of this study was to investigate the effect of treatment on attitude toward mode of instruction. The Protocol Materials Questionnaire was the dependent measure used to compare impressions of and reactions to the variables of the instructional program. Seven semantic differential items pertaining to mode of instruction were embedded in the fifteen-item instrument designed by the Education 200 course staff. All bipolar descriptors on a scale of -1 to +7 were adjusted to that scale before computation of the variance. An analysis of variance tested the effects of treatment on learner attitude.

After collection of the post-instruction questionnaire data, it was noted that response sheets from one group of the film treatment had been lost. Throughout the analysis,  $T_2$  therefore has an N equal to five.





Hypothesis 5. There will be no significant difference in attitude toward mode of instruction among subjects who have used one of three forms of stimulus media: print, 16 mm film or slide-audiotape, within parallel instructional systems.

Hypothesis 6. There will be no significant difference in attitude toward mode of instruction between subjects who have used slide-audiotape stimulus media with or without a discussion component within parallel instructional systems.

The means and standard deviations for each item reflecting attitude toward aspects of the instructional program is presented in Table 11. By inspection, it may be observed that for most scales, a narrow range is maintained across treatments.

The five items which had the same valuing scale of minimum one to maximum seven were combined to compare attitude of subjects by treatment. In addition, it is of interest to note that for item 9, on a scale with the midpoint as the ideal, subjects in all treatments (even those who used the materials in a non-discussion, self-paced system) indicated over-instruction. Item 15 shows that subjects having experienced discussion in their treatment do not regard it as a more essential component than subjects not having experienced it.



Table 11. --Means and standard deviations of attitudes toward variables of instruction for each treatment

| Item                     | T <sub>1</sub> Print |       | T <sub>2</sub> 16 mm Film |      | T <sub>3</sub> Slide-Tape |       | T <sub>4</sub> S-T No D. |       | All Treatments |       |
|--------------------------|----------------------|-------|---------------------------|------|---------------------------|-------|--------------------------|-------|----------------|-------|
|                          | $\bar{X}$            | S.D.  | $\bar{X}$                 | S.D. | $\bar{X}$                 | S.D.  | $\bar{X}$                | S.D.  | Var.           | S.D.  |
| 4 Clear Objectives       | 5.821                | .264  | 5.766                     | .254 | 5.710                     | .294  | 5.879                    | .302  | .079           | .281  |
| 5 Helpful Overview       | 5.078                | .876  | 5.326                     | .327 | 5.226                     | .532  | 5.481                    | .470  | .357           | .598  |
| 6 Interesting Activities | 4.160                | .986  | 4.584                     | .676 | 3.985                     | .740  | 4.948                    | .624  | .598           | .774  |
| 7 Ease in Learning       | 4.707                | .506  | 4.778                     | .254 | 4.927                     | .547  | 4.923                    | .527  | .233           | .482  |
| 11 Fairness of Posttest  | 5.601                | .418  | 5.478                     | .489 | 5.561                     | .609  | 5.779                    | .489  | .257           | .429  |
| Combined Items Above     | 5.073                | 2.382 | 5.187                     | .945 | 5.082                     | 1.256 | 5.402                    | 1.683 | 2.841          | 1.686 |
| 9 Amount of Instruction* | 5.029                | .714  | 5.146                     | .618 | 5.683                     | .285  | 4.778                    | .353  | .269           | .519  |
| 15 Value of Discussion** | 5.597                | .634  | 6.013                     | .474 | 5.902                     | .554  | 5.391                    | .604  | .330           | .574  |

\* Scale = 1, too little; 7, too much

\*\* Scale = 1, non-essential; 7, essential; T<sub>4</sub> did not experience discussion



Using the combined item values as the comparison, an analysis of variance tested the effects of treatment on the attitude of subjects toward mode of instruction as presented in Table 12. The value of .325 was not statistically significant at the .05 level. Hypotheses 5 and 6 were therefore not rejected.

Table 12. --Analysis of variance of attitudes toward modes of instruction

| Sources | df | MS    | F     | P      |
|---------|----|-------|-------|--------|
| Between | 3  | 3.506 | 1.234 | < .325 |
| Within  | 19 | 2.841 |       |        |

#### Summary of Findings

The study investigated six hypotheses in three areas of interest: concept acquisition, affect with respect to the concepts and attitude toward mode of instruction. The natural setting of undergraduate university classes of students enrolled in a basic education course was used for collection of data.

Treatments varied either the type of stimulus media: print, 16 mm film and slide-audiotape, or use of discussion. Dependent measures were pretests and posttests to assess cognitive and affective learning and a questionnaire to assess attitude toward mode of instruction. An analysis of the findings was conducted to determine the differential treatment effect on each dependent variable.

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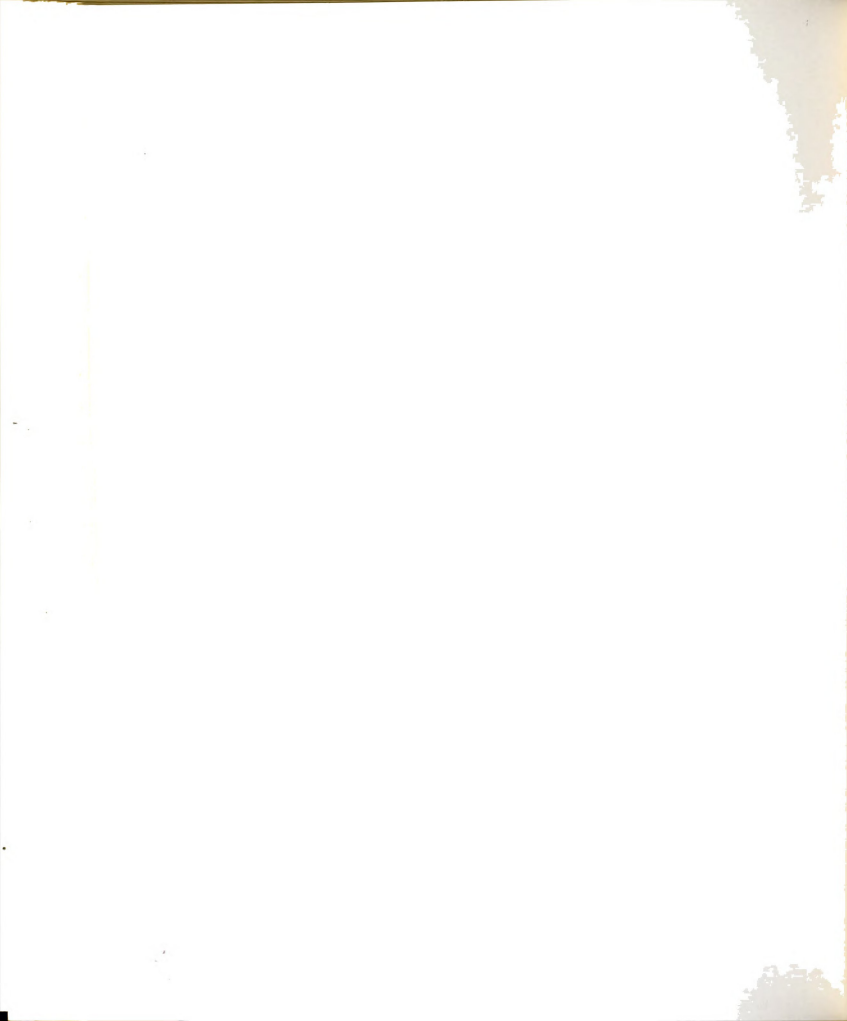
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There was no statistically significant difference in the measured results due to dependent variables of the instruction. The six hypotheses were not rejected. Discussion of these findings in relation to the research literature is contained in the following chapter.





## CHAPTER V

### DISCUSSION OF RESULTS AND RECOMMENDATIONS

In the first section of this chapter, the results of the investigation are discussed in the same sequence as the presentation of tested hypotheses. Implications of the findings in relation to the research literature are then developed. From the synthesis, recommendations for further study constitute the concluding section.

#### Research Results

The primary thrust of the study was twofold: (1) to determine if print, 16 mm film and slide-audiotape stimulus media are differentially effective for instruction in concept acquisition and valuing of the concepts and (2) to examine the effect of excluding a discussion component from learner interaction with identical stimulus media. A secondary concern was the question of learner attitude toward mode of instruction as these variables were manipulated.

Six hypotheses were formulated to test whether there were significant differences between the treatments on any of the points investigated. No significant differences were found; therefore, none of the hypotheses could be rejected.

All data were collected in the natural learning environment. It was recognized that the level of control of interactive variables within



an actual instructional experience would restrict generalizations of conclusions. This was not considered as problematic as generating a large amount of information inapplicable to real world instructional conditions.

A review of the literature discloses that results of laboratory investigations have frequently been contrary to results of similar inquiries in a natural setting. To ascertain which approach has the more reliable data is very difficult. It appears that many research designs which satisfy requirements of statistical models violate the instructional treatment to the extent that application of the findings is of little or no value to practitioners. On the other hand, a lack of control over a large number of variables makes the utility of the research just as dubious. This study was designed to satisfy both the approximation of instructional conditions in which the stimulus media would be utilized and the controls needed for a reliable statistical analysis of the variables.

### Concept Acquisition

The instruments which measured concept acquisition were designed with the same presentation format as the stimulus situations in the instructional program. The pretest and posttest were logically equivalent forms in that four items were identical and the remaining eight items were of approximately matched difficulty. No reliability or validity data for the evaluation instruments were necessary

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for a comparison of the treatments. The intent of the investigation was not to evaluate the instructional program, but to determine which treatment of the instructional program was relatively most effective. The quality of the pretest and posttest affected each treatment equally, which cancelled out any effects of weaknesses in test construction or variance in difficulty level between tests. The pretest was used as a covariate with the posttest to control for entry level differences of the subjects.

Assessment instruments. In designing the cognitive assessment instruments, the decision to use 16 mm film for presentation of the stimulus situations was based on the premise that the closer the test mirrors the manner in which the application of knowledge will be made in real life, the more accurate the assessment. Of the possible test formats, 16 mm motion film vignettes in color with sound most closely replicate interpersonal communication in the natural environment.

Because this study was specifically concerned with comparing effectiveness of varied types of stimulus media in an instructional program, the selection of one of the treatment media for use in the testing instruments raises important questions regarding practice effect and transfer of training. Although subjects in all treatments experienced the twelve filmed vignettes in the pretest, the film treatment had the advantage of twenty-six additional practice items in exactly the same format as the expected posttest performance. Conversely, subjects in the print treatment did not practice with natural

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spacing of the dialogue as required by the posttest, the slide-audiotape (T<sub>3</sub>) treatment had no practice with non-verbal cues portrayed in the motion film and the slide-audiotape (T<sub>4</sub>) individualized treatment had unlimited opportunities for review. However, a comparison of the cognitive and affective posttest means with the posttest means adjusted for the pretest means does not indicate a practice effect for subjects in the film treatment. An explanation for this fact may be that the small number of testing items did not exclude a possible ceiling effect. Subjects whose entry level of competence was high had no opportunity to demonstrate greater proficiency after instruction.

The decision to test with filmed vignettes was based on the assumption that if the stimulus media were but one part of a structured sequence of instruction common to all treatments, any practice effect would be of minor concern. It was considered more important for the ultimate comparison of effectiveness, to use the test format most closely approximating the environment in which the learning would be applied (Ellison, 1973).

Learning styles. In selecting a sample population with a modal age of twenty-one years, the results of this investigation extend evaluative comparative studies to adults who have been exposed to frequent and varied visual learning experiences throughout their lifetime. The comparisons in this study, therefore, should not be confounded with motivational effects inherent in the novelty of using non-print materials, as was the case in many earlier investigations.

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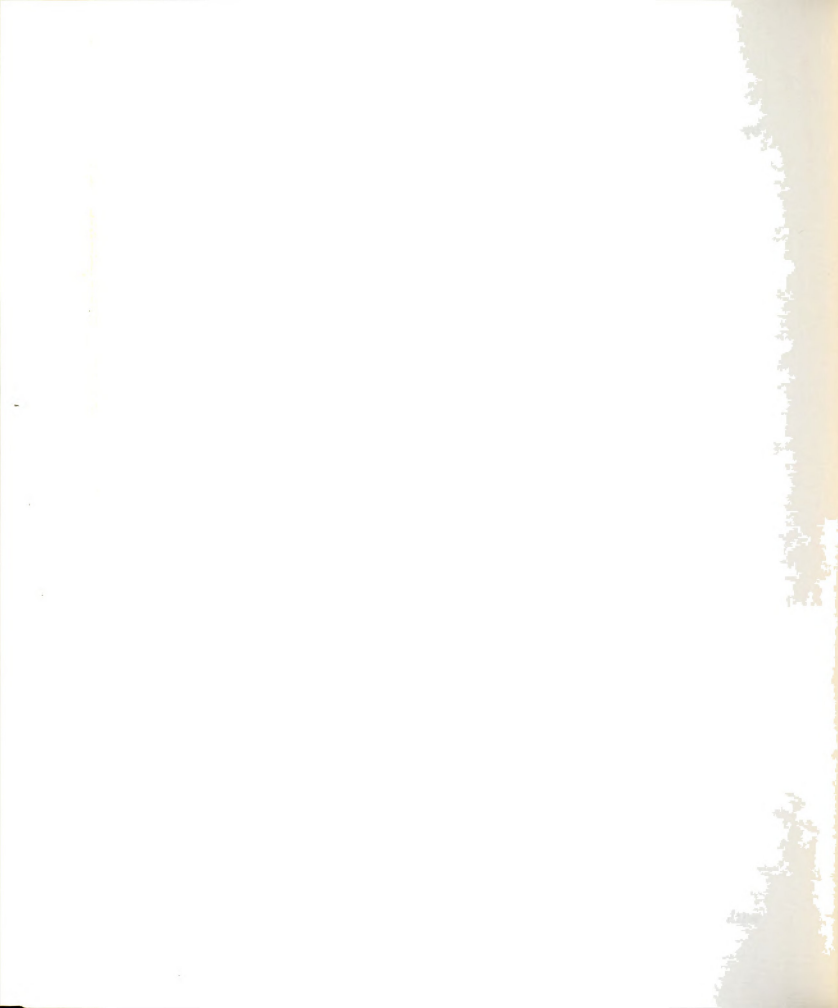
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It does, however, bring into focus another variable discussed by Hill and Nunney (1971) in their report of "Cognitive Style Mapping" of college age students. Many students show decided individual preferences in learning style which have been established in prior learning environments. This preference becomes an important consideration in comparative effectiveness studies which involve random assignment of varied forms of mediated instruction to subjects. It is apparent that unless subjects are independent learners in each treatment group, individual differences which may exist are masked by the need to obtain a statistical mean of assessment scores to compare treatment effect. As this procedure essentially averages student learning preferences also, that variable cannot be measured in the study as designed. It would be of interest to repeat the investigation using students grouped in such a way that learning style preference would match the treatment to see if a significant difference in achievement would then be found. Increasing attention is being given to aptitude-treatment interaction (ATI) and trait-treatment interaction (TTI) research to discover the feasible interrelationships between the characteristics of learners and the way media are designed or the kind of media used (Allen, 1976).

Variables between versus within media. Many reviews of investigations have questioned whether the variables influencing the results of comparative studies were, in fact, between the media rather than within the media. In this study, to insure a true comparison, the



stimulus situations were presented through identical verbal interaction within the media with an identical overview and student guidebook to control presentation. In this respect, the results reflect no significant difference in effectiveness of the varied stimulus media.

Instructor effect. The design of the study required the use of class setting which involved a number of instructors with varied teaching styles in the administration of the treatments. Control of instructor effect was accomplished in two ways: (1) by integration of an overview paper and student guidebook with the stimulus media as a basis for presentation of the instructional program and (2) by using identical stimulus media in two treatments (T<sub>3</sub> and T<sub>4</sub>) while one (T<sub>4</sub>) eliminated the discussion component. Results of the discussion treatments versus the non-discussion treatment showed no significant difference in concept acquisition. This may have been due to the discussions raising questions concerning the rationale rather than clarifying and reinforcing the correct responses. Also, there may have been a ceiling effect on all treatments due to the small number of test items.

#### Valuing with Respect to the Concepts

The primary purpose of this study was to determine differential treatment effects regarding the cognitive objectives and related affective objectives attained by the subjects who used the instructional program. It was expected that appropriate valuing with respect to the concept would increase together with the ability of the subject to recognize and



correctly label instances of four feedback concepts in interpersonal encounters.

Assessment instruments. The semantic differential technique of Osgood et al.(1957) was used to measure generalized attitudes toward the feedback concepts. Three 7-point rating scales of bipolar adjective pairs were averaged to obtain a quantitative measure of the respondee's affect relative to each of the concept exemplars viewed.

Although the total number of correct responses to cognitive items increased from pretest to posttest for all treatments, only for one type of exemplar, responsible negative feedback, did the affective scales show a more appropriate valuing with respect to the concept. There was a consonant but not equal change in these attitude scores from pretest to posttest for groups in all treatments.

The failure of the assessment instruments to show appropriate valuing of the concepts may be due to an increased difficulty level of the posttest exemplars. A comparison of the total scores for affective scales for each concept with scores from each of the four identical pretest and posttest items show a more appropriate valuing by subjects in all treatments for three of the four concepts. Reliability and validity data of the assessment instruments would be of interest to clarify this point further; however, such data are beyond the scope of this study.

Instructional program and testing. Recognition of the critical attributes of a concept is logically the initial step in concept learning.

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With instruction, subjects showed improved ability to identify feedback concepts using the critical attributes given in the instructional program as referents. However, this cognitive process may have led to over-analysis of the diverse affective elements inherent in the exemplars which were then confused with the affective response with respect to the concept.

During the staff meetings held during the administration of the treatments, instructors reported that many students lost their initial confidence in labeling the concept exemplars and in trusting their affective response as to whether the feedback was good-bad, fair-unfair, friendly-unfriendly. It appeared that, as awareness of the complexity of interpersonal communication increased, attempts to find hidden meanings in the dialogue of the feedback instances clouded the concepts represented. These observations agree with earlier research studies which support control of cues for clarity rather than use of realism in exemplars for introductory tasks in higher-order cognitive learning experiences (Dwyer, 1973) and the importance of practice for internalizing concepts (Luchins, 1961).

In informal observations, instructors also noted the tendency of subjects to over-analyze the communication instances of the posttest. Compared with naive students, those who had completed the program found the allotted time less adequate for responding. As the complexity of the exemplars was perceived differently, the subjective difficulty level of the posttest appeared to increase.





Analysis of student responses to the three items of the post-instruction questionnaire pertinent to the program design indicated very little dissatisfaction on the part of learners. On a 7-point bipolar scale, mean responses for each treatment showed a positive or nearly neutral attitude position; there was little variation in response among subjects in each treatment as is shown in Table 13.

Table 13. --Post-instruction questionnaire items on program design with mean responses and standard deviations for all treatments

| Item | Item Stem and Scale                                                                                        | Mean Response<br>for all Ts | S. D. |
|------|------------------------------------------------------------------------------------------------------------|-----------------------------|-------|
| 7    | Learning of the feedback<br>concepts were:<br>difficult--easy                                              | 4.834                       | .482  |
| 9    | The amount of instruction<br>(including practice) on the<br>feedback concepts was:<br>too little--too much | 5.159                       | .519  |
| 11   | The post-evaluation (film)<br>was:<br>unfair--fair                                                         | 5.605                       | .429  |

Of special interest are the responses to items 9 and 11. As shown in the average response to item 9, subjects felt that there was too much rather than too little instruction on the feedback concepts. Although all treatments interacted with the same instructional materials, the self-paced, non-discussion groups reported slightly greater satisfaction



with the amount of instruction. The mean value for  $T_4$  was 4.778 as compared with a mean of 5.286 for the discussion treatments which was not significantly different. This result supports research which found psychological value in self-paced versus group methods of instruction although there is no significant difference in the average achievement per group.

It should be noted that in comparing cognitive achievement, this study showed greater variation in scores in the individualized treatment than in those of the group treatments. This factor should be considered in comparing average scores. The greater range may indicate lower achievement of subjects unable to work independently or a freeing experience for students who prefer self-pacing. An examination of individual scores correlated with ability and learning styles is a logical progression of this study.

Comparison of treatment means of the ratings for item 11 indicated attitude of subjects toward the "fairness" of the filmed posttest. The film treatment ( $T_2$ ) had a slightly lower mean rating than the other treatments for that item (see Table 11). It would seem that subjects who used film for both instruction and testing would perceive the test as fairer compared with subjects who did not have the opportunity to view practice vignettes in motion film format. An explanation for the result may be that since all item ratings clustered around the mid-point of the scale, this item reflects a response pattern rather than careful consideration of the question by the subjects.



The results of this study did not confirm theoretical assumptions that testing by mode different from the instruction will adversely affect general achievement. Inspection of Table 4 shows that subjects in the film treatment did not attain the highest treatment mean for concept acquisition although they had practice instruction using the same mode of presentation as the posttest. Further testing would be necessary to determine if this finding would also be true for long-term retention or transfer of knowledge to practical situations.

Discussion factor. In an instructional system which included printed feedback rationale for correct responses to student interaction with the program, it was not anticipated that the discussion component would be a significant factor in cognitive achievement. However, it was expected that the opportunity to discuss the concepts among peers and with an instructor experienced in interpersonal communication skills would have some effect on the valuing of the concepts being discussed. Contrary to the anticipated effect, discussions which raised questions regarding the rationale appeared to be a source of confusion rather than a reinforcement for appropriate valuing of the concepts.

The results of the study showed that in the three week span of the program, there was no significant difference between treatments in the valuing of the concepts by subjects. Data from the posttest attitude scales did indicate an increase in appropriate valuing anticipated in the discussion treatments. For only one of the four concept items,



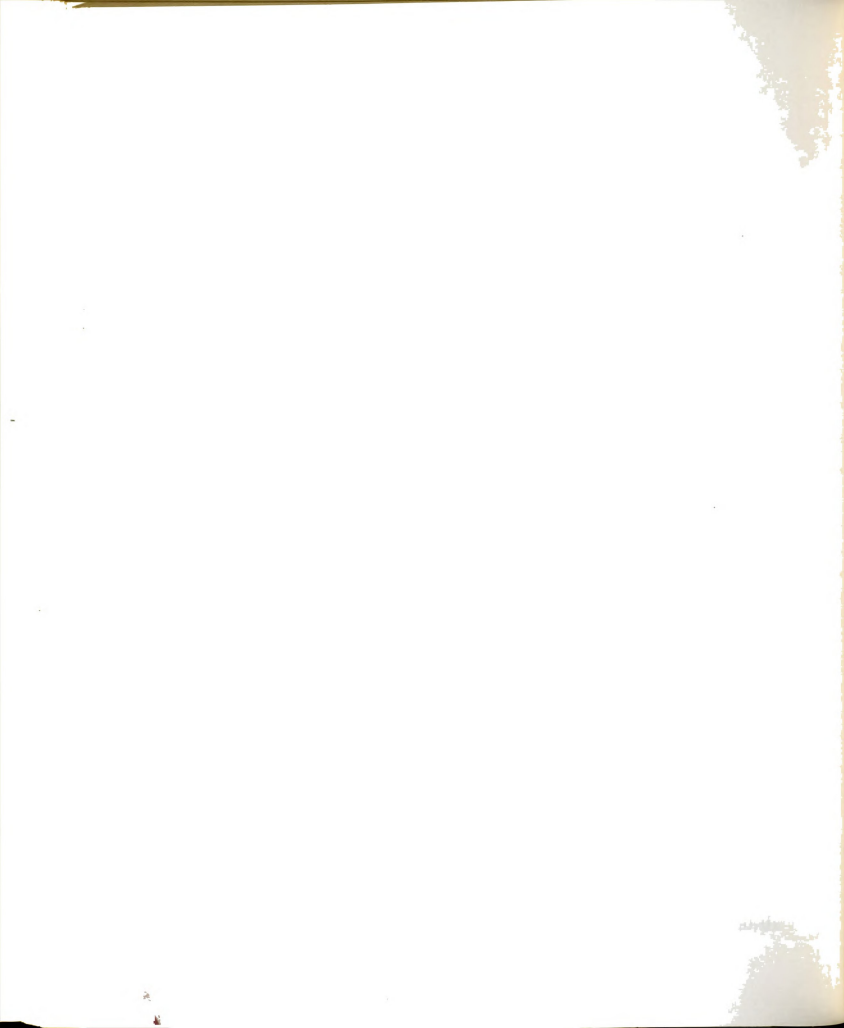
responsible negative feedback, did the non-discussion treatment (T<sub>4</sub>) attain a more suitable attitude rating than the discussion treatments (see Table 8). In all comparisons of affective responses to the four concepts, the mean ratings for the treatments showed no strong positive or negative feelings on any of the given scales.

Item 15 of the post-instruction questionnaire sought to determine how subjects would rank group discussion as a factor in learning the feedback concepts. A scale of 1 to 7 ranged responses from non-essential to essential. The non-discussion treatment had a mean value of 5.391 with a standard deviation of .604 while the discussion groups average a mean of 5.837 with a standard deviation of .554. Although subjects in T<sub>4</sub> were answering the question from a different experience base than the other subjects, it is interesting to note how similar the responses were. Perhaps this reflects a generalization from past experiences rather than a reaction to this instructional program only.

#### Attitude toward Mode of Instruction

Learning style preferences and other characteristics of the subjects were assumed to be randomly distributed in all treatments due to the sampling method used. If differences between attitudes toward mode of instruction were evidenced, the cause would be related to the treatment variables.

There was no significant difference between treatments in attitude of subjects toward the mode of instruction as shown in response





to relevant items of the post-instruction questionnaire. Four of these items were discussed previously; data are presented in Table 14 for the remaining three items which deal with organization and motivation.

Table 14. --Post-instruction questionnaire items on organization and motivation with mean responses and standard deviations for all treatments

| Item | Item Stem and Scale                                                                                       | Mean Response<br>for all Ts | S. D. |
|------|-----------------------------------------------------------------------------------------------------------|-----------------------------|-------|
| 4    | The objectives for the instruction on interpersonal feedback were:<br>unclear--clear                      | 5.794                       | .281  |
| 5    | The organization of the overview for the instruction on interpersonal feedback was:<br>unhelpful--helpful | 5.278                       | .598  |
| 6    | The instructional activities were:<br>uninteresting--interesting                                          | 4.419                       | .774  |

Compared with the mean responses for all treatments, an inspection of Table 11 shows that subjects in the self-paced, non-discussion treatment did not rate the three items less favorably than did the subjects in treatments having a discussion component. It should be remembered, however, in reviewing the above information that subjects in all treatments had a group session directed by the interpersonal process laboratory instructor to discuss the objectives, the overview of the instructional program and the mode of instruction



to be used. In this respect, the non-discussion group did not interact with the materials in a totally independent learning experience. The objectives and the overview were also given to all subjects in printed form, to minimize difference in quality of the initial presentation session. These factors tended to decrease the treatment differences in the orientation of the subjects to the instructional program as rated in items 4 and 5.

#### Student Evaluation of Instructional Materials

The seven items which reflected attitude of subjects toward mode of instruction previously discussed as the post-instruction questionnaire were embedded in a fifteen item instrument, Protocol Materials Questionnaire (see Appendix G). Three questions collected personal data about the subjects: sex, age and previous formal instruction on use of feedback concepts in interpersonal communication. This information was discussed in Chapter III. Four of the remaining items were intended for use in formative evaluation of the design and production quality of the instructional program.

Of the items which assessed learner perception of the quality of the stimulus media, one (item 8), was found to be ambiguous and was therefore deleted from the analysis. Each of the other three factors were rated on the positive side of the seven-point bipolar attitude scale by subjects in all treatments. Standard deviations of responses were consistently small as Table 15 exhibits.



Table 15. --Post-instruction questionnaire items on quality of the stimulus media with mean response and standard deviations for all treatments

| Item | Item Stem and Scale                                                           | Mean Response<br>for all Ts | S. D. |
|------|-------------------------------------------------------------------------------|-----------------------------|-------|
| 12   | The situations selected for the vignettes were:<br>inappropriate--appropriate | 5.495                       | .527  |
| 13   | The sound quality of the films or slide-tapes was:<br>poor--good              | 6.048                       | .567  |
| 14   | The visual representation in the films was:<br>poor--good                     | 6.078                       | .405  |

There was no significant difference in the responses between treatments.

The range of scores showed uniformly high ratings with 5.319 as the lowest average rating of any treatment for any item.

The research literature is in general agreement that quality in the production of mediated instruction is not an important factor in achievement level until the inadequacies of the materials become distracting or confusing to the learner. The concern of this aspect of the study was, therefore, not to determine if the stimulus media were of the highest possible quality, but to assess that the quality of the films and slide-audiotapes would not affect learning differentially from the equivalent printed stimulus materials. The results of the questionnaire did not indicate that subjects in any treatment reacted negatively to the methods of presenting the stimulus situations.

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The literature related to this study was also in general agreement that the amount learned is directly related to the learner's perception of the value of the instructional content. Item 10 sought to determine if there were a differential treatment effect on subjects valuing a knowledge of these concepts of interpersonal feedback in dealing with others. Ratings of the items showed no significant difference between treatments. The F value was .769 with  $p < .393$ . The mean for the treatments was 6.238 with a S.D. of .435. The subjects' perception of the value of the instructional content had a positive but not differential influence on learning the concepts.

#### Informal Observations

Careful monitoring of the carrel room yielded information of interest regarding time used for the individualized instructional program. Students were encouraged to use the guidebooks and stimulus media with as much repetition as necessary to understand the concepts presented. There was no restriction on number or length of carrel reservation times. The range of student interaction with the materials in the carrel setting totaled 60 minutes to 205 minutes with a mean of 112 minutes for students in the treatment. In comparison, an average of 220 minutes was spent in formal class time for all treatments which included the discussion component. The dependent measures showed that the individualized approach was more efficient as well as equally effective for cognitive and affective learning of these concepts.





In general, informal comments by instructors in the staff sessions revealed negative attitudes toward the program because it required use of interpersonal laboratory time formerly controlled by the instructor. Some of the staff expressed the concern that group cohesiveness would deteriorate in proportion to the length of time the natural progression of their IPL group activities were interrupted. This resistance to the parameters of the experimental program was an unmeasured instructor variable in the administration of the various treatments.

### Summary and Conclusions

The major endeavor of this study was to determine if varied stimulus media in equivalent instructional systems were differentially effective for concept acquisition or appropriate valuing of the concepts by the learner. The second objective was to investigate possible differences in learning due to varied types of student interaction with identical stimulus media in parallel instructional systems. It was also of interest to examine student attitude toward the modes of instruction generated by manipulation of the variables.

The following conclusions were drawn from the analysis of the data gathered during the investigation.

1. Within equivalent instructional systems there was no significant difference in concept acquisition, appropriate valuing with respect to the concepts or attitude toward mode of instruction among subjects who used print, 16 mm film or slide-audiotape stimulus media.



2. There was no significant difference in concept acquisition, appropriate valuing with respect to the concepts or attitude toward mode of instruction between subjects who used identical stimulus media with or without a discussion component within parallel instructional systems.

In addition, it was noted that self-paced, non-discussion instruction was more efficient per unit of time in formal study while equally effective for cognitive and affective learning.

### Generalizations

The review of literature related to this study reflects contradictory research results in reports of analogous studies in several areas. Detailed analysis of many of these investigations reveals vaguely defined research procedures and uncertain levels of control over variables in widely differing instructional systems. The overall value of reported results is frequently qualitative rather than quantitative.

This investigation was therefore designed to provide data for a multivariate statistical analysis of the effects of defined dependent variables in the treatments while holding constant other aspects central to the system. These controlled variables included: structure and sequence of the instruction; technical quality of visuals and sound, where applicable; verbal interaction of the stimulus situations; time of the total instructional program and time for formal study, where applicable; assessment instruments and conditions of administration.

1000  
-5000  
100

Stimulus media used in the investigation were simultaneously developed under the direction of staff members who had prepared the conceptual framework of instruction. This staff also trained and supervised the instructors who administered the treatments within the natural learning environment of their class sections. These specifications for the instructional system provided a base for generalizations to college learners. Although use of a sample population drawn from the enrollment of one course in one university is a major limitation to this generalizability, it is somewhat offset by the large number of subjects involved in each treatment. When the parameters of the inquiry prohibit formal generalizations, the implications have raised questions for related research studies from which further generalizations might ensue.

The findings of this investigation suggest limited generalizations in terms of application to analogous populations.

1. Use of equivalent forms of stimulus media incorporated in an instructional system does not have a differential effect on the group mean achievement of learners either in concept acquisition or appropriate affect with respect to the concepts.
2. The group mean of learner attitudes toward mode of instruction shows no significant difference among those who have used equivalent forms of stimulus media incorporated in an instructional system.
3. If answers with rationale are available for self-assessment by learners and the total instructional time available is equal, addition of teacher-directed discussion of exemplars does not differentially affect the group mean achievement of learners either in concept acquisition or appropriate affect with respect to the concepts.



4. The group mean of learner attitudes shows no significant difference toward instructor-pacing of slide-audiotape stimulus media with an accompanying discussion versus self-pacing of the stimulus media without a discussion component.

5. If the instructional systems are equivalent or parallel, there is no significant difference in group mean achievement of learners who have used practice exemplars in the same stimulus medium as that used in the posttest as compared with learners who practiced with mediated exemplars differing from the posttest.

As the planning for administration of the treatments for this study progressed, questions arose which were of special concern in defining variables and clarifying conditions under which data would be gathered and interpreted. Having reviewed the related literature, the researcher inferred from many of the reports that not all of these questions had been adequately considered in prior investigations. Further, due to the complexity of the learning process, it is impossible to isolate totally the interacting variables while attempting to attribute specific learning effects to each variable defined for analysis. This is a prime reason for the divergent conclusions drawn from studies exploring the same stated problems.

The development of multivariate analysis techniques has provided a means of interpreting with much greater accuracy the data generated by research designs dealing with instructional systems. The findings of this study are therefore important not only for the information which can be generalized, but also for the implications and recommendations for future research perceived during an in-depth review of the data in the light of earlier research designs and conclusions.

100  
100  
100



### Implications and Recommendations for Future Research

Given these findings it appears that students achieve the cognitive objectives of instruction to the same level and have relatively the same attitudes toward the mode of instruction regardless of the type of media used, control of pacing, discussion opportunities, or consistency of testing mode with practice mode during the formal learning program. Because these data were collected from groups in which learners were not independent of one another, the group mean was the unit of analysis. These results are, therefore, of special interest in improving mediated instruction in natural group settings.

Although the study found no significant difference in treatment effects, some elements might be further examined to investigate a possible depression of differences. These factors include ceiling effect, time available for internalization of learning, group dynamics and instructor skills in leading discussion, interaction of individual traits and learning preferences with treatment.

Only after a series of mosaic-like studies provide data on each component of the instructional system involved, will comparative studies yield information needed by the instructional designer and the practitioner. Such investigations remain the challenge of future research.

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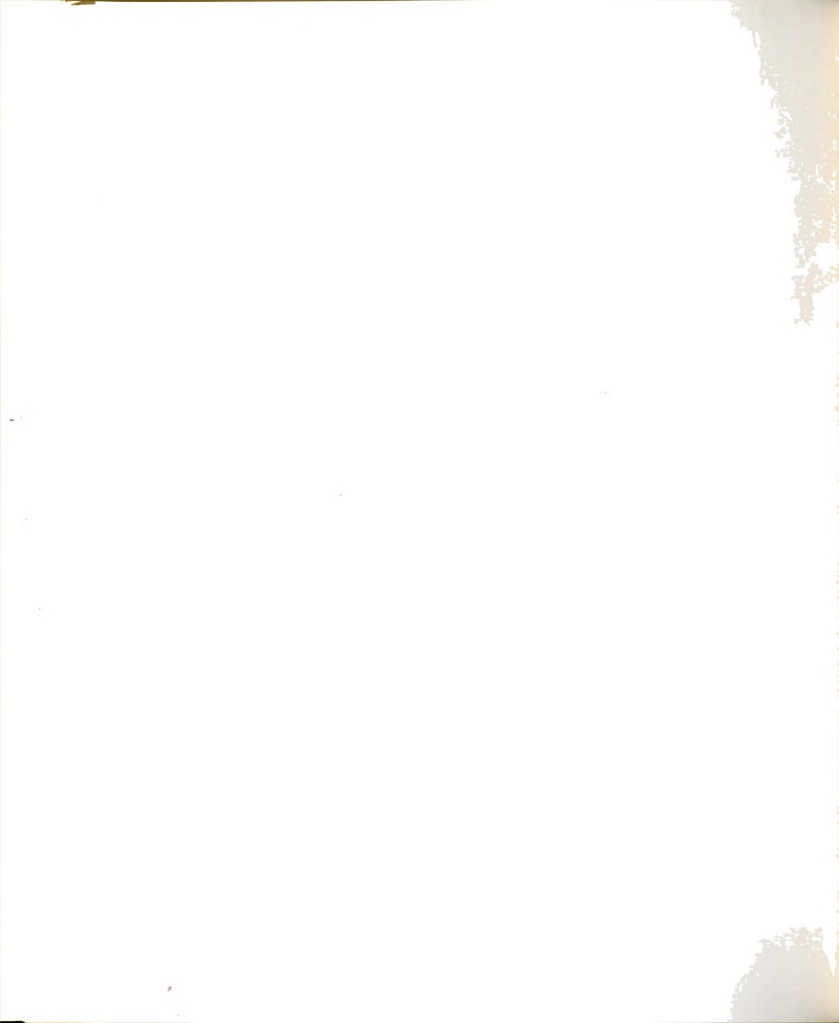
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## APPENDICES



APPENDIX A

SUMMARY OF FEEDBACK CONCEPTS  
IN OVERVIEW PAPER



## SUMMARY OF RESPONSIBLE AND IRRESPONSIBLE FEEDBACK

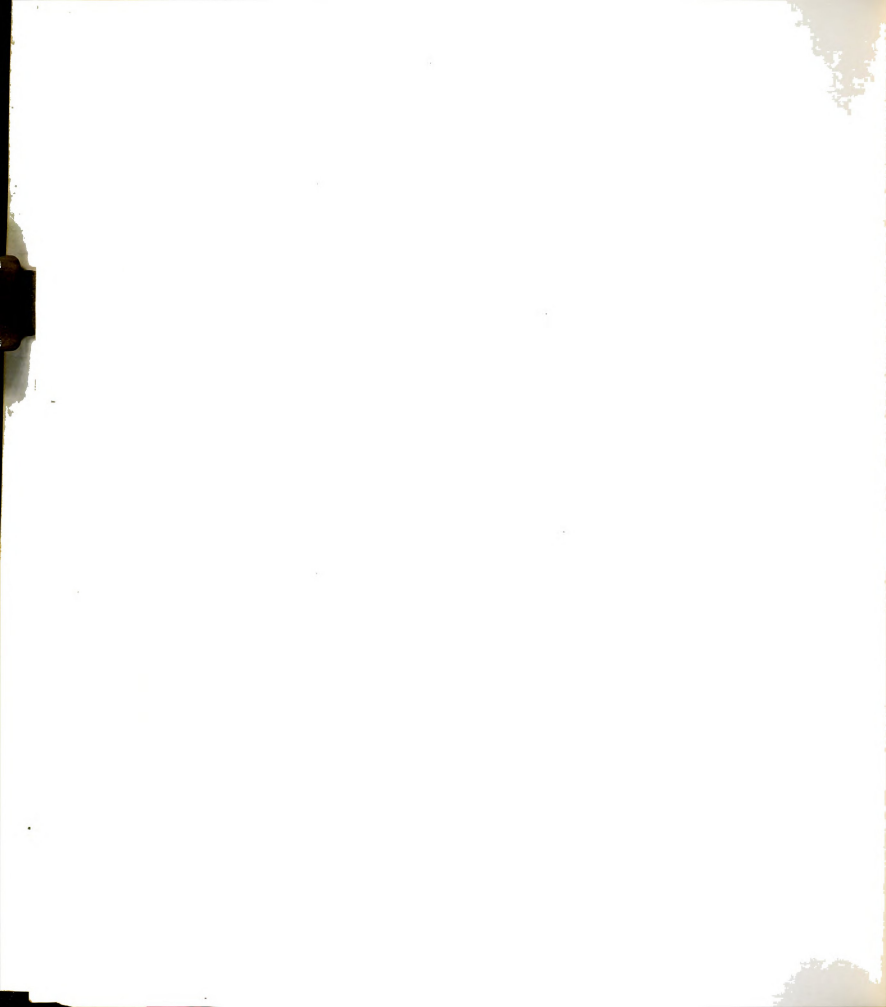
Feedback statements are considered responsible if they are judged both HELPFUL and SKILLFUL.

In order for feedback to be HELPFUL, it is necessary that the stimulus behavior can be changed and should be changed. In other words, if the following questions can be answered "yes" about any piece of feedback, it is judged as HELPFUL:

1. Can the stimulus behavior be changed? (i.e., Is the feedback directed toward a behavior which the receiver can potentially modify--increase, decrease, or eliminate?)
2. Is the behavior change, as encouraged by the sender, directed toward modifying behavior that would have growth-producing consequences for the receiver--consequences whose long-term effect would increase the probability for successful adaptation to the receiver's environment?

In order for feedback to be SKILLFUL, it is necessary that it be both specific and timely.

1. Both of the following questions must be answered "yes" for the feedback statements to be judged specific: Is the stimulus behavior specifically referred to by the sender? (As opposed to general feedback statements such as "I just don't think we get along very well," or "You're always bugging me.") and; Does the feedback deal directly with the stimulus behavior? (Rather than taking the focus off the behavior and onto the person such as, "There's just something about you, I'm not sure what it is, but . . .").
2. One primary question must be answered "yes" in order for the feedback to be considered timely: Is the feedback given at an appropriate time for the receiver? To answer this,





one asks oneself such questions as: Is the environment conducive to receptivity? Is the receiver as physically at ease as possible? Does the receiver appear psychologically able to receive the feedback?

Beyond these two necessary conditions of specificity and timeliness, there are additional interpersonal skills which, if utilized by the sender, will enhance the probability of a productive interaction between the sender and the receiver of the feedback. The more interpersonal skills the sender is able to use, the more likely the receiver will be "receptive" to the feedback. The following interpersonal skills are recommended for highly skillful feedback:

Consequences of stimulus behavior made explicit  
Reason for giving feedback made explicit  
Sender's feelings described  
Verbal/non-verbal messages are consistent  
Verbal/non-verbal messages connote acceptance  
Constructive alternatives suggested  
Willingness to follow through stated

Feedback statements are considered irresponsible when they lack any of the conditions described as necessary for HELPFUL and SKILLFUL feedback.

I have now described the basic elements we consider when distinguishing whether an interpersonal message represents an instance of: (1) Responsible Positive Feedback, (2) Responsible Negative Feedback, (3) Irresponsible Positive Feedback, or (4) Irresponsible Negative Feedback. We make our distinctions as follows:

Responsible Positive Feedback is feedback that:

- (1) shows approval and/or support of the stimulus behavior and
- (2) is responsible in that the feedback is both helpful and skillful.



Responsible Negative Feedback is feedback that:

- (1) is negative in that it shows disapproval of the stimulus behavior and
- (2) is responsible in that the feedback is both helpful and skillful.

Irresponsible Positive Feedback is feedback that:

- (1) is positive in that it shows approval and/or support of the stimulus behavior and
- (2) is irresponsible in that the feedback is not helpful and/or not skillful.

Irresponsible Negative Feedback is feedback that:

- (1) is negative in that it shows disapproval of the stimulus behavior and
- (2) is irresponsible in that the feedback is not helpful and/or not skillful.



APPENDIX B

TABLE OF CONTENTS, DIRECTIONS AND  
SAMPLE EXERCISES TAKEN FROM  
THE STUDENT GUIDEBOOK



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Instruction and Practice with Filmed Exemplars--  
Positive and Negative Feedback Film 6 . . . . . 91

### DIRECTIONS

This instructional package contains numerous examples of the four feedback concepts. Each individual illustration or vignette (both written and on film) presents a number of interactions between people and is held together by a single and common incident or situation. Therefore, each vignette will contain many pieces of dialogue--positive, negative, responsible and irresponsible statements--as would happen in real life. But since we will eventually focus in and discuss only one or several of the many statements provided in the flow of conversation, we must let you, the viewer, know which pieces of the communication these will be. (We thought it was important not to give you only the isolated statements, but rather to present them in the context in which they occurred.) Thus, in each individual illustration, the particular feedback statement(s) you are to focus on will be designated by three asterisks appearing either on the written script or in the picture. It is also important to remember that you are to evaluate these on the basis of the key attributes that have been discussed earlier and not on the basis of the receiver's reaction to the feedback.

Each vignette will be presented separately, followed by an opportunity for you to make the judgments requested, and then to



compare your judgments with ours. A minimum amount of space is provided for you to jot down your reasons for responding with the judgments you do. You may, however, only wish to think through your rationale and not record your thoughts, or you may wish to write them out at length on a separate sheet of paper. At any rate, choose the method that is most comfortable and beneficial for your personal learning style.

The total scripts for all the written illustrations are provided in the guidebook. In the filmed examples, however, only the total script for the first vignette in Film 1, Film 3, and Film 5 is provided. For each of the other filmed illustrations, only the feedback statements from the vignettes will be included in the guidebook. If you wish to refer to the specific wording of the entire vignette, or if you are unclear about a particular segment of dialogue, tell your instructor. S/he has extra copies of the vignette scripts for your use.



## INSTRUCTION AND PRACTICE SET #1

## POSITIVE FEEDBACK

## Objective:

Given examples of positive feedback with the stimulus behavior identified, the learner will correctly label the feedback as responsible positive or irresponsible positive feedback.

NOTE: The first practice exercises contained here are presented in three written vignettes. Here you have the "luxury" of stopping to think about the feedback and/or reading the entire script several times before making judgments.

The second practice exercises are contained in Film 1, with two responsible examples presented first and two irresponsible examples presented in the second half of the film.

The third practice exercises are contained in Film 2 with a total of four responsible and irresponsible examples mixed. This is to bring you as close as possible to how you will eventually make such judgments in the real world--with no particular order to the responsible and irresponsible feedback.



POSITIVE FEEDBACK: PRACTICE  
WITH WRITTEN EXEMPLARS

Vignette 1: Student Teaching

MS. JAN PARKER: . . . Okay, that's it then. I hope you are all clear about the final exam. We will be evaluating you on just what the objectives said-- your ability to take both sides of the cross-bussing issue and build a good case for each. In order to do this you must explain your rationale for each stance by citing at least three, but as many probable advantages as you can. Have I made it clear enough for everyone?

JIM (student): Will the evaluation be oral or written?

MS. PARKER: Well, it was originally to be written, but since some of you have talked about having definite preference for the oral, let's make it the individual's choice: each of you may choose either an oral or a written evaluation. How's that?

\*\*\*TONY DAUGHARTY: Jan, you handled that really well. You clearly reminded them of the objectives they were  
(supervising teacher)  
at end of class





going to be tested over and allowed for the choice of evaluation options. I think it's important for you to know that it seems to help the students a lot when you give such clear answers to their questions.

-----

### EVALUATING THE FEEDBACK

#### Step #1. Noting the STIMULUS BEHAVIOR

Jan's communicating very specifically and directly to her students regarding their end-of-term evaluation.

#### Step #2. Judging the POSITIVE or NEGATIVE Quality of the Feedback

A. Your judgment: ☐ Positive ☐ Negative

Reason: \_\_\_\_\_  
\_\_\_\_\_

B. Our judgment: ☒ Positive ☐ Negative

Reason: In this illustration, the feedback statements (noted by three asterisks) are positive because they show agreement with and approval of the stimulus behavior. Tony commends Jan for the clear manner in which she responds to the students.



Step #3. Judging the potentially HELPFUL or UNHELPFUL Quality of the Feedback

A. Your judgment: ☐ Positive ☐ Negative

Reason: \_\_\_\_\_  
\_\_\_\_\_

B. Our judgment: ☒ Helpful ☐ Unhelpful

Reason: The feedback in this illustration is potentially helpful for two reasons. First of all, people can become more or less direct as they communicate. And secondly, becoming more precise in describing expectations and answering questions is growth-producing and socially adaptive. The students know what is expected, can prepare directly and well for their exam; thus increasing their probabilities for success. The feedback the prospective teacher receives is therefore constructive for her (it should improve her teaching ability) and constructive for her students (it should increase their chances for successful performance of this task, which in turn, should promote cognitive and affective growth).

Step #4. Judging the SKILLFUL or UNSKILLFUL Quality of the Feedback

A. Your judgment: ☐ Skillful ☐ Unskillful

Reason: \_\_\_\_\_  
\_\_\_\_\_

B. Our judgment: ☒ Skillful ☐ Unskillful



Reason: We judged this feedback to be skillful because it contains the two essential skills of specificity and timeliness. In addition, Mr. Daugharty makes the consequences of Jan's specific and direct response to her students' questions explicit as well as his reason for giving the feedback by saying ". . . I think it's important for you to know that it seems to help students a lot when you give such clear answers to their questions."

The feedback specifically refers to Jan's behavior. It also deals directly with the behavior: ". . . You clearly presented what objectives were going to be tested and brought out the choice of evaluation options."

Final Step #5. Judging the concept illustrated

A. Your judgment: ☐ RESPONSIBLE POSITIVE FEEDBACK ☐ IRRESPONSIBLE POSITIVE FEEDBACK

Reason: \_\_\_\_\_  
\_\_\_\_\_

B. Our judgment: ☒ RESPONSIBLE POSITIVE FEEDBACK ☐ IRRESPONSIBLE POSITIVE FEEDBACK

Reason: The feedback in this illustration is responsible because it is both helpful and skillful.



FILM 1: POSITIVE FEEDBACK

Vignette 1: The Emperor's Clothes

MS. HENDERSON: O.K., the last time we got together we read  
"The Emperor's New Clothes," and decided we'd  
like to act it out, didn't we? Is that right?

JEFF: Who's gonna play the emperor? He doesn't  
wear any clothes.

MS. HENDERSON: Well, that's a good question. I guess we're  
going to have to decide how we will choose  
the parts.

SUE: I think you should tell us what we should be.

MS. HENDERSON: Well, you mean I would assign the roles. Yeah,  
that's one way. Are there others?

MARK: We could list the people and see what they wanted  
to be.

MS. HENDERSON: That's another way.

JEFF: Yah, but what if everybody wanted to be the  
same thing?





CAROLYN: We could do "one potato, two potato, three potato, four."

MS. HENDERSON: See, we've got a lot of good ideas how we can solve our problems. Any others?

KIM: Uh, we can draw straws, and the one who gets the longest gets to be the emperor.

JEFF: Yah, but what if a girl draws the longest straw and she gets to be the emperor? Girls aren't any good at emperors!

CAROLYN: They are too!

JEFF: They are not!

CAROLYN: Are too!

\*\*\*MS. HENDERSON: Oh, well, now wait a minute. We have a lot of different opinions and that's kind of natural, you know--and that's good, too. When we think of many good ideas, then we can choose what we think is the best one out of all of them.

ANDREA: I know, Ms. Henderson, we can pick the people that do the best cartwheels.



JEFF: That's weird.

MS. HENDERSON: Well, it wouldn't be weird if turning cartwheels was important to the part. Maybe, did you have a particular part in mind, Andrea?

-----

### EVALUATING THE FEEDBACK

#### Step #1. Noting the STIMULUS BEHAVIOR

In this illustration, we judged the stimulus behavior which elicited the feedback to be:

Children expressing their own ideas, which are different from one another, in an attempt to make decisions about how to best choose roles for a play.

#### Step #2. Judging the POSITIVE or NEGATIVE Quality of the Feedback

A. Your judgment: ☐ Positive ☐ Negative

Reason: \_\_\_\_\_

\_\_\_\_\_

B. Our judgment: ☒ Positive ☐ Negative

Reason: In this illustration, we judged the teacher's feedback statements to be positive because they show approval of and thus support the stimulus behaviors. The teacher very clearly affirms the children expressing their own ideas, and making decisions about the play.



Step #3. Judging the potentially HELPFUL or UNHELPFUL Quality of Feedback

A. Your judgment: ☐ Helpful ☐ Unhelpful

Reason: \_\_\_\_\_  
\_\_\_\_\_

B. Our judgment: ☒ Helpful ☐ Unhelpful

Reason: We judged this piece of feedback to be potentially helpful for two reasons--

- (1) Expressing diverse feelings, beliefs and values is a behavior that can be changed--humans can and do become more or less able to share their desires, wishes and/or concerns with others.
- (2) Being able to freely express and encourage others to express their diverse feelings, beliefs, and values is likely to increase the probability for successful adaptation, since
  - (a) more choices are available when more views are known,
  - and (b) the ability to let one's views be known is essential to having a determining role in one's own education and future.

Step #4. Judging the SKILLFUL or UNSKILLFUL Quality of the Feedback

A. Your judgment: ☐ Skillful ☐ Unskillful

Reason: \_\_\_\_\_  
\_\_\_\_\_



B. Our judgment: ☒ Skillful ☐ Unskillful

Reason: We judged this piece of feedback to be skillful because--

- (1) It contained the two essential skills of specificity and timeliness and
- (2) It also contained the unessential but important skills of consistency in the verbal and non-verbal messages and a verbal and non-verbal connotation of acceptance.

Let us look at our reasoning behind the two essential elements more closely. As you may recall, feedback is considered specific when the stimulus behavior is made clear; thus when the teacher says, ". . . We have a lot of different opinions and that's kind of natural, you know-- and that's good too. When we think of many good ideas, then we can choose what we think is the best one out of all of them," she communicates the exact behavior she is supporting . . . the generation and sharing of numerous ideas.

The timeliness factor is present since there is no indication that the receivers are experiencing any unusual amounts of physical or psychological stress when the children have a very typical and normal disagreement, the teacher appropriately responds immediately to their concern with specific statements relating to it.





Final Step #5. Judging the concept illustrated by the keyed statements contained in the vignette.

A. Your judgment: ☐ RESPONSIBLE ☐ IRRESPONSIBLE  
                                     POSITIVE                                      POSITIVE  
                                     FEEDBACK                                      FEEDBACK

B. Our judgment: ☒ RESPONSIBLE ☐ IRRESPONSIBLE  
                                     POSITIVE                                      POSITIVE  
                                     FEEDBACK                                      FEEDBACK

Reason: The feedback supports the stimulus behavior and is  
 therefore--Positive.

The feedback is both helpful and skillful and is  
 therefore--Responsible.

Summary:

|                                 |       |               |
|---------------------------------|-------|---------------|
| Supportive of stimulus behavior | _____ | Positive      |
|                                 |       | +             |
| Helpful <u>and</u> Skillful     | _____ | Responsible   |
|                                 |       | = Responsible |
|                                 |       | Positive      |



APPENDIX C

SAMPLE COPY OF A VIGNETTE SCRIPT



## Film 3, Vignette 1

## HIDE AND SEEK

MR. RAMSEY: Hey! What's happening, girls?

JENNIFER: Oh, nothing. We're just hiding from Mary  
(whispers). We don't want her to find us--okay?

MR. RAMSEY: Did she do something to you?

DAWN: No, we're just playing . . .

JENNIFER: We're teasing her.

DAWN: She thinks we're getting the jump rope.

MR. RAMSEY: (friendly) Well, I can tell you're having fun . . .  
but have you thought how Mary might feel?

JENNIFER: No . . . o

DAWN: No (shakes her head no).

\*\*\*MR. RAMSEY: Well, how might you feel if a friend ran away from  
you?

JENNIFER: (stands up) I wouldn't like it . . .



DAWN: (rising also) I wouldn't like it either.

\*\*\*MR. RAMSEY: I don't think I would like it either. Mary might feel as if you don't like her. You might want to check on that.

JENNIFER: Oh, no! We do like her!

DAWN: She's our friend. Let's go find her.





APPENDIX D

LIST OF VIGNETTES IN THE PRE-ASSESSMENT  
AND POST EVALUATION INSTRUMENTS



## SEQUENCE OF VIGNETTES

| <u>PRETEST</u>         |                | <u>POSTTEST</u>       |                |
|------------------------|----------------|-----------------------|----------------|
| <u>TITLE</u>           | <u>CONCEPT</u> | <u>TITLE</u>          | <u>CONCEPT</u> |
| 1. Playground Incident | Res. Pos.      | 1. Problems with Math | Res. Pos.      |
| 2. Early Meeting       | Res. Neg.      | 2. Dorm Life          | Res. Neg.      |
| 3. It Doesn't Add Up   | Irr. Neg.      | 3. Recess             | Irr. Neg.      |
| 4. Student Help        | Irr. Pos.      | 4. Field Trip         | Irr. Pos.      |
| 5. Registration        | Res. Neg.      | 5. Needs Help         | Res. Neg.      |
| 6. After Class         | Res. Pos.      | 6. Roommates          | Res. Pos.      |
| 7. Field Trip          | Irr. Pos.      | 7. Keep On            | Irr. Pos.      |
| 8. Wine Not!           | Irr. Neg.      | 8. My Turn            | Irr. Neg.      |
| 9. No Jeans            | Res. Pos.      | 9. No Jeans           | Res. Pos.      |
| 10. Tough Decision     | Irr. Neg.      | 10. Speaking Out      | Irr. Pos.      |
| 11. Reacting           | Res. Neg.      | 11. Reacting          | Res. Neg.      |
| 12. State Test         | Irr. Neg.      | 12. State Test        | Irr. Neg.      |



## APPENDIX E

### PRE-ASSESSMENT INSTRUMENT: DIRECTIONS AND SAMPLE COGNITIVE ITEM



## FEEDBACK SKILLS PROTOCOL PROJECT ASSESSMENT

Directions and Explanation: In the next few minutes you will see a series of 12 filmed instances or vignettes of interpersonal communication (item 1-12) in which one of four feedback may be illustrated: (1) responsible positive feedback, (2) irresponsible positive feedback, (3) responsible negative feedback, and (4) irresponsible negative feedback. You will be taught to recognize each of these types of feedback during the term. However, at this time it is important to determine how well students can recognize the four types of feedback before they have undergone specific formal instruction; that is, it is necessary to make an assessment of learner entry skills before instruction begins. Thus, you will be asked to view a particular situation in which feedback is given and then indicate the type of feedback that you think is illustrated.

Before you can adequately respond to the 12 filmed instances (vignettes), it is necessary for you to understand two basic terms that are related to the way in which you will respond: (1) the stimulus behavior is essentially that behavior (action or statement) which elicits a response (feedback) from a second person, and (2) feedback refers to verbal and non-verbal sending of a message with reference to a given stimulus which expresses the sender's approval or disapproval with respect to that stimulus.





In each of the following filmed vignettes, the particular feedback lines that you are to identify as responsible positive feedback, irresponsible positive feedback, etc., will be marked with three asterisks; that is, \*\*\*. There will probably be other feedback lines in the vignette, but you are to focus your attention only on those marked with \*\*\*. The stimulus behavior to which the asterisked feedback refers will be given in each illustration.

After you have considered the asterisked feedback lines in relation to the stimulus behavior, you will be asked to respond in two ways to evaluation items:

- (1) to circle the number of the appropriate answer from a list of six possible choices,
- (2) to darken one number on each of three scales to indicate how you feel about the feedback.

\*\*\*\*\*

General Introduction: In order to help you understand what you are going to be asked to do, we have provided a practice vignette. Read the following brief interpersonal encounter:

### TRUST

JAKE: Can I borrow your textbook for a few days? I lost mine.

LARRY: Well, I was planning to study it tomorrow. Why don't you check with Marty?

\*\*\*JAKE: I won't see her in time. Anyway, you know you won't



really study it tomorrow. Don't you trust me? You sure make me feel as if you don't.

Stimulus Behavior: Larry's reluctance to loan the textbook.

Feedback Line:

\*\*\*JAKE: I won't see her in time. Anyway you know you won't really study it tomorrow. Don't you trust me? You sure make me feel as if you don't.

Evaluation Items:

The above vignette is similar in most respects to those you will see in the films which follow. After reviewing the filmed vignette, you will be asked to respond to two types of evaluation items.

The first will ask you for a judgment about the nature of the interpersonal encounter. The judgment requested of you will be similar to the following:

The feedback concept(s) illustrated in the above vignette is (are) (circle only one of the following):

1. Responsible Positive Feedback
2. Irresponsible Positive Feedback
3. Responsible Negative Feedback
4. Irresponsible Negative Feedback
5. None of the above
6. More than one type of Feedback

The second type of item will ask you for a rating of your feelings about the verbal behavior of the person speaking during the time the three yellow asterisks appear on the screen. You will be given three pairs of words that are descriptive of how people feel about what others say. For each of these pairs of words, indicate your first and immediate feeling about the verbal behavior of the filmed speaker.



The following pairs of words are descriptive of how you might feel about the verbal behavior of Jake in the example you just read. Indicate your reaction by darkening the number on each scale which corresponds to your feeling (e.g., if your reaction was "very good" you would darken space [2] in the sample below). Mark your first uninhibited feeling without spending more than a few seconds on each of the three scales.

I feel that the feedback statement is:

|          |   |           |      |          |         |          |      |            |  |
|----------|---|-----------|------|----------|---------|----------|------|------------|--|
|          |   | EXTREMELY | VERY | SLIGHTLY | NEUTRAL | SLIGHTLY | VERY | EXTREMELY  |  |
| good     | 1 | 2         | 3    | 4        | 5       | 6        | 7    | bad        |  |
| unfair   | 1 | 2         | 3    | 4        | 5       | 6        | 7    | fair       |  |
| friendly | 1 | 2         | 3    | 4        | 5       | 6        | 7    | unfriendly |  |

#### A Final Note:

You will be given approximately one and  $\frac{1}{2}$  minutes to respond to each filmed vignette before the next one is shown. Thus, the entire assessment should take about 30 minutes to complete.

In a sense, your participation in this assessment task is a form of instruction in addition to the formal, intended instruction that will occur during the term. In order to minimize the instructional effects of the ASSESSMENT, it is necessary to avoid discussing the answers to these 12 vignettes until later in the term. Your understanding and cooperation regarding this situation will be greatly appreciated.



Although you will not receive a formal grade on this or other assessments connected with the Feedback Skills Protocol Project, you are encouraged to do your best in identifying the various feedback concepts.

If you or others have no further questions concerning the assessment forms or procedures, your instructor will now begin to show the filmed vignettes.

Thanks for your assistance in this project.





FEEDBACK SKILLS PROTOCOL PROJECT  
ASSESSMENT

1. PLAYGROUND INCIDENT

Stimulus Behavior:

The effective manner in which a student teacher helps her students work through their anger and hostility after a class disagreement over a baseball game.

Feedback Line:

\*\*\*MR. LUIGI:

Karli, you really handled that situation well today.

\*\*\*MR. LUIGI:

You know, you stayed calm, and you helped the kids work out their anger and their hostility. I have to admit, I wouldn't have thought of a role play at that time, but it was really effective.

Evaluation Items:

The feedback concept(s) illustrated in the above vignette is (are)  
(circle only one of the following):

1. Responsible Positive Feedback
2. Irresponsible Positive Feedback
3. Responsible Negative Feedback
4. Irresponsible Negative Feedback
5. None of the above
6. More than one type of Feedback



APPENDIX F

POST-EVALUATION INSTRUMENT: SAMPLE

AFFECTIVE ITEM



# FEEDBACK SKILLS PROJECT ASSESSMENT

## 1. PROBLEMS WITH MATH

### Stimulus Behavior:

John's sharing of his concern about having to do math problems he already knows how to do.

### Feedback Lines:

\*\*\*MR. LOPIS:

Well, I want you to know that I appreciate your telling me how you feel. I . . . I really don't want you to be disgusted or sick about doing math, and if you didn't share how you felt, we wouldn't be able to work it out. Now, its kind of late today, so why don't I think about what you've said, and we'll be sure and talk about it in the morning. OK?

### Evaluation Items:

I feel that the feedback statement is:

|          | <div> <div>EXTREMELY</div> <div>VERY</div> <div>SLIGHTLY</div> <div>NEUTRAL</div> <div>SLIGHTLY</div> <div>VERY</div> <div>EXTREMELY</div> </div> |   |   |   |   |   |   |            |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|------------|
| good     | 1                                                                                                                                                 | 2 | 3 | 4 | 5 | 6 | 7 | bad        |
| unfair   | 1                                                                                                                                                 | 2 | 3 | 4 | 5 | 6 | 7 | fair       |
| friendly | 1                                                                                                                                                 | 2 | 3 | 4 | 5 | 6 | 7 | unfriendly |



APPENDIX G

POST-INSTRUCTION QUESTIONNAIRE





# PROTOCOL MATERIALS QUESTIONNAIRE

**Directions:**

Please mark your answer to each item on the grided answer sheet that is provided by your instructor.

1. Sex:

|            |          |
|------------|----------|
| (1) Female | (2) Male |
|------------|----------|
2. Age:

|             |             |             |
|-------------|-------------|-------------|
| (1) 17 - 23 | (2) 24 - 28 | (3) 29 - 33 |
| (4) 34 - 38 | (5) 39 - 43 | (6) 44 - 48 |
| (7) 49 - 53 | (8) 54 - 58 | (9) 59 - 63 |
3. Have you ever had formal instruction on the use of feedback concepts  
in interpersonal communication?

(1) Yes      (2) No
4. The objectives for the instruction on interpersonal feedback were:

|       |   |   |   |   |   |         |
|-------|---|---|---|---|---|---------|
| 1     | 2 | 3 | 4 | 5 | 6 | 7       |
| Clear |   |   |   |   |   | Unclear |
5. The organization of the overview for the instruction on inter-  
personal feedback was:

|           |   |   |   |   |   |         |
|-----------|---|---|---|---|---|---------|
| 1         | 2 | 3 | 4 | 5 | 6 | 7       |
| Unhelpful |   |   |   |   |   | Helpful |
6. The instructional activities were:

|               |   |   |   |   |   |             |
|---------------|---|---|---|---|---|-------------|
| 1             | 2 | 3 | 4 | 5 | 6 | 7           |
| Uninteresting |   |   |   |   |   | Interesting |
7. Learning of the feedback concepts was presented:

|           |   |   |   |   |   |      |
|-----------|---|---|---|---|---|------|
| 1         | 2 | 3 | 4 | 5 | 6 | 7    |
| Difficult |   |   |   |   |   | Easy |



8. The material on the feedback concepts was presented:

|                  |   |   |   |   |                    |   |
|------------------|---|---|---|---|--------------------|---|
| 1                | 2 | 3 | 4 | 5 | 6                  | 7 |
| Enthusiastically |   |   |   |   | Unenthusiastically |   |

9. The amount of instruction (including practice) on the feedback concepts was:

|          |   |   |   |   |            |   |
|----------|---|---|---|---|------------|---|
| 1        | 2 | 3 | 4 | 5 | 6          | 7 |
| Too much |   |   |   |   | Too little |   |

10. In dealing with others, a knowledge of interpersonal feedback concepts is of:

|              |   |   |   |   |             |   |
|--------------|---|---|---|---|-------------|---|
| 1            | 2 | 3 | 4 | 5 | 6           | 7 |
| Little value |   |   |   |   | Great value |   |

11. The post-evaluation (film) was:

|      |   |   |   |   |        |   |
|------|---|---|---|---|--------|---|
| 1    | 2 | 3 | 4 | 5 | 6      | 7 |
| Fair |   |   |   |   | Unfair |   |

12. The situations selected for the vignettes were:

|               |   |   |   |   |             |   |
|---------------|---|---|---|---|-------------|---|
| 1             | 2 | 3 | 4 | 5 | 6           | 7 |
| Inappropriate |   |   |   |   | Appropriate |   |

13. The sound quality of the films or slide-tapes was:

|      |   |   |   |   |      |   |
|------|---|---|---|---|------|---|
| 1    | 2 | 3 | 4 | 5 | 6    | 7 |
| Poor |   |   |   |   | Good |   |

14. The visual representation in the films was:

|      |   |   |   |   |      |   |
|------|---|---|---|---|------|---|
| 1    | 2 | 3 | 4 | 5 | 6    | 7 |
| Poor |   |   |   |   | Good |   |

15. In order to adequately learn the feedback concepts, group discussion is:

|           |   |   |   |   |               |   |
|-----------|---|---|---|---|---------------|---|
| 1         | 2 | 3 | 4 | 5 | 6             | 7 |
| Essential |   |   |   |   | Non-essential |   |



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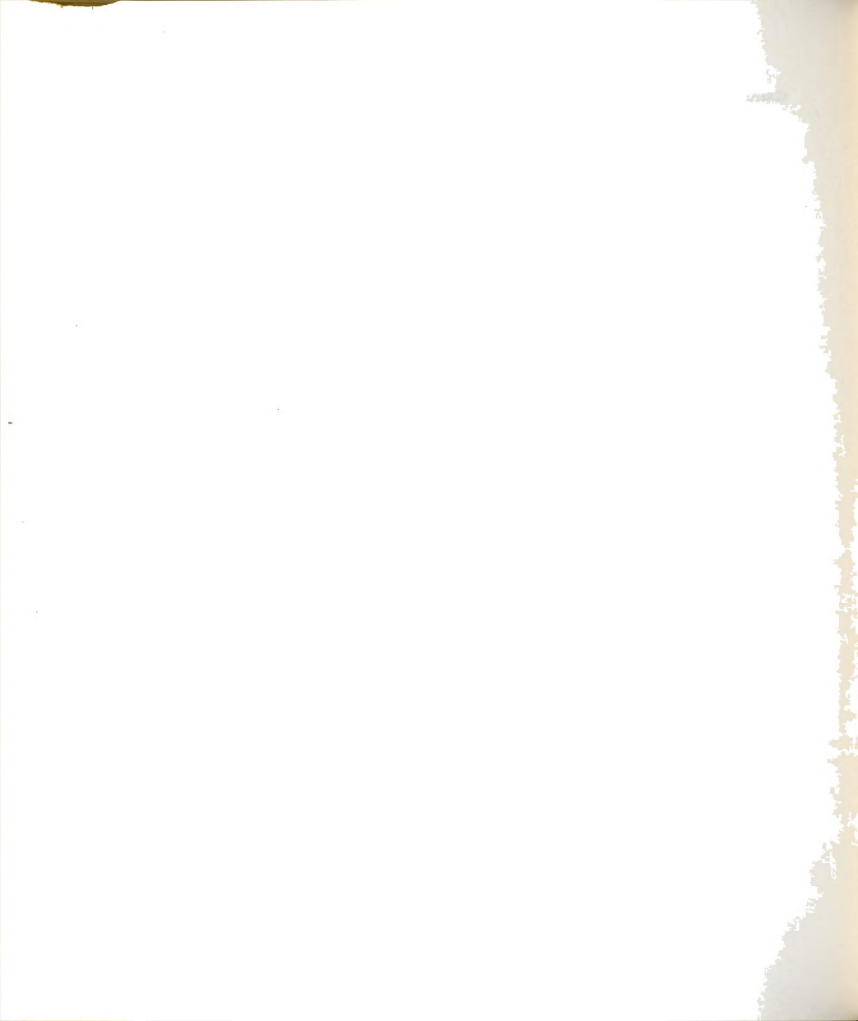




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