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THE DEVELOPMENT OF AN INSTRUCTIONAL
COMMUNICATION ANALYSIS SYSTEM

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of the Ohio State University

By

Thomas L. Sands

* * * * * * * *

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Studies in Curriculum. Professor Kelly Duncan

Studies in Teacher Education. Professor L. O. Andrews

Studies in Educational Development. Professor Virgil Blanke
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CHAPTER ONE

INSTRUCTION AND TELEVISION

Introduction

Casual observation of numerous elementary school classes in the Columbus, Ohio area has led this writer to the conclusion that a significant change in instructional processes has occurred. Observing the acute attention of second or third grade pupils as they learn to read a new word, grasp the principle of new vowel combinations and try out new blends by decoding the alphabetic symbols is not a unique experience but, too frequently, it is a rare one. In relatively attractive middle-class suburban school rooms as well as in shabby, inner-city school rooms the same kinds of intense response, delight, laughter, and even drama are occurring as a result of instruction with a constancy seldom, if ever, before observed by the author in any classroom.

The occasion for these remarkable instructional events is a television program: "The Electric Company." Produced by the Children's Television Workshop, "The Electric Company" represents, along with its precursor, "Sesame Street," what is, perhaps, the most ingenious and resourceful use of television as an instructional medium. Two elements make it so. First, while "The Electric Company" provides
instruction for the achievement of specific, behaviorally stated objectives,\textsuperscript{1} it does so without the use of a human figure who is the teacher. Second, its instruction occurs in a context that does not in any way suggest "school," or an overtly institutional setting.

Essentially, then, "The Electric Company" bases whatever instructional effectiveness it may possess as an instructional television program upon the characteristics of television as a medium of communication.

The "language" of television, its audio and visual capacities, and its property of recreating any environment or context within which the program's content or message is presented are two of the major characteristics of television. In the case of "The Electric Company" the effects that television as a medium can produce have been adapted to instructional purposes. Thus, rather than simply using television characteristics passively to record and to broadcast (or to disseminate through closed circuit or RF channels) the instructional efforts of a human teacher, "The Electric Company" uses television characteristics to create a broader, perhaps more effective, range of instructional effects.

The implications of such a use of television as an instructional medium are enormous. If instructional television can be used to create a broader range of instructional effects, the range, scope, and effectiveness of instructional strategies and tactics of schooled, curricular learning will have to change. The use of instructional

\textsuperscript{1} Barbara Fowles, "Building a Curriculum for 'The Electric Company'," The Electric Company: An Introduction to the New Television Program Designed to Help Teach Reading to Children, Children's Television Workshop.
television by elementary and secondary schools in the United States has, traditionally, been used to expand audiences, and not (with the exception of special effects such as close-up shots of microscopic phenomena or additional enrichment visuals) to expand the range of effects for instructional strategies and techniques.

Purpose, Scope, and Background of the Study

That many of the educational and overtly informative aspects of mass mediated message systems are not knowingly or effectively governed by or integrated with the traditional established objectives, strategies, and tactics of educational institutions and professional educators is a major concern of this study. Conversely, that many of the traditional strategies and tactics of classroom, curricular instruction fail to utilize the power of mass media to form attitudes and to create new and more effective contexts for learning is another aspect of the concern of this study.

The identification, analysis, and utilization of non-curricular, mass mediated instructional-educational systems in relation to the traditional classroom concept of education; the analysis of how attitudes are formed by mass media influence, and the development of an instructional communication analysis system to relate media characteristics to instructional strategies are the major areas of investigation. Knowledge of such relationships will provide a basis for the expansion of traditionally defined classroom, curricular learning situations while providing an understanding of the numerous instructional, sometimes propagandistic, events created by mass mediated message systems.
Systems approach in education. While the concern of this study includes instructional media and of mass-directed media (such as commercial television and film, newspapers, and radio) as potentials for expanding the range and scope of curricular education, a discussion of the impact and usefulness of a systems approach in educational development is a necessary first step. A general review of the systems approach in education will offer some guidelines for the effective integration of both mass directed media and instructional media and the subsequent expansion of curricular education to include non-classroom inputs. The integration of mediated (including television, film, computer assisted instruction, etc.) and classroom, curricular instruction in the design and implementation of instructional systems requires a clear statement of objectives and range of strategies and tactics that relate information input to pupil performances and general audience reactions. The stimulus situations governed or directed by given instructional strategies and tactics must be related and validated by reference to the student responses that can be considered evidence for the achievement of specified objectives of the instructional system.²

The immense complexity of integrating various types of stimulus inputs to vary and to validate behavioral outcomes in an instructional system has led educators to a general system approach for designing, managing, and evaluating instructional systems. Before considering the

---

integration of mediated and classroom instruction strategies, it is necessary to define the systems concept and to discuss some of the elements of a systems approach that can be useful in relating stimulus inputs to student responses.

System concepts in education are often related to terms such as systems, systems design, systems approach, and general systems theory. For purposes of development, two definitions of the "systems approach" will be examined. First is a definition offered by Ely who defines the "systems approach" as being:

... an integrated, programmed complex of instructional media, machinery, and personnel whose components are structured as a single unit with a schedule of time and sequential phasing. Its purpose is to insure that the components of the organic whole will be available with the proper characteristics at the proper time to contribute to the total system, and in so doing to fulfill the ... (established) goals.3

A more formal, precise definition of systems approach is offered by Corrigan and Kaufman:

System approach: Formal analytical planning methods for progressing from the specification of system mission objectives to the achievement of those objectives through the controlled and orderly specification of parts making up the total system and the integration of parts according to functions to be performed into a total system that achieves stated mission objectives.4

Both definitions are useful in this study suggesting the need to structure the components of an instructional system and to know their characteristics and appropriateness. Before mass-directed and instruc-


tional media can be efficiently integrated and utilized in a system, it is clear that their characteristics must be known. As suggested above, however, it appears that traditional conceptions and uses of ITV tend to restrict the range of characteristics that might otherwise be extremely beneficial in the design and implementation of instructional systems.

Further consideration of the complexity of the systems approach in educational design will indicate the kinds of questions about instructional and mass-directed media characteristics that need to be answered in order to utilize their potentials more comprehensively.

If instructional systems can provide techniques for integrating nearly limitless components to achieve specified functions of the system, then the need to know more fully the characteristics of each possible component is as important as it is difficult. A clearer notion of what "instruction" means within the systems approach is needed in order to understand the role of various technologies of instruction in the system. Banathy provides a comprehensive though rather general definition of instruction which can help to specify some relationships between functions and component characteristics:

... I suggest that instruction is the process rather than the purpose of education. In the systems view, instruction denotes processes and functions that are introduced into the environment of the learner in order to facilitate the mastering of specific learning tasks. Accordingly, any interaction between the learner and his environment through which the learner is making progress toward the attainment of specific and purposed knowledge, skills, and attitudes is viewed as instruction.

What naturally follows this definition is the question, what processes and functions can be combined in a creative learning environment to facilitate the student's learning and what component characteristics are required by the various instructional functions?

Banathy suggests that the design of the system—which follows the formulation of objectives and the analysis and formulation of learning tasks—should include (1) functions analysis, (2) components analysis, distribution of functions among components, and scheduling. Forming an answer to the above question depends upon an understanding and determination of the system functions. Banathy lists four:

1. Selecting and organizing content
2. Selecting and organizing the learning experiences
3. Managing the learners
4. Evaluating the learning and operating the system.

Selecting and organizing the learning experiences is an instructional function that requires a thorough knowledge of teacher and media characteristics in expanding and creating an effective learning environment. The concern of this study in determining certain characteristics of mass-directed and instructional media can have significant effects upon the design and implementation of instructional systems. This point is clarified by Banathy when he discusses the relationship between the function of determining learning experiences and the selection of components to achieve the function:

The system designer will choose the human resource, means

or tools that will best carry out the function and optimize the attainment of the predetermined performance .... One of the rules of component analysis is that the component should fit the function and not the function the component. 7

Banathy's insistence that the component and its characteristics should fit the function and not vice versa is instrumental in broadening the range of component characteristics that can be utilized to achieve specific instructional objectives. It is obvious that whatever instructional effects can be achieved best by mediated, as opposed to classroom, instruction ought to be assigned as appropriate systems components. It is at this point that instructional technologies and their effectiveness become a crucial issue in systems design.

Mediated instruction and instructional decisions. One of the major questions in this regard is what range of instructional strategies and tactics can be effected by mass-directed and instructional media? By instructional strategies and tactics is meant the determination and selection of information and information forms for input in a stimulus situation (or learning environment) which is related to and validated by reference to the student responses or behaviors that can be considered evidence for the achievement of specified objectives of the instructional system. While traditionally the selection of stimulus inputs has been determined in broad forms by curriculum planners and in specific, applied forms by classroom teachers, the growth and complexity of instructional technology and the educational function of mass-directed media have tended to move such decisions toward higher levels of decision making.

7. Ibid., p. 64.
Technologies of instruction may cease being mere aids to classroom instruction and become, rather, alternatives to the classroom teacher. Heinich suggests that the phenomenon calls for new forms of instructional management and introduces new roles for classroom teachers. He discusses instructional technology and its implications for educational planning when he writes:

... When instructional technology is used, the word "teacher" can no longer stand by itself, but must carry a modifier - "mediated" or "classroom" - because it is essential to identify the mode of instruction and the nature of the instructional assignment. The reason for this is that many instructional decisions, previously made at the classroom level by the classroom teacher, have been shifted to the curriculum planning level, and are arrived at by teams which include curriculum personnel, instructional technologists, media teachers, and classroom teachers. At this level ... courses are broken down and specific instructional assignments made ... the curriculum planning and development level has become the center of instructional strategy where decisions are made regarding the tactics of instruction. From a system point of view, mediated teaching and classroom teaching are simply different tactics used in the strategy of instruction.

It is one of the major assumptions of this study that the educational functions of mass-directed media have not, typically, been considered as legitimate or appropriate components of curricular planning. So, while Heinich takes a position that clearly indicates the necessity of understanding as fully as possible the characteristics of instructional technology, he tends to restrict the range and scope of curricular planning by not specifically including a concern for the inputs of mass-directed media as systems components. If instructional

strategies within a system context are to be determined at levels far removed from the instructional event, then the characteristics of instructional media and of mass-directed media strategies and tactics of the instructional system must be well defined and fully developed. Further, the notion that mediated teaching and classroom teaching are tactics or discrete classes of instructional behavior indicates in the case of television that certain medium characteristics or effects must be equated with or related to those discrete classes of instructional behavior that constitute tactics.

Strategies and tactics. The preceding discussion has developed the idea that integrating mass-directed and instructional media with traditional classroom instruction requires a thorough knowledge of the instructional effects of each component. Further, it developed the notion that components of instructional systems are essentially tactics used in effecting specific behavioral changes as these relate to the selected strategies of the system.

It is now important to typify some instructional strategies and to define and classify behaviors which combine to constitute the various types of strategies and tactics. To attempt to typify instructional strategies requires a more specific definition of instruction than was offered by Banathy. Such a definition is offered by Corey when he distinguishes "teaching" from "instruction":

The considerations that are central to our view of instruction as a special case of teaching are (a) the "specifiability" of the behavior to be learned as well as the conditions appropriate for that behavior, and (b) the degree of control exercised over the environment to the end that those behaviors will be brought under the control of appropriate situations. By this we mean that the behavior desired by
those planning the instruction will be limited by the person instructed as a response to appropriate or relevant situations.

Strategies, then, as defined earlier, are broad, pre-planned instructional behaviors that relate and bring under the control of discrete instructional moves the behaviors of students in so far as those behaviors reflect the achievement of instructional objectives. Strategies, more simply, are whatever instructional behaviors that may be required to exercise control over the planned learning environment.

Instructional strategies, as defined earlier (P, 7), further include the selection and determination of information and information forms. Information and information forms here refer to the content and channel of the messages that constitute the broad, pre-planned instructional behaviors referred to above. These behaviors can be observed in oral communication behaviors as in classroom interaction or in more abstract forms such as print (using alphabetical symbols), film, television, photographs, radio, etc.

That instructional strategies in the form of observable behavior other than face-to-face instruction can be achieved by film, television, and other audiovisual technologies was established years ago. Early audio-visual research was primarily evaluative and provided the basis for the entire audio-visual movement as noted by Allen:

...learning from some unspecified film or other medium was compared with learning from some unspecified presentation by an instructor or other medium. This was the predominant type of research for over 30 years, and the

results of hundreds of such studies furnished the base upon which the entire audiovisual movement was justified.\textsuperscript{10}

Thus, instructional behaviors that combine to form an instructional strategy can be of different forms from the traditionally conceived face-to-face, teacher-student oral interaction.

Since instructional strategies are broad, pre-planned instructional behaviors (in whatever form), it will be useful to classify the basic behaviors that together determine or typify strategies and tactics.

**Instructional television classification.** Hough and Duncan\textsuperscript{11} have developed a system for classroom instructional analysis that categorizes instructional behaviors. Their categorization of behavior is bipolar in that it accounts for all observable behavior in an instructional event whether the behavior is exhibited by a teacher or by a student. The categories include:

- Clarification
- Response
- Initiation
- Solicitation
- Corrective Feedback
- Confirmation
- Acceptance
- Positive personal judgment
- Negative personal judgment
- Overt silence
- Covert silence\textsuperscript{12}

Further, the authors discriminate between behaviors that occur in relation to substantive and managerial instructional objectives. With


\textsuperscript{12} Ibid., p. 119.
extreme precision each of the categories is defined and each is fully distinguished from all of the others. Thus, as the authors indicate, their classification system meets two major criteria of all rational classification systems: inclusiveness and mutually exclusive categories. They write:

"When a classification system can classify all examples of the phenomena being observed and the classification system is made up of categories that are mutually exclusive, then any phenomenon included within the set of phenomena that the classification system encompasses can be classified."  

Narrowing the focus of classification systems to the classification of instructional behavior, they say:

"A system for the classification of classroom instructional behavior must include all possible behaviors that are encompassed by that system, and all such behaviors must be classifiable into one and only one of the several classifications of that category system."

After defining and distinguishing eleven categories of instructional behaviors, the authors apply the categories to the analysis of classroom substantive and managerial behavior. On the basis of the categories and analysis of instructional behaviors, certain strategies and tactics of instruction are typified. These include at a general level (1) direct communication, (2) group, (3) independent activity, and (4) interactive strategies with related, supportive tactical behaviors when applicable.

The instructional behaviors and strategies conceptualized and typified by Hough and Duncan will be defined and developed later in this study. It is sufficient for now, however, to indicate that

13. Ibid., p. 117.
their conceptualizations appear to be useful in analyzing the instruc-
tional behaviors and strategies that occur in mediated, as opposed to
direct, classroom teacher, forms of instruction. As indicated above,
it is an established, research-based principle that instructional
strategies in forms of observable behavior other than direct, face-to-
face teacher-student interaction can be effected by film, television,
and other audiovisual technologies of instruction. Thus, a categori-
zation system for instructional behaviors that are evidenced in a
sufficiently comprehensive conception of traditional teacher-student
behavioral interactions should be applicable, with certain changes, to
any instructional context or environment. The "Observation System for
Instructional Analysis"\(^{15}\) of Hough and Duncan appears to be such a
system with a sufficiently comprehensive conception of instructional
interactions.

From the earlier discussion on the system approach to educational
planning it was determined that the components of a system ought to
fit the functions of the system and not vice versa. At the curricular
planning level for instructional systems, it was also pointed out, the
instructional strategies to be used in achieving the system objectives
must be assigned to relevant components whose characteristics and
effectiveness are known. Thus, it is necessary in instructional
systems planning to know which instructional behaviors (discrete instru-
tional behaviors or tactics) can be effected by mass-directed and
instructional media as well as by traditional, classroom teaching.
As indicated by the discussion of strategies and tactics, discrete

\(^{15}\) Ibid., p. 116.
instructional behaviors may be combined in certain ways to constitute a variety of strategies and tactics used to create instructional environments relative to specified, behavioral objectives. Further it was determined possible to develop a comprehensive system for categorizing instructional behaviors effected by mediated instruction. In order, then, for a system component to fit specified system functions, the characteristics of the component and its capacity for effecting a range of instructional strategies must be predetermined.

At this point it will be illuminating to define certain categories of instructional behavior that combine to form certain strategies and in the next section to attempt to relate them to the characteristics of televised instruction in effecting them as a component in an instructional system.

According to Hough and Duncan's instructional analysis system, the first category termed "behavior clarification," involves either a teacher's or a student's response to previously exhibited behavior and is defined to mean

... the process of (1) helping the person who emitted the behavior become more aware of his own behavior or understand the meaning or implication of his own behavior, (2) helping the person responding to the behavior, or some person observing the behavior, understand the meaning or implication of the behavior.16

Response to solicitation as a category of behavior is defined also as a responsive behavior and

... encompasses all behaviors of teachers and students that are legitimate response to questions, directions, or commands.

16. Ibid., p. 120.
The responses can be verbal or nonverbal...

Initiation of information, according to the authors,

... encompasses all behaviors of teachers and students that involve the initiation of knowledge, skills, or feeling states...

Solicitation, the last category to be fully defined in this section of the study, is the behavior that

... encompasses all of the verbal and nonverbal behaviors of teachers and students that constitute legitimate invitations for another person to say or do something, with the exception... of solicitations for clarification...

These categories of instructional behaviors appear to be sufficiently broad in scope and range to account for the instructional strategies of most instructional settings or events and, as indicated, lend themselves for adaptation in the analysis of mediated and, particularly, televised instruction.

Instructional television characteristics and limitations. As determined earlier, an adaptation of the instructional behavior categories developed by Hough and Duncan to mediated instruction contexts implies that forms of mediated instruction can effect the same types of behaviors as traditional, teacher-student interactions. A more precise indication of the capacity of mediated instruction in effecting some of those instructional behaviors is provided by Schramm when he states:

Given a reasonable favorable situation, a pupil will learn from any medium ... a pupil neither turns off nor turns on

17. Ibid., p. 120.
18. Ibid., p. 123.
19. Ibid., p. 124.
his learning when he moves his attention from a teacher to one of the medium, or vice versa. In general, the same things that control the amount of learning from a teacher face-to-face also control the amount of learning from educational media.

If Schramm's statement is true, and his extensive research efforts would indicate it is, then, it is relatively safe to assert that the strategies (the combinations of instructional behavior categories) that are effective and known in traditional, classroom instructional settings can be utilized in the design and dissemination of televised and other forms of mediated instruction and, as well, in the design of mass-directed media.

This assertion is not intended, however, to limit the development and research activities aimed at expanding and improving instruction. Rather, it is intended to provide the basis in this study for the development, and limited trial of an instructional communication analysis system to direct the systems planning for effecting specific instructional behaviors and strategies.

Before elaborating upon the problem of this study, however, it is important to review briefly the characteristics generally attributed to television as a new and powerful instructional medium and to relate those characteristics to a few of the instructional behavior categories defined above.

Instructional television as frequently conceived is, essentially, a passive medium. That is, with the exceptions of organizational

20. Wilbur Schramm, et. al., The New Educational Media, p. 65 as quoted in, "Instructional Television Here and Abroad," The Schools and the Challenge of Innovation, Committee for Economic Development, pp. 243-44.
concerns such as scheduling classes for broadcast programs and cer-
tain technological considerations such as necessary equipment for
production, reception, and transmission, instructional television
as a medium needs little attention. Schramm makes this viewpoint clear
when he writes:

The conditions of success for television teaching
itself are not essentially different from those of other
teaching except in organizational and technological matters.
It is still the teacher, or demonstration, rather than the
technology, that is important.²¹

With few exceptions, then, instructional television is typically con-
sidered to be primarily a transmitter of another form of instruction
and the most frequent form of instruction transmitted appears to be a
lecture or demonstration.

Perhaps this conception is best summarized by Allen when he states:

Television is primarily a carrier of information - a
transmission channel by means of which verbal, pictorial,
or programmed instruction may be widely disseminated to
groups of learners.²²

These traditional conceptions of the characteristics of instruc-
tional television are qualified and perhaps elaborated somewhat by the
intensive study of instructional television by Chu and Schramm.²³ A
few of the qualifications extended to the concepts suggested above will

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21. Ibid., p. 257.


be cited as listed in "Summary of Major Observations from the Report":

10. There is no clear evidence on the kind of variations in production techniques that significantly contribute to learning from instructional television. However, students will learn better when the visuals are presented in a continuous order and carefully planned both by the television team and the studio teacher.

20. Problem-solving instruction on television is more effective than lecturing where the materials taught involve solving of a problem.

30. Learning from television by the students does not seem necessarily to be handicapped by the lack of prompt feedback to the instructor.

33. If a student being taught by instructional television can be given immediate knowledge of whether he has responded correctly, he will learn more.

35. Practice, whether by overt or covert response, will improve learning from instructional television if the practice is appropriate to the learning task, and if the practice does not constitute an interference.²⁴

These summary statements raise significant questions about the validity of what has been cited as the traditional concept of the characteristics of instructional television. For example, what medium techniques could be varied to effect a problem-solving program and under what conditions of production could anticipatory feedback or clarification behaviors be included in the program? Further, how could a program utilize anticipatory student responses to program solicitation of information?

Unfortunately, the traditional conception of ITV as primarily a carrier of information limits the potentials of the medium in effecting such instructional behaviors. That students can and do

²⁴. Ibid., pp. 180-181.
learn from ITV is well established by such studies as Chu and Schramm's. However, the "carrier" notion of instructional television has been challenged by such a noteworthy group as the N.A.E.B. in a paper on the state of the art. They write:

Employing television conventionally as a classroom 'visual aid' or as a convenient source of casual 'enrichment' materials does not contribute appreciably toward the establishment of more time and opportunity for teachers to spend in vitally important adaptive and reinforcement pursuits. Therefore, all the television application of these kinds must be taken to be of lesser significance. Only those applications which allow for television to provide systematic learning experiences to (masses of individuals) students in a way which beneficially reduces the 'content' responsibility of (many) classroom teachers should be said to capture the fundamental virtue of television-in-instruction.

This challenge to the traditional conception of instructional television and its utilization as an enrichment or supplementary aid component of instructional systems is reflected also in Heinich's inclusion of ITV in mediated instruction. He writes:

In general, classroom teachers tend to reduce all media to the status of aids ... This tendency is reflected in traditional audiovisual circles by efforts to treat all media as equals... It is precisely that some media and combinations of media are alternatives to classroom teachers rather than aids that compels decision making to be made at higher (curriculum planning) levels.  

Given the traditional concept of instructional television as a carrier of information and, perhaps too frequently, as only an aid to instruction, it appears that the range of instructional behaviors that

25. Ibid.


can be effected by the medium characteristics is severely limited. Thus, for the most part, as indicated by Chu and Schramm above, instructional television is capable mainly of effecting the behaviors of initiation, severely limiting response to (anticipated or pre-tested) solicitation, and some clarification (again based upon anticipated or pre-tested audience behaviors). Essentially, then, instructional television so far from being an alternative to classroom teaching is classroom teaching only once removed and subsequently hampered in its range of instructional behaviors by the limitations suggested by a one-way, direct communication strategy.

Expanded concepts of television used in instruction. That this concept of the characteristics of instructional television is being challenged and the range of instructional behaviors that can be effected by televised instruction is being examined and expanded is revealed by Allen's survey of media research. Allen notes that most ITV research showed that students learn from televised instruction but indicated that: "... the conditions under which such learning takes place and the specific characteristics of televised presentations that bring this about are yet to be determined." 30

One of the research studies cited by Allen as attempting to determine some specific characteristics of ITV that effect learning is

George L. Gropper and Arthur A. Lumsdaines's study of the relationship of student response in a programmed instructional mode to televised instruction. Discussing the instructional effects of conventional televised instruction, the authors cite a specific limitation of ITV:

... without the possibility of student-teacher interaction the TV instructor has generally no opportunity to encourage students to rehearse responses, to prepare them with adequate clues to respond correctly, or to provide them with feedback about the correctness of their responses.32

They indicate, further, that based upon their studies, certain principles of programmed instruction can be effected in a televised instructional mode and that "... elements of instructional control (i.e., programmed instruction) can be built into televised lessons and can be expected to increase efficiency of learning."33

George Gropper comments on certain instructional strategies as they involve principles of visual and verbal learning in a programmed content:

An efficient integration of words and pictures would appear to call for the following prescription: the use of a single concept film (using visuals) followed by verbal materials (whether in print, in lecture, or in film or televised form). Pictures and words would be serially intermixed, as called for by a particular instructional strategy.34


32. Ibid., p. 16.

33. Ibid., p. 18.

While the studies reported by Gropper actually focused more upon the characteristics of visual stimuli and their integration with verbal stimuli in a programmed learning context, the role of television as the presentation medium for such instructional strategies is the distinguishing feature of the studies. The limitations of television as a medium for such lessons are listed by Lumsdaine and Gropper in their discussion of the difficulties that students faced in responding to the program:

... (a) the level of complexity of lesson content itself; (b) the fixed and uniform rate of presentation for all students, which precludes students taking as much time as they individually need for responding; and (c) the use of oral presentation in which, once the lecturer has spoken, the stimuli are available only from memory and not directly (perhaps reducing their ability to prompt correct responses.)

35 As a promising technique for improving and expanding the range of instructional behaviors that instructional television can effect, these studies go far in changing the traditional concept of instructional television. Further, they suggest that the audio-visual characteristics of television can be utilized to effect a much broader range of instructional behaviors than the traditional conception of it as simply a broadcasting and/or recording device for classroom teacher presentations.

Thus, it appears that, indeed, some of the limitations of instructional television can effectively be overcome so that, as Heinich suggests, it along with other mediated forms of instruction can become

alternatives to classroom instruction. If instructional television characteristics can effect a broader range of instructional behaviors than traditionally it has done, its applications can, as the N.A.E.B. quote on page 17 indicates, provide systematic learning experiences to students so as to reduce the content responsibility of classroom teachers.

That instructional television's range of instructional effects has been expanded, though in as yet unspecified ways, is evidenced by programs such as "Sesame Street" and "The Electric Company." In addressing himself to the question of how, in the absence of two-way communication, a television show like "Sesame Street" can provide feedback on the correctness of the viewers' responses, the former research director of the Children's Television Workshop comments on a development arising from the actions of an actor, Earl Jones, who recited the alphabet on the show:

At first a group of children... responded (to him) by repeating each letter.... As the segment became more familiar they tried to say the letter in unison with Jones. Still later they began to anticipate him, using his sounding of the letter only as a check on accuracy. Unwittingly we had developed a simulated version of information feedback similar to that of a two-way communication system.36

This development creates, in much the same way as the Lumsdaine and Gropper studies did, the conditions for a programmed learning context that effectively brings the desired response under the specified control

of the stimulus situation.

Generalizing from this phenomenon on "Sesame Street," Palmer goes on to say:

The significance of the ... Jones effect is that it flies in the face of the frequently voiced opinion that the instructional potential of television is inherently restricted by its physical limitations as a one-way communication method. It now appears that wherever the viewer can be induced to form an hypothesis which is later confirmed or denied on the screen, the learning experience involved is equivalent to that gained through actual two-way communication.37

Thus, it appears that the range of instructional behaviors effected by various characteristics of television can be considerably expanded beyond those traditionally associated with the medium. What remains to be done, however, is more effectively to categorize and define the types of instructional behaviors that can thus be brought about by television and to attempt to relate them to the conditions and techniques from which they arise. Such an effort would include commercial as well as educational television techniques.

In the context of this study, such a task is particularly important since it has been shown that the complexity of instructional systems development and planning requires that the range and limitation of particular instructional effects of components be known well before the occurrence of the planned instructional event or episode.

Problem Statement

Overview of the background. The foregoing discussion has explored the possibility of integrating mass-directed and instructional media in

37. Ibid., p. 21.
terms of curricular, planned educational events. A systems approach to educational development with its capability of unifying, for specific purposes, diverse components such as teacher-student and mediated interactions seems to be an appropriate and efficient method to achieve integration and expansion. However, it was pointed out that the characteristics of system components must be known or anticipated for successful systems development.

That media characteristics result in bringing about many of the types of learning behaviors often observed in traditional face-to-face instruction has been established by numerous researchers in the field of audiovisual education. Yet, the dynamics of presentation form, media, techniques, and instructional strategies for achieving specific, behavioral objectives have tended - especially in the case of instructional television - to reflect simply an elaboration or refinement of traditional, classroom instruction processes.

While observation systems for the analysis of classroom interaction have contributed to our knowledge and understanding of the teaching-learning processes in one particular setting, there are no comparable systems for the analysis of instructional communications events that may occur in non-classroom settings as well as in classroom settings typically associated with school.

Thus, the major purpose of this study is to develop a system that can integrate planned, curricular instructional communications (whether mediated through audiovisual techniques or teachers) and instructional, broadly persuasive, communications events that regularly occur outside of planned, curricular school settings. The basic requirement for such
an analysis system is that it must functionally relate accepted, well-defined educational strategies and tactics to techniques and production processes basic to any communications event.

The problem. The problem of the present study, then, is to develop a system for the analysis of both global and discrete curricular instructional communications events. Such an instructional communications analysis system will be based upon: (1) analysis of the instructional, broadly educational, and propaganda effects of the mass media of communications and their relationships to traditional schooling; (2) the determination and analysis of the types and ranges of instructional strategies and tactics that are generally produced or effected by presentation forms and currently available instructional media.

Further, the analysis system would (a) expand the concept of classroom instructional events to include all broadly educative or instructional communications, (b) functionally relate instructional strategies and tactics, presentation forms, and various media, and (c) provide guidelines for the design, development, production and utilization of instructional communications in specific, curricular situations.

In much the same way that classroom interaction analysis systems have provided conceptual and practical insights into discrete, traditional instructional events (classroom teaching), the Instructional Communication Analysis System will attempt to develop both conceptual and practical knowledge of an instructional mode that has in many respects supplanted the classroom event as a source and technique of education.
Need for the study. A great deal of research has been conducted in the last decade on the teaching process as conceived in numerous approaches to interaction analysis and other classifications schemes dealing with classroom instructional communications events. Simon and Boyer identify many such classifications schemes dealing, almost exclusively, with communications processes in an overtly didactic situation. While some of the instructional analysis systems they identify include considerations of non-verbal, mediated, and other forms of non-teacher verbal influences, it is clear that no instructional analysis system deals inclusively with non-classroom instruction per se. Further, there are no systems for instructional analysis that combine both discretely classroom-teacher and/or student-directed instructional analyses with broader-based media instructional analysis. Thus it is also clear that the description of teaching-learning situations in most, if not all, well known interaction analysis schemes centers exclusively upon the classroom as traditionally conceived. While the work of Withall, Flanders and Amidon, Hough and Duncan, and Galloway have significantly increased our knowledge of various verbal and non-verbal aspects of classroom communications (a broader term for interaction), they have not significantly increased by the same measure our knowledge of the numerous, mass-directed, and mediated verbal (symbolic) or non-verbal aspects of non-classroom instructional communications.

Thus, it appears that while our knowledge of one discrete type of

educational procedure has been rather thoroughly examined and understood, a broader, more culturally pervasive form of education in the form of mass mediated and mediated (non-teacher) instruction has generally escaped such scrutiny. Although extensive researches by sociologists and social-psychologists such as Katz, Merton, White, Lazarsfeld, Wright, and others have attempted to deal with the function of mass media in determining social-personal behaviors, their efforts have not, precisely, dealt with the educational and instructional facets of mass communications. Further, the research efforts of numerous audio-visual education specialists such as Allen, Schramm, Lumsdaine, Snow, Dale, and others have tended to focus primarily upon effectiveness measures of specific, generally isolated treatments of particular educational methods in relation to certain educational objectives. While a great deal of research in educational media is available to establish the notion that people can learn from specific kinds of media, elaboration on the problem of what kinds of presentations are most effective and on what can be learned from non-instructional uses of various media is severely limited.

As a result of the different research focuses by sociologists dealing with mass media and of educators dealing with particular, generally limited concepts of the educational potentials of various media, a void exists in our knowledge of the broadest forms of mass produced, mass disseminated terms of enculturation and, indeed, of general education. As George Gerbner points out: "We need to know what general terms of collective cultivation about existence, priorities, values, and relationships are given in collectively shared
public message systems before we can reliably interpret facts of individual and social response."\(^{39}\)

Assuming that some conceptualization can be devised to show how such broadly shared terms of collective cultivation are determined and understood, it is obvious that such a move would only partially fill the void.

That is, the value of such knowledge could only be appreciated when the overtly educational-instructional institutions of our society can apply the knowledge to determine, design, produce, and implement appropriate and effective educational experiences for its members. The question not only of "what are the broadest, general terms of enculturation," but of "how" they can best be learned and disseminated guide this research into the void described above.

Thus, the need for research that attempts at a global level to describe and analyze the general terms of enculturation for our society and, at a particular, discretely instructional level to provide a system for the analysis of instructional communications is fairly clear. That the traditional concept of classroom communications (inter-action) is frequently attacked on numerous levels is further indication of a change in the traditional paradigm of the nearly autonomous classroom teacher as main arbiter of the terms of reality in our society. The educational criticisms by Silberman, Friedenberg, Illich, and others suggest, among other things, that the traditional classroom structure is at least inefficient and, perhaps, destructive of what

many consider to be humanitarian, individualistic values. Consequently, the need for a broader-based, perhaps more efficient and more humanistic paradigm of instruction is necessarily linked with the need for research that attempts to analyze and determine the role of mass communications processes in disseminating the most general terms of reality or collective cultivation.

Finally, the articulation of an instructional communications analysis system is needed to provide adequate guidelines for instructional planners at the curriculum decision level. That is, assuming that some success is achieved in determining and understanding the broadly shared and mass communicated terms of reality (cultivation), then the need for designing and implementing appropriate and efficient educational systems is also clear. As Heinich suggests, the fundamental change in instructional paradigm reflects a move away from learning per se toward the management of learning. Thus, educational systems planning requires that all components of the system as input must be fully understood in terms of their effectiveness well before the instructional event occurs. The proposed analysis system could provide knowledge of the effectiveness of mediated instruction systems and offer guidelines for the selection and distribution of particular stimuli in relation to desired or expected responses of an instructional system.

Additional, related problems of the study. Because of the complexity involved in understanding and analyzing any communications

40. Heinich, loc. cit.
event whether in a tutorial, classroom, or mass audience situation, a number of questions emerge as sub-problems in the development and evaluation of the instructional communications analysis system:

1. Is it possible to formulate a system of instructional communications analysis that can be learned and used by others in the design, development, production and utilization of instructional communications?

2. Is it possible to demonstrate that purposeful, intended educational or instructional events are designed, produced, and disseminated for utilization in overtly non-educational institutions?

3. Is it feasible, given specific educational objectives, first, functionally to determine the kinds of instructional strategies and tactics most likely to enhance the achievement of the objectives and, second, to determine which media or combinations of media are most successful in effecting the stimuli and responses that characterize those strategies and tactics and, third, to relate both to the design, production, and utilization of instructional communications systems?

The criteria used to judge the effectiveness of the Instructional Communication Analysis System will be:

1. The System accounts for and explains all communications events that can be construed as having overt or covert instructional, educational, or propaganda intentions and/or effects.

2. The system, including its categories and rules for application, is usable by others.

3. The system can meet the requirement of all classification schema that categories be both inclusive and mutually exclusive at both the global and discrete, curricular communications levels or must contain different sets of categories for each level of discourse.

4. Use of the system suggest new areas of research that can illuminate some of the processes and problems of instructional communications.

**Limitations of the study.** The present study will be limited to the formulation of a multi-component system for the analysis of global
and discrete (curricular) instructional communications. It will involve the establishment of a theory of the dissemination and utilization of scientific, cultural, and professional knowledge (based upon analysis of the effects of mass dissemination of knowledge by the media of mass communications;) and will thereby provide a theoretical basis for the expansion of the traditional classroom instruction paradigm. The categories of the analysis system will be limited by and derived from a theoretical formulation of media characteristics. Further, the research will be limited to the operational-functional testing of the analysis system by the limited application of the analysis system to a currently available instructional television program. Only the visual aspect of television will be examined.

While the limitations of the study exclude the examination of numerous instructional communications such as field-trip, classroom, tutorial, and artistic settings, the limited application of the analysis system primarily to instructional television will evaluate its usefulness in analyzing a recent and most impressive instructional tool. Thus, the present study is limited to the development of an instructional communication analysis system limited by the following considerations:

1. It will develop a theory of the dissemination and utilization of knowledge which expands and changes the traditional paradigm of classroom instruction.

2. The theory of media characteristics will generate concepts which will guide the definition and determination of the categories constituting the analysis system.

3. In at least one instance, the analysis system will be tested operationally and functionally by its application to a currently available instructional television program.
program.

4. The operational and functional evaluation of the system will focus primarily upon the ability of observers to apply the categories.

Assumptions of the present study. The present study assumes that a number of relationships exist between global and discrete instructional communications.

First, the study assumes that human communication occurs as a process in which the elements of any communicative event are in some state of flux; that is, human communications events involve a degree of circularity or an element frequently termed "feedback". This does not, however, lead to the assumption that communication comes back, full circle, to exactly the same point from which it started. For example, a word, once uttered cannot be recalled by the speaker; thus, between the time of utterance and of receiving feedback relative to the utterance, the speaker is to some degree changed.

Second, it assumes that all human communications involve some element of intent as well as information qua information. So, while knowledge of the information content of a number of flips of a coin is useful, knowledge of the intent of the flipping is often equally significant. Thus, communication behavior involves, in most cases, some kind of goal-seeking. This aspect of communication may be termed linear. Combined with the self-corrective or informative feedback conception, human communications are viewed as dynamic, intentional interaction with elements of the context within which they occur.

Third, the study further assumes that all communications occur in some context or environment that exists apart from or has no necessary
causal relationship to the communication event.

Fourth, it is assumed that the context or environment within which a communication occurs has discernable, causal effects upon the communication which effects, if known, can result in effective self-reflexive or reciprocal clarification of the intent or meaning of the communication.

Fifth, the study assumes that the process of communication including the nature of the communication (meaning or intent), the nature of the audience (whether masses of people or discrete, well-defined groups of individuals are the intended receivers), and the nature of the communicator (his intent and effectiveness) is central to the teaching-learning process.

Definitions. Specific definitions of operational concepts will be provided in each phase of the study as needed for clarity. However, certain terms that appear throughout the study are defined below.

1. "Communication" is defined as the process by which an individual (or a group of individuals working in concert) acts upon the environment in such a way that in another individual (or group of individuals) an experience occurs which is similar to the experience of the initiator of the communication and, in part, is caused by the experience.

2. By "mass-directed communications" is meant communications which are directed toward relatively large, heterogeneous, and anonymous audiences often disseminated by means of public media (such as newspapers, radio, television, motion-pictures shown to large audiences) and which frequently are initiated by large organizations or by persons who operate in such organizations.

3. The term "mass-communications" may be distinguished by the referent of "mass" in the term; "mass" here refers to the quantity-volume of communications and their movement or transmission through typically public media.
Essentially, then, "mass-communications" is a concept closely related to "mass-directed communications" but emphasizes the movement of large quantities of information through public message systems.

4. "Instructional communications" is a term that refers primarily to the intent of the communicator. Such communications may be mass-directed, or face-to-face communications intended to result in changing the behavior of receivers in terms of behaviors identified or suggested by the curricula of an educational or training organization.

5. "Global communications" refers to all aspects of human perception resulting in the idea that something has been communicated or that an effort at communication has been made.

6. "Discrete communications" refers to the individual perception of communications events and his ability correctly to determine those message characteristics which indicate that a given message was intended for him and for no others.

Major concepts examined and developed by the study.

1. The context and content of any communication event determine the significance and meaningfulness of that event.

2. Global (mass-directed) communications events and personal communications can be analyzed and understood by reference to the principles of interaction between content and context.
CHAPTER TWO

EDUCATION, ATTITUDE, AND MEDIA

The purpose of this chapter is to expand the concept of education and to analyze the components of such an expanded concept. The expanded concept of education will be based upon an analysis of the dissemination and utilization of knowledge, the role of mass media, and of propaganda techniques. From a consideration of these factors, a description of the process of attitude formation will be introduced and elements of that process will be used to formulate the bases for an instructional communications analysis system developed in Chapter Three.

Introduction

The role of knowledge. The phenomenon often referred to as the information explosion is an indication of the extent to which scientific and technological knowledge has proliferated during the Twentieth Century. The need for our society to have appropriate and accurate knowledge readily available is well substantiated by numerous observers such as Peter Drucker in The Age of Discontinuity. Drucker suggests that the basis for wealth in Western society has changed from simple, mass production and traditional property ownership to the development and dissemination of knowledge in technical and scientific areas. Others too, have cited the need for efficient utilization of
scientific, technical, and behavioral knowledge in order to maintain, as well as to develop, what is now our most significant national resource: knowledge.

Jencks and Riesman in *The Academic Revolution* point out that academic specialization at the university level has resulted in enormous intellectual-technological development. Providing basic research knowledge, this academic specialization has provided a basis for both governmental and commercial application of such knowledge in the areas of mass production of goods, weapons, communications, and, most important, of management capabilities for directing and controlling such impressive resources as are indicated in the GNP of the United States.

Further, Jencks and Riesman point out that the development of the University Colleges and graduate schools have also significantly affected the entire range and operations of national schooling. They indicate that the model of the graduate institution has resulted in the demand for universal high school education as a prerequisite for full participation in American industrial society and as a necessary sorting and selecting agency of academic talent.

The split between thought and action. Numerous other commentators on the condition of life in American society have pointed out the constant pressures upon an individual to conform to social norms that may result in de-personalization. Jacques Ellul is one of the more provocative such commentators who makes the point that the demands of

institutions such as education, business, and government and their requirements for specific kinds of acts lead to a separation between an individual's thought and his acts. Discussing this split as the major task of modern propaganda, he writes:

The aim of modern propaganda is no longer to modify ideas, but to provoke action. It is no longer to change adherence to a doctrine, but to make the individual cling irrationally to a process of action. It is no longer to lead to a choice, but to loosen the reflexes... We are living in a time when systematically - though without our wanting it so - action and thought are being separated. In our society, he who thinks can no longer act for himself; he must act through the agency of others, and in many cases he cannot act at all. He who acts cannot first think out his action, either because of lack of time and the burden of his personal problems, or because society's plan demands that he translate other's thoughts into action.

Ellul's strongly stated notion of the split between thought and action is based upon a conception of propaganda - the effort to form men's attitudes to insure desired actions - that appears to be a remarkably accurate description of the processes of knowledge dissemination and utilization. (The terms dissemination and utilization will be abbreviated "D & U"). Knowledge D & U is a process that can be effected by mass media, schools, universities, and other organizations. A brief examination of the role of higher education and of propaganda in the D & U of knowledge in relation to the split between thought and action will lead to a thorough discussion of the emerging discipline of D & U processes.

The role of education in the split between thought and action. In this dissociation of thought from action one can see clearly the distinction between education which aims to clarify and validate the

criteria by which actions and thoughts are judged and propaganda which aims to assure certain actions of behaviors without corresponding evaluative thought. In discussing the influences of modern, technological societies upon the individual, Daniel Bell focuses upon the effects of propaganda:

... the self-deceptions - and often the single-minded careerism - of behavioral man (the mass-man foreshadowed by Ortega Y. Gasset) muffle a social conscience and a spirit of critical inquiry which are necessary attributed of a civilized man.

He goes on to discuss the role of education as a counterveiling influence on the individual:

The university cannot remake a world (though in upholding standards it plays some part in such attempts). It cannot even remake men. But it can liberate young people by making them aware of the forces that impel them from within and constrain them from without. It is in this sense, the creation of self-consciousness in relation to tradition, that the task of education is metaphysics, metasociology, metapsychology, and in exploring the nature of its own communications, metaphilosophy and metalanguage. This, in itself, is the enduring rationale of liberal education.

While Bell suggests an ideal and offers a rationale for effecting it, the problem of dissociation between thought and action among professional scholars is pointed up very thoroughly by Jencks and Reisman when they discuss the split between "hard" or objective research and "soft" experiences or the researchers' subjective knowledge:

... "hard" research has a persistent tendency to take on a life of its own, accumulating by an internal logic that takes no account of any one individual's subjective experiences. The researcher's work thus ceases to have any effect

4. Ibid., p. 154.
on the rest of his life, and conversely his life has little effect on his work. This development is one of the crucial ingredients of professionalization.\(^5\)

The effects of higher education, then, appear to increase rather than to diminish the dissociation between thought and action. That is, considering Bell's ideal and the professionalization of academic endeavors documented by Jencks and Reisman, the terrible irony of knowledge expansion linked with increasing subjective isolation from the bases for criteria application is well established.

As a method of diffusing knowledge generated through basic research, general education as noted by Bell has been, traditionally, a fundamental institution in the West. The combination of research that generates empirically verified knowledge, theories, and concepts with general education has, according to Chin and Benne, failed on another count. Namely, they suggest that the general education model typified by Bell's description has proved to be relatively ineffective in diffusing "thing technologies" (such as fluoridation techniques in the control of dental caries) due to a lack of basic research "... on people and their behavior, relationships, and institutions and a corresponding lack of emphasis upon social and psychological knowledges in school and college curricula."\(^6\) Classifying general school and college education as an Empirical-Rational Strategy for effecting planned change, they go on to suggest a remedy for its failure in diffusing certain kinds of innovations:


It would follow in this view that increased basic research on human affairs and relationships and increased efforts to diffuse the results of such research through public education are the ways of making the general strategy work better.7

Thus, the education is viewed as a diffusion strategy for improving the process of adoption of innovations engineered and developed from the application of basic research knowledge. An important assumption is made in such a conception of the general education process. Essentially, such a conception assumes that what is to be diffused for adoption has value and meaning for the public and that only a divided public opinion or a perceived threat from a new technology inhibits adoption. The function of general education, then, becomes in part the diffusion of innovations through the development and application of basic knowledge about human behavior.

The professionalization of academicians described by Jencks and Reisman and the resulting increase in basic knowledge production relies heavily for financial support upon federal and foundation or corporate funds. Discussing the role of foundation and federal financial support for programs of basic research, Jencks and Reisman indicate that such phenomena have even further removed thought from action:

... almost all major universities have today recognized the federal government and the major foundations as the most promising potential sources of extra funds for graduate programs and research. This inevitably accentuated the professional impulse to pursue exclusively meritocratic production oriented policies, which impress leaders in national centers of power, rather than responding to the parochial claims of local politicians, donors, or vigilante groups.8

7. ibid., p. 38.
8. op. cit., p. 268.
The national impact of the concentration of funds for research and development of basic or applied research is illustrated by Jencks and Reisman when they write:

Research funds have been concentrated in a few dozen leading universities. Most of the rest has gone to another two-hundred-odd universities.... The eighteen hundred less distinguished public and private institutions have gotten almost nothing....

The effects of this concentration of funds among a few of the top graduate schools further heightens the disparity between thought and action, between basic knowledge and individual behavior, making the elements for rational decision-making a problem solving ever more remote from the individual who must act.

Consequently, not only does general education as conceived by Bell become more difficult to achieve because of the emphasis upon pure and applied research among professional scholars at the expense of teaching, but in a real sense, only those scholars - academic professionals - who are engaged in developing pure and applied research appear to be fully in touch with the elements of a liberal education that justify it as an educational institution. Perhaps the conception of general education as a diffusion strategy and the implication that the modification of attitudes toward adoption of innovations is its major function is a more realistic notion of general education in a technological society.

Education, propaganda, and the knowledge economy. It is at precisely this point in the discussion of the split between thought and

9. Ibid., p. 269.
action that education and propaganda as major functions of our society become very difficult to distinguish. That is, the distinction between the fully evaluated and rationally analyzed adoption of an innovation in problem-solving situations, and the hurried, less thoughtful adoption of an innovation in a problem-solving situation that requires immediate resolution seems to blur and, at times, to disappear. One major cause of the dichotomy between adoption as a result of propaganda and adoption as a result of education is the nature of a knowledge versus a service economy.

What has been discussed so far indicates the enormous concentration in a few institutions (namely, the large, prestige universities) of funds and of professional manpower for the development of basic and applied research. The resultant split for the individual between thought and action is, apparently, not remedied by the tradition of general education as a method of encouraging a rational self-consciousness in judging the appropriateness or value of types of knowledge and of its applications in the form of innovations. The alternative view of general education in schools and colleges discussed above suggests that general education serve as a diffusion strategy for the adoption of innovations with accompanying application of basic research into human conduct serving as a technique to assure adoption.

However, such an alternative, more practically oriented higher or secondary education tends to beg the question of the desirability or need for any given innovation to be adopted by the society or the single individual. Further, the notion of using knowledge from basic or even applied research to enhance the adoption of particular innova-
tions suggests an essentially propagandistic conception of the role of knowledge for the individual. Ellul clarifies this point when he discusses the impact of specialized or even general knowledge that engulfs the individual:

Except for the specialist, information, even when it is very well presented, gives people only a broad image of the world. And much of the information disseminated nowadays - research findings, facts, statistics, explanations, analyses - eliminate personal judgment and the capacity to form one's own opinion even more surely than the most extravagant propaganda.

The more the techniques of distributing information develop, the more the individual is shaped by such information.

Perhaps one major influence in the effort to encourage the diffusion and adoption of innovations, whether or not the individual is able to evaluate fully and self-consciously the meaning or value of an innovation is what Drucker terms "the knowledge economy." He cites Fritz Machlup as the person who coined the term, "knowledge industries," and provides a description of their nature as well as their impact:

The "knowledge industries," which produce and distribute ideas and information rather than goods and services, accounted in 1955 for one-quarter of the U.S. gross national product... by 1965, ten years later, the knowledge sector was taking one-third of a much bigger national product. In the late 1970's it will account for one-half of the total national product. Every other dollar earned and spent... will be earned by producing and distributing ideas and information, and will be spent on procuring ideas and information.

The knowledge industries, then, focus upon the production and dissemination-diffusion of ideas and information and, indeed, survive, expand, and develop through their utilization of knowledge based

10. op. cit., p. 87.

technologies. Drucker further suggests that knowledge is the principal resource in all production:

Economists still tend to classify the "knowledge industries" as "services..." But knowledge has actually become the 'primary' industry, the industry that supplies to the economy the essential and central resource of production ... where the farmer was the backbone of any economy a century or two ago ... knowledge is now the main cost, the main investment, and the main product of the advanced economy and the livelihood of the largest group in the population.12

"Knowledge", as Drucker indicates, in a knowledge economy is different from "knowledge" in an intellectual sense:

For the intellectual, knowledge is what is in a book. But as long as it is in the book, it is only 'information' if not mere data. Only when a man applies the information to doing something does it become knowledge.13

Thus, in terms of the technological, or advanced, economy, knowledge is whatever information, idea, theory, or concept that can be utilized for diverse purposes. The congruence between basic (or in Drucker's terms, intellectual) knowledge stemming from basic or pure research and applied knowledge, commonly defined as "engineering," in terms of the development of innovations appears to be a phenomenon not limited, simply, to the major graduate schools in our society.

Indeed, the demand for research, development, diffusion of basic knowledge as applied in specific innovative products, attitudes, or ideas seems to characterize most of the institutions in a technological society. The effects of the basic and applied research activities of a knowledge economy as reflected in the modern, giant corporation

12. Ibid., p. 271.
13. Ibid., p. 269.
are admirably recounted by John Kenneth Galbraith when he suggests that those members of an organization who contribute specialized knowledge to group decisions affecting management constitute the technostructure of an organization. He says that "this (group), not management, is the guiding intelligence - the brain - of the enterprise."

In great and lucid detail Galbraith develops the notion that the technostructure and the scientific and educational estate tend to hold similar concepts of the methods and even the goals appropriate to their separate milieus. The general nature of the relationship between business and academicians is clarified when he writes:

> With the rise of the technostructure, relations between those associated with economic enterprise and the educational and scientific estate undergo a radical transformation. There is no longer an abrupt conflict in motivation. Like the educational and scientific estate, the technostructure is no longer exclusively responsive to pecuniary motivation. Both see themselves as identified with social goals, or with organizations serving social purposes. And both seek to adapt social goals to their own. If there is a difference it is not in the motivational system but in goals.

As Galbraith later indicates, the difference in goals between the technostructure and the educational and scientific estate is sometimes indistinct. Jencks and Reisman have pointed out that the needs of the state and of business require applied knowledge and do not dictate the method of inquiry used by various academicians in meeting their needs. As long as a discipline can be advanced by acquiring research grants that may specifically require applied research but which do not prohibit

15. Ibid., p. 76.
the use of scientific methods relevant to particular disciplines, it is doubtful that such conflict of methods or even of goals will disturb the relationships between the academic professions and corporations and government.

While basic research appears to remain the prerogative of universities and industrial research and development organizations through their graduate departments, the concern for applied knowledge involves not only the universities but the state and corporate structure of the society. There seems to be little question, then, that basic and applied knowledge as a major factor in the production and maintenance of the elements of a technological society must be efficiently diffused among all potential users. Further, the diffusion of applied knowledge in specific innovative forms such as hardware, ideas, theories, and attitudes must result in the adoption of those innovations by individuals constituting various organized groups.

The dissemination and utilization process and the individual. The initial problem discussed earlier of the split between thought and action has been somewhat expanded by a brief consideration of the phenomenon frequently termed the information explosion. It appears inevitable that, under such circumstances as are encountered in a knowledge economy, nearly every individual will be faced with the necessity of having to determine with his limited knowledge the value and meaningfulness of some innovation that appears to satisfy a particular need or to resolve some problem. The information explosion, contrary to traditional conceptions of the role of knowledge in an individual's life-style, makes such determinations of value or decisions
for utilization more, not less, difficult.

While the expansion and utilization of basic and applied knowledge places the individual in such a precarious position, it is clear from the discussion of academic, business, and governmental institutions and organizations, that the processes of knowledge development, dissemination, and utilization are essential to their interests and success. Almost all human needs in a technological society are met by institutions as Ellul points out. There exists the constant temptation or inclination among the professional knowledge workers who constitute and direct the institutions to define the needs they ostensibly serve or express by reference to what their institutions can and do provide.

Ivan Illich\textsuperscript{17} points out, health tends to become what doctors and hospitals provide, and education, what the schools and teachers offer their respective clients. Thus while the institutional and organizational utilization and expansion of knowledge are instrumental in discharging their social functions, the use of knowledge by social institutions and organizations may also tend to determine or define the limits and nature of human needs.

This concept of the monolithic institutional and organizational use of basic and applied knowledge serves to sharpen the agon of the individual whose needs, ostensibly, provide the raison d'etre for all social organizations and institutions. The process by which human needs or desires are defined by the very organizations that serve them is described for businesses succinctly by Galbraith as the firm's

\textsuperscript{17} Deschooling Society.
emancipation from the uncertainties of the market. This emancipation means that the firm controls the prices at which it buys whatever it requires for production and takes steps to insure the necessary supply at determined prices. Further, the firm controls, through extensive planning, the prices of and the quantities of its products. As Galbraith states:

"The revised sequence" as Galbraith terms it is precisely the process that corporations utilize to create demand for the products under research and development. The process consists of creating needs, the solutions to which are the new or innovative products soon to be available. In much the same way, it appears, the functions of many other types of organizations and institutions tend to subordinate to their own exigencies of knowledge utilization the individuals whom they serve.

Drawing an analogy between school and corporate processing of individual needs, Ivan Illich delivers a scathing account of how schools package and "sell" curricular learning:

School sells curriculum - a bundle of goods made according to the same process and having the same structure as other merchandise. Curriculum production for most schools begins with allegedly scientific research, on whose basis educational engineers predict future demand and tools for the assembly line, within the limits set by budgets and taboos. The distributor-teacher delivers the finished product to the consumer-pupil, whose reactions are carefully studied and charted to provide research data for the preparation of the next model, which may be "ungraded," "student-designed,"

18. op. cit., p. 110.
"team-taught," "visually-aided," or "issue-centered." Illich's indictment of the "schooled society" rests precisely upon the demands placed on individuals to adopt or to consume innovations generated by the utilization of basic and applied scientific research by all institutions and organizations. What Galbraith terms "the revised sequence" and what Illich calls "the schooled society" are virtually the same phenomena with differing organizational or environmental contents: the creation of needs or problems, the satisfactions of solutions to which needs and problems are produced or offered by appropriate institutional processes. What is clearly suggested by the advent of institutionally controlled or influenced individual consumption of goods and services is the ability to specify the desired individual behavior which can in turn be followed by the capacity to effect those behaviors by a diverse assortment of techniques or processes. These range from crude sales pitches to the most refined, sophisticated instructional systems based upon behaviorally defined objectives.

The specification of behavioral objectives makes possible not only the measurement and evaluation of individual performance relative to the objectives, but, as well, the processes and techniques utilized in realizing them.

Summary. The previous discussion pointed out that the so-called information explosion is a phenomenon linked to the extensive needs and demands for knowledge within a technological society. The subsequent distinction or, at least, heightening of the distinction between thought and action was seen to be a primary social and educational

19. op. cit., p. 41
problem. The power of institutions ranging from education to health care to define and to process the needs they ostensibly serve was also pointed out as being a situation attendant to the changing Western society from a service to a knowledge-based society.

Thus, the function of dissemination and utilization of knowledge is one that is no longer the major or sole concern of the educational institutions of a given society. While schools, colleges, and universities remain essential components in the diffusion of knowledge, it has become obvious that all institutions, in order effectively to provide their services must to some extent actively engage in training or educating their clientele in the use of their services. Their services - whether hardware or software - are, indeed, the product of the use of specialized knowledge. The large investment by most institutions in the areas of basic and applied research or in the retrieval of such knowledge is essential to their continued existence. Needs which a variety of institutions serve must be satisfied largely by what they can provide, or their investment will not be cost effective.

The process of knowledge D & U will now be examined in an effort to relate the processing and use of knowledge to the broadly instructive-educational efforts of American institutions and to formulate from such an examination a description of the process of attitude formation.

The D & U Process Models

Concepts of D & U processes. Dissemination and utilization of knowledge involves two basic concepts: the diffusion of the knowledge and its intended or prospective use by the receiver of the knowledge.
The term "dissemination" in this context suggests the purposive activity involved in assuring the diffusion of particular information. Thus, while many kinds of knowledge or general information may "diffuse" throughout a society without purposive direction or control by a discrete source, this work is concerned only with the intentional, organized communication process involved in attaining the diffusion of particular information.

Typically, the need to assure the fullest and most efficient use of knowledge in the form of innovations is the concern of writers in the emerging field of D & U processes. Thus, the knowledge or information discussed here refers to knowledge or information about innovations whether they are hardware or "thing" technologies or conceptual innovations in management processes, etc. Rogers defines "innovation" in this way as do most other writers in the field. He writes: "An innovation is an idea perceived as new by the individual."20

However, knowledge of an innovation is only half of the concern of the D & U process. Obviously, the dissemination of knowledge in this context is aimed toward gaining the receiver's use of the innovation about which he is informed. This goal is termed "adoption" by writers in the D & U field. "Adoption," according to Rogers is "... a decision to continue full use of an innovation."21 This, of course, suggests that something must precede the dissemination of knowledge about an innovation and the individual's decision to adopt it. The process of

adoption is what occurs between the two events. Rogers states that there are five stages in this process: (1) awareness, (2) interest, (3) evaluation, (4) trial, and (5) adoption.22

The D & U of knowledge, then, 'involves' knowledge (either in the form of a particular innovation or knowledge of the innovation itself) that is communicated to groups of individuals (or single individuals in certain cases) in order to change their behavior relevant to the knowledge communicated. In a sense, then, all D & U processes involve communications events.

With varying points of view, researchers in the D & U process have generally tended to follow three models defined by Ronald Havelock23 as Social-Interaction, Problem-Solver, and Research, Development and Diffusion. A brief examination of the basic qualities of each will provide a basis for the extension of the concept of general education and for the description of the process of attitude formation.

The social interaction model. Perhaps the most well developed model of D & U processes is the social interaction model, which rests upon a large number of empirical studies ranging from anthropology to rural sociology. The basic tenets of the social interaction model according to Havelock include:

(1) the importance of the social relations network, (2) the user's position in that network, (3) the significance of informal personal relationships and contacts, (4) the importance of reference group identifications, (5) the essential irrelevance of the size of the adopting unit, and (6) the

22. Ibid., p. 81.

differential significance of different types of influence strategies at different stages in the adoption process.24

While a thorough discussion of each of the tenets of this D & U model is not possible here, it is necessary to point out a few aspects of this model that give it significance in this study. First, the identification by Rogers of the stages in the adoption process is a most significant contribution to the concept of D & U. Rogers notes that at each stage of adoption, certain sources of influence are more effective than others. He writes:

Information sources vary on the basis of (1) stage in the adoption process, (2) the characteristics of the innovation, and (3) adopter category.25

The adopter categories are basically classifications of individuals on the basis of their innovativeness relative to others within the same social system. Rogers identifies five such categories: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards.26 The categories assume statistical properties in that they may be partitioned by laying off standard deviations from the average time of adoption. Thus, the distribution of the categories fall under a normal curve as shown in figure 1.

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<th>Early Adopters</th>
<th>Early Majority</th>
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<td>Innovators</td>
<td>13.5</td>
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<td>16</td>
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Figure 1. Adopter Categories (From Rogers, p. 162.)

24. Ibid., p. 11-7.


26. Ibid., p. 179.
Thus, relative to any given innovation, the distribution of adopters over time may be considered normal.

Each stage in the adoption process is rather clearly demarked. The stages are characterized by Rogers as:

1. **Awareness Stage**: "... the individual is exposed to the innovation but lacks complete information about it."

2. **Interest Stage**: "... the individual becomes interested in the new idea and seeks additional information about it."

3. **Evaluation Stage**: "... the individual mentally applies the innovation to his present and anticipated future situation."

4. **Trial Stage**: "... the individual uses the innovation in a small scale in order to determine its utility in his own situation."

5. **Adoption Stage**: "... the individual decides to continue the full use of the innovation."27

Relating the adoption stages to information sources, Rogers indicates that

A generalization supported by many studies is that impersonal information sources are most important at the awareness stage, and personal sources are most important at the evaluation stage in the adoption process.28

Rogers further notes that "impersonal" communication sources generally refer to mass media. Discussing the sources of information most frequently used by persons in each adopter category, Rogers notes several general tendencies for certain adopter categories. First, impersonal sources are more important than personal sources for


earlier adopters than for later adopters. Second, cosmopolite sources are more important than localite sources for earlier adopters than for later adopters. Third, earlier adopters utilize information sources that are in closer contact with the origin of new ideas than later adopters are. Fourth, earlier adopters utilize a greater number of different information sources than do later adopters.

Thus, it is fairly clear that earlier adopters tend to be cosmopolite (have sources of information from outside the social system), well informed, and perhaps better educated. In effect, they tend to be opinion leaders as that concept is defined by Robert Merton\textsuperscript{29} and others.

The D & U of knowledge from the social-interaction model or perspective is, basically a generalized conception of the learning process that relates source of information and learner types to the intended outcome of the learning process: the adoption of an innovation. As Havelock points out:

\begin{quote}
The adoption by an individual of a single innovation can be considered simply as one specific instance of the phenomenon of learning.\textsuperscript{30}
\end{quote}

That is, the adoption curve and the learning curve are identical. In much the same way, the diffusion of an innovation within a particular social system can represent the learning rate of all the individuals in the system according to the adopter categories.

Thus, the social-interaction model for the D & U of knowledge is a generalized teaching-learning model for a society. One of the

\textsuperscript{29} Social Theory and Social Structure.

\textsuperscript{30} op. cit., p. 10-4.
shortcomings of the social-interaction model, however, is that most re-
searchers in this tradition tend to view innovations as hardware items.
That is, because of their strongly empirical research mode, it appears
that the innovations they study tend to be those that are easily
traced in diffusion through a given social system. Another weakness
of this model is the tendency to ignore the internal processes of an
adopter as he passes through the stages of adoption. Thus, learning
textory, for example, is seldom considered in accounting for the
adoption process. It is important, then, to examine two other D & U
models that focus upon the areas neglected by the social-interaction
model.

The RD & D model. The research, development, and diffusion model
(RD & D) begins with a thorough consideration of the innovation. It
accounts for the extremely complicated process of D & U by tracing the
origin of any innovation back to the basic, scientific research from
which it stemmed. The model, logically and systematically links basic
research, applied research, development and testing, mass production
and packaging, and planned mass dissemination.

While each of the phases of this model involve extensive and com-
plex operations, it is necessary here only to discuss a few of them in
relation to the general D & U processes important in developing the
basis for an instructional communications analysis system.

Basic research is conceived generally to mean the kind of research
identified by Jencks and Reisman earlier. It involves the study of
specific phenomena guided by empirical-scientific theories of ways of
knowing. Thomas Kuhn in *The Structure of Scientific Revolutions*
indicates that basic research is guided by the currently accepted paradigm within a given discipline. It is very important to note, then, in relation to D & U processes that concepts of basic research are quite changeable and that such changes may result in new kinds of innovations ranging from simple gadgets to entirely new social processes and constructs. Thus, the basic research component in this model may in many cases account for the most significant and far-reaching innovations in any society. It should also be added that the so-called scientific method of knowing as a paradigm has itself been one of the innovations stemming from basic research and affecting numerous changes in many fields of study during the Twentieth Century.

The other phases of this model that have significance for this study include the mass production and packaging of innovations and the planned mass dissemination of innovations. These phases of course closely approach the model of mass production of consumer goods and the planned marketing activities in distributing them. Essentially they are the same. It is clear, then, that the RD & D model focuses more upon the nature of the innovation and its dissemination than upon the needs of potential adopters. What can be done in terms of science and technology, will be done. Perhaps this is necessitated by the elaborate expenses of time and money involved in the RD & D model.

Havelock\(^\text{31}\) characterizes the major points of the RD & D model in some detail. First, he notes that the model is extremely rational in that it suggests the need for a fully developed and tested innovation before dissemination occurs. Second, Havelock clarifies the need for

thorough planning and specialized knowledge in the form of a clear division of labor. Finally, he notes the extremely high cost in time and money; the high cost, however, is logically conceived as necessary and acceptable in terms of the high quality, readily usable product.

The strengths of this model of D & U complement the social-interaction model which usually ignore the RD & D processes. However, it is also clear that this model fails to account for the needs of the user or to consider his position in a given social system network. Most significant, however, it tends to be a highly idealized conception of the major phases of knowledge D & U. Thus, it assumes the existence of a passive consumer who has no or little influence on any of its phases.

The problem-solver model. While the social-interaction and RD & D models tend to ignore certain needs or processes of the user or adopter, the problem-solver perspective of D & U processes suggests that the user-adopter is the center for all D & U. According to Havelock the problem-solver perspective "... rests on the primary assumption that knowledge utilization is a part, and only a part, of a problem-solving process inside the user which begins with a need, and ends with the satisfaction of that need."^{32}

The writers in this school of thought about the D & U process posit a series of steps perceived by individuals who become adopters of innovations that serve a specific need. Havelock reports^{33} that there are six major steps in this need reduction cycle. First is the felt

32. Ibid., p. 11-10
33. Ibid., p. 11-11.
need that is articulated and specified; second is the diagnosis of the need as a problem that requires solution; third, is the identification and search for resources that may solve the problem; fourth is the retrieval of potentially workable solutions or pertinent ideas; fifth is the translation of the potential solution or idea into workable, specific solutions for the individual; and sixth is the behavioral try-out of the solution and redefinition.

The problem-solver model obviously focuses upon the internal perspectives of individual adopters as distinct from the attention given the individual by the other models. As such it complements both of them and adds the notion that only those innovations perceived as useful or needed by the user are of any significance. Thus, the entire realm of development and diffusion as well as the various social contexts of individuals are essentially ignored.

This model's main strength is also its greatest weakness. That is, it assumes that individual need-problem definition and solution is the best, most persisting kind of adoption while also assuming that individuals indeed can identify and ultimately solve their own problems. In the context of a highly technological society in which problems for some individuals are solutions for others, this assumption is very tenuous.

However, as Havelock\(^3^4\) points out, the problem-solver model suggests that resources and resource people can help the individual in formulating the problem and in searching for potential solutions. Further, the role of such resource persons is conceived as being non-directive,

\(^3^4\). \textit{Tbid.}, p. 11-14.
thus avoiding the imposition of one person's will upon another person. Another significant aspect of this model is that it emphasizes the role of internal resources of the individual as potential solutions. Thus, the individual's own capabilities are seen as potential sources for the solution of his problem.

The problem-solver model, however, contains at least three drawbacks as a model for D & U of knowledge. These are, according to Havelock, the stress upon the individual, the minimized role of outside resources, and the failure of this model to account for mass dissemination of innovations. Relative to the first criticism it is only necessary to recall the adopter categories of Rogers and their characteristics. That only two and a half per cent of the individuals in a given social system are innovators is clear indication of the limitation of innovativeness within a given social system. Further, it is questionable that most people are indeed capable of defining or solving their own problems. In effect, the model assumes a high degree of rationality, personal insight, and creative problem solving in individuals although the assumption is fairly optimistic.

The other criticisms of the model suggest that it is too specific and limited in scope to explain mass D & U processes. It is clear that the need for outside resource persons to effect an innovation-solution is a severe limitation. Such a condition retards the speedy diffusion of particular innovations through a population although the personal value of thorough examination of an innovation-solution certainly is desirable.

35. loc. cit.
This review of the basic models of the D & U process has revealed three complementary perspectives of the ways in which change in the form of innovations occur. The weaknesses of one model are compensated for in another. Thus it appears that a thoughtful strategy for the D & U of an innovation might consist of various aspects of each model. Havelock's concept of "Linkage"\(^{36}\) does precisely this. Essentially, linkage combines the strengths of each model into a single model or perspective. It begins with the individual's need and the process of problem clarification; it then leads to a search of external sources which in turn simulate the user's need and continue a search in even more remote source-systems. Ultimately a potential solution is fabricated from basic or applied research sources, is tried out, and is returned to the initiator's system for further trial leading to adoption. The process is cyclical and has the strength of beginning with the original need.

**The New General Education**

**Learning and the D & U process.** The significance of the D & U process models in this study lies in the comprehensive nature with which they account for a new concept of learning: the adoption of innovations. Essentially these models of D & U of knowledge suggest rather straight-forwardly that to learn is to adopt. In an industrial and technological society that tends to measure success by reference to material well-being, this formulation of learning - of acquiring new changing life-styles as well as products - is precisely a broadly social

form of propaganda.

The defense of such D & U processes used by many institutions to assure the utilization of their products or services lies in the frequently mentioned notion of rapid social change. The proliferation of discoveries of technique and hardware appear to demand that people and organizations be able to accommodate themselves and their operations to constant change.

However, an analysis of the D & U processes reveals that change and the need for it are simply the creations of the institutions in a technological society. Thus, far from being models for the solutions of social problems arising from an advanced technological society, the D & U processes described above are models for problem-making. That is, the D & U models are useful in creating awareness at several social levels, simultaneously, of problems, the solutions to which are the innovations already on hand.

This problem-making process becomes clear when the three basic models are carefully examined in light of the notion that adopting is learning.

The D & U process and problem-making. The problem solving model is an excellent starting-point for such an analysis. This model of the D & U process begins with the felt need of an individual. Ideally, of course, this leads - with outside help possibly - to the specific problem analysis and definition. It will be recalled at this point that one of the major weaknesses of the social-interaction model was that it generally ignored this individual, internal process in the adopter. However, the two models admirably complement one another in that no
individual who is likely to become an adopter is strictly isolated; he is much more likely to be a member of numerous groups of a primary and secondary nature. In fact, an individual according to Ellul even when alone and apparently isolated in his home or in a theater is in fact a member of the audience which constitutes a discrete though discontinuous group. Thus, the individual who experiences a felt need is immediately a part of some group whose other members may simultaneously or singly become cognizant of a similar need. It is precisely at this point, of course, that the powerful D & U model of social-interaction becomes the more viable method of a D & U effort.

Awareness, the first stage in the social-interaction model of D&W and felt need go hand-in-hand in any effective D & U effort. Thus, the use of mass media to create awareness of an innovation is also simultaneously used to create the very need which the innovation offers to resolve. The "interaction effect" identified by Rogers is crucial at this stage in the adoption process since the distribution of adopters over time is normal; thus, more cosmopolite and better educated persons who are opinion-leaders begin to influence less innovative persons in the same social system. Rogers notes this effect when he writes:

Once formed, opinions about an innovation are reinforced by interaction with others... Thus, personal influence not only helps to determine original opinions about an innovation at the awareness stage, but also consensually validates this opinion once it is formed.

37. op. cit., p. 71.
38. op. cit., p. 154.
39. Ibid., p. 224.
Thus it can safely be said that the individual who does not quickly perceive a problem relative to a given innovation (of which others in the same social system have an awareness and subsequently feel a need) will soon come to face one. Typically this kind of individual according to the social-interaction model would be likely to fit the adopter category of "laggard."

Value-decisions and innovations. If, to pursue this view of D & U, the question of the real value of any given innovation is asked, the answer is likely to rest upon the action of the innovator categories or early adopter categories. That the people in these categories tend to be more cosmopolite, closer to the source of the innovation, and better educated and informed than those in other categories, it is frequently argued, tends to provide a sort of intellectual-cultural basis for judging the particular innovation as valuable. However Ellul argues convincingly that such a criterion for measuring the value of any change is insufficient:

... excessive data do not enlighten the reader or listener; they drown him. He cannot remember them all, or coordinate them, or understand them; if he does not want to risk losing his mind, he will merely draw a general picture from them.40

Further, Ellul notes the effect of having more information and of being "closer" to the source of the innovation being disseminated. He indicates that propaganda as he conceives it is the operation of a technological society that determines what things are worth knowing in behalf of its own perquisites of existence. He writes:

40. op. cit., p. 87.
Propaganda techniques have advanced so much faster than the reasoning capacity of the average man that to close this gap and shape this man intellectually outside the framework of propaganda is almost impossible. In fact, what happens and what we see around us is the claim that propaganda itself is our culture and what the masses ought to learn.41

Thus when the more informed and more cosmopolite individuals in a given social system perceive an innovation as being valuable using their information and proximity to the source as major criteria for judgment, it appears that they are simply very effective tools for the action of propaganda. Ellul notes that

... propaganda does not base itself on errors, but on exact facts. It even seems that the more informed public or private opinion is ... the more susceptible it is to propaganda.42

Thus, the social-interaction and problem-solver models of D & U processes complement each other in the initial stages of each model leading to adoption. The genuine and sophisticated qualities of innovators and early adopters do not make them immune from the general, social pressures to utilize new knowledge or innovations even without the critical and evaluative analysis of the meaning and value of innovations. While the case may be made that adoption by such people (innovators and early adopters) is at times a result of complete analysis of the innovation's value - as in the case of certain drugs adopted by doctors - it is hardly possible to assert that even in such cases the adoption is an undisguised miracle. Apart, perhaps, from major medical control of plague, epidemic, and disabling diseases, the use of drugs

41. Ibid., p. 109.
42. Ibid., p. 113.
to control birthrate and pain is loaded with numerous moral-social norm questions. Assuring the adoption of any new idea or innovation is propaganda.

The RD & D process as problem-initiation stage. The process does not necessarily begin, however, at the felt need and awareness stages. As suggested above, individuals are made aware of their lack and subsequently of their new needs. The three models of the D & U process converge in the generation of this state of being. It will be recalled that the RD & D model included mass production and packaging and planned mass dissemination activities. Typically these phases do not follow the rigid progression of the model. Rather, it is clear that no RD & D effort by an organization will result in mass production and packaging of an innovation unless there is prior assurance of its adoption or consumption. The risk of capital loss will not occur without reasonable assurance of success in the form of continued existence for the organization and, in the case of private organizations, of profit. Thus, the phase of mass production and packaging in reality follows the planned mass dissemination phase of the RD & D model. These two phases will now be examined.

That mass production as a phenomenon of a technological society does not occur spontaneously or as a result of the simple availability of the means of such production techniques applies both to general consumer goods - such as cars, appliances, etc. - and to exotic or scholarly products - such as books, programs etc. - as well. The management of demand and planning of consumption occur well before the implementation of production activities. This situation is well
clarified by Galbraith in The New Industrial State. Discussing the impact of costly technological apparatus for production in terms of the corporation's need to control what it pays for supplies as well as to control demand and price for its product, Galbraith comments:

As so often, change in the industrial system has made possible what change requires. The need to control consumer behavior is a requirement of planning. Planning, in turn, is made necessary by extensive use of advanced technology and capital and by the related scale and complexity of organization. These produce goods efficiently; the result is a very large volume of production. As a further consequence, goods that are related only to elementary physical sensation ... have come to comprise a small and diminishing part of all production.... Thus it comes about that, as the industrial system develops to the point where it has need for planning and the management of the consumer that this requires, it is also serving wants which are psychological in origin and hence admirably subject to management by appeal to the psyche.43

Thus it appears, as Galbraith suggests, that management of consumer demand and the need to create a general social context which enhances the overall power of the corporation as an institution go hand-in-hand. That is, management of consumer demand alone will not suffice to meet the needs of a technological, production-oriented society. Rather, according to Galbraith, the aims of the state and of the society at large must be accommodated to the aims and needs of the corporation. This point is clarified when he argues that members of the controlling administration of corporations identify themselves with the goals of the corporation and that a similar relationship exists between the mature corporation and government:

The state is strongly concerned with the stability of the economy. And with its expansion or growth. And with

43. op. cit., p. 201.
education. And with technical and scientific advance. And, most notably, with the national defense. These are the national goals; they are sufficiently trite so that one has a reassuring sense of the obvious in articulating them. All have their counterpart in the needs and goals of the technostructure. It requires stability in demand for its planning. Growth brings promotion and prestige. It requires trained manpower. It needs government underwriting of research and development. Military and other technical procurement support its most developed form of planning. At each point the government has goals with which the technostructure can identify itself. Or, plausibly, these goals reflect adaptation of public goals to the goals of the technostructure.

Thus, as Galbraith suggests, not only must consumer demand for specific products be a pre-condition for their mass production, but, as well, the general context of a society must and does reflect precisely those goals and conditions that enhance the likelihood of such consumer demands occurring. Maintenance of such a social context or environment is a necessary pre-condition for the creation of any specific (non-physical) need. As a result, the D & U process model, though generally concerned with the diffusion of new ideas arising from basic or applied research depend upon the same kind of relationship of basic research and product as exists in the area of commercial consumption. In fact, there is little reason - except for overtly consumer goods such as cosmetics - to assume that there is any real difference between academic or intellectual innovations and more technical mass consumer innovations since both serve psychological rather than purely physical needs, which can easily be artfully generated.

The convergence of the three D & U models, then, results in the

44. Ibid., p. 309.
purposeful creation of demand for an innovation (or product) which it is possible for an organization - a research institute, or university, a corporation, etc. - to produce and disseminate. It is further clear that a necessary precondition for such a D & U process is a similar operation in creating a new or amenable social context within which such innovations or products will satisfy new needs. This context-making process will be discussed at length later, since it involves the role of mass media. A review of the convergence of the three major models of the D & U process will clarify the basis for the expanded concept of education in a technological society.

The convergence model. Essentially the action involved in changing an individual's behavior toward a specific end or desired response can be viewed as a very broad conception of education and of instruction in particular. As indicated earlier by Rogers, the adoption by an individual of a particular innovation is the goal of all D & U processes. It is necessary, however, to view what precisely is the innovation as the content of this expanded concept of education and adoption as the behavior which will be taken as necessary and sufficient evidence that what was taught has been learned.

Given this general concept of D & U as education, then, the new process of education can be viewed on a social system or national basis as follows:

<table>
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<th>D &amp; U Model</th>
<th>Individual and Group Activities</th>
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<td>RD &amp; D and Problem-Solver</td>
<td>First, the basic and applied research associated with universities, research and development institutions, and government agencies results in a new idea, product, process innovation,</td>
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or product. In many cases, the method or paradigm of such research itself may be the innovation.

Second, this innovation or idea is tested and further developed in a laboratory setting until it is generally ready for mass production and packaging.

Third, the operations involving mass communications or other methods of mass dissemination of knowledge of the innovation begin. This is the stage of D & U which closely follows Galbraith's concept of demand management.

Fourth, the individual as a member of a discrete reference group or as an anonymous member of the group that constitutes the media audiences becomes aware of the innovation.

Fifth, individual's awareness is translated internally or through social group influence into a felt need.

Sixth, individuals who are considered innovators or early adopters are offered the innovation perhaps as a test-market population or as experimental users in the case of more sophisticated software innovations.

Seventh, given sufficient feedback that the innovation is accepted in limited, controlled settings in which innovators and early adopters support it, mass production or mass dissemination occurs.

Eighth, innovators and early adopters act as "teachers" or opinion leaders in their respective social systems to assure or enhance the nearly total adoption of the innovation.

Ninth, the process begins again with the identification of newer problems that may arise as a result of the prior adoption.
This model of the convergence of the three basic D & U process models is admittedly idealistic. It does necessarily account for all D & U activities since in many cases adoption may indeed be purely rational and based upon careful consideration of the consequences of adoption. However, it seems sufficiently clear that a great many adoptions do not occur as a result of such rational procedures. Further, this convergence model of the D & U processes does not describe or fully account for the creation and maintenance of a social context within which constant change in the form of innovations can appear to be rational and desireable. This aspect of attitude formation as a pre-condition for D & U learning is discussed later as a role of the mass communications and mass media.

The convergence model of the D & U process, then, depends upon the concept that the D & U process is indeed an example of generalized educational processes. It is distinguished from traditional concepts of the educational process of schools which reflect a more restrictive curriculum. Yet as an educational process, D & U of knowledge as conceptualized in the convergence model represents a curriculum of national scope. Its operation results in a specific, observable action: the adoption of innovations. In-as-much-as the innovations which are the content of this educational process represent some of the most significant basic and applied research generated through the application of scientific method, the convergence model does result in an indirect, somewhat perverse consumption of knowledge. It presents, in other words, a rather gross and demeaning kind of educational experience that offers individuals an immediate, material reward that is a
surrogate for real learning. By extending the split between thought and action described above, the convergence model provides individuals with goods and services which they can understand and which, it is assumed, they will appreciate because of their luxurious, splendid nature. These goods and services, then, are taken to be the forms of a general education which the average man can fully grasp. All that is asked in return is a willing suspension of or obstinace from thought.

That higher education does not effectively counter such a generalized educational process is implied by Jencks and Reisman in *The Academic Revolution* when they state that only the top few graduate schools in the country along with an assorted two-hundred or so universities receive substantial financial aid from government and private foundations. Further, the competition for admission to or employment by those top schools is additional evidence that substantial, scientific and aesthetic knowledge is the privilege of a select few. This is not to say that those who do not pursue a higher education in such schools cannot acquire such knowledge. It is simply more difficult to do so and the rewards for such endeavors are not readily found outside the charmed circle of the system.

The role of schools in a technological society has been criticized for its tendency to enhance precisely the kind of learning that is defined by the rate of adoption of innovations and of the consumption of goods and services. One of the more radical of the so-called radical reformers of the schooling process writes of the same kind of demand or need management discussed by Galbraith. Ivan Illich approaches the phenomenon of need management by reference to the role of schooling in
Once basic needs have been translated by a society into demands for scientifically produced commodities, poverty is defined by standards which the technocrats can change at will. Poverty then refers to those who have fallen behind an advertised ideal of consumption in some important respect. In Mexico the poor are those who lack three years of schooling, and in New York they are those who lack twelve.\footnote{Illich, \textit{op. cit.}}

Illich, then, views school as being a first step in training for consumption of pre-packaged innovations that reflect the development of knowledge from basic research to saleable commodities. The curriculum, in this case, is the packaged commodity and all are expected to consume it in nearly equal amounts. Discussing the myth of packaging values in American society, Illich states:

The result of the curriculum production process looks like any other modern staple. It is a bundle of planned meanings, a package of values, a commodity whose "balanced appeal" makes it marketable to a sufficiently large number to justify the cost of production. Consumer-pupils are taught to make their desires conform to marketable values. Thus they are made to feel guilty if they do not behave according to the predictions of consumer research by getting the grades and certificates that will place them in the job category they have been led to expect.\footnote{\textit{Ibid.}, p. 41.}

Thus, the notion that emerges from the convergence model that consumption-adoption of innovations and goods is a generalized educational process that defines learning as adopting is supported theoretically by the observations of others. Curriculum and educational innovations themselves in this view are techniques or processes that follow the convergence model and which, ultimately, are consumed both by
pupils and teachers. In effect, educational innovations arise to enhance the operation of the schools in compliance with the convergence model of D & U; they sharpen the efficiency with which pupils and teachers alike are brought more fully into the realm of their respective adoption-consumption categories. A brief review of two educational innovations will clarify this notion.

Innovation and stasis. Discussing the role of educational technology in changing the processes of education, Anthony Oettinger at one point in his work focuses upon Individualized Instruction as a recent innovation linked to technology. He distinguishes individualization of instruction in terms of the concept's relation to goals of education, processes of education, and the learners who are the object of individualization. Oettinger effectively questions the impact of technology in individualizing instruction by examining how schools actually utilize the concept and the technology it requires. He states:

The schools are now being asked to do custom tailoring economically for diversified groups while aiming at both universal and particular goals; technology is exciting because ... it promises to do just that.

The nature of the gap between promise and real possibility must be understood if progress is to be made toward satisfying society. Otherwise, my conclusion that educational technology can now be little more than a placebo for the ailing educational organism will be interpreted as a denial of its potential value....

Despite his logical fairness in examining the issue of technology and individualized instruction, Oettinger concludes that this innovation

47. Run, Computer, Run: The Mythology of Educational Innovation, p. 122.

48. Ibid., pp. 124-125.
is little more than mass-processing of prescribed, universal goals of education. Thus, he concludes with the exception of a few carefully conducted experiments in a university setting that individualized instruction is at present simply a way of systematically assuring individual performance relative to prescribed, inflexible universal goals of education.

Oettinger further points out that the extraordinary demands imposed by individualized instructional programs for thorough, precise scheduling leads to a move toward the production of teacher proof curricula. Citing the teacher's need to know what each student needs and when, Oettinger suggests that instructional decision-making in an individualized program can only be handled efficiently by computer technology. Thus, the machine must take over where people fail.

Relative to the convergence model of D & U, it seems clear that individualized instruction is an effort to assure that all pupils will efficiently acquire the kind of knowledge deemed most useful in a technological society: how to adopt packaged knowledge. Thus, education of youngsters can no longer simply be left to teachers who may fail to convince diverse groups of pupils of the importance of this kind of knowledge. That is, because of racial and social-economic class biases that may arise in the classroom to diminish the educational effort, neutral, non-affective modes of instruction may be more successful in reaching the goals defined by most school curricula.

Robert Heinich makes the case that the curriculum decision-making

49. Ibid., p. 132.
process will more and more involve technology. He offers a new paradigm of instruction that changes the decision-making process for curriculum. Essentially the new paradigm raises the decision for the planned use of instructional technology to the level of curriculum planning where traditionally the use of such technology had been more or less determined by the classroom teacher. One of the consequences of this changed paradigm is a serious questioning of the role of the teacher. Heinich poses the main question in this way:

... considering the research in media, a legitimate question is: What evidence is there that the physical presence of the classroom teacher, aside from maintaining law and order, makes a difference in student achievement?50

As Heinich points out, schools had never been in a position to ask such a question until the advent of instructional technology. He goes on to consider a major advantage of instructional technology over the traditional classroom teaching mode:

... the main thing that technology makes us aware of, and what improves as a result, is instruction itself. Mediated instruction as a product of technology may be tried out and revised many times before being 'frozen'.... The opportunity of pretesting the instructional sequence, until student response assures validity, is a potent way to build instructional theory.51

What Heinich opts for may legitimately be an improved educational process. However, it is equally possible that such an approach will lend itself to production of marvelously efficient instruction that will assure the desired and intended response in behalf of the adoption

51. Ibid., p. 161.
and consumption of pre-packaged knowledge. That is, the more important question of the value of what is taught is not essential to Heinich's paradigm. If, as the convergence model of D & U suggests, and as Illich and others insist, the curriculum is simply a package of pre-determined and pre-packaged meanings, then Heinich's paradigm certainly offers to assure its total adoption by all.

The effect of these general educational innovations, individualized instruction and educational technology, is to bring both pupils and teachers more thoroughly into the realm of their respective adoption-consumption categories. Thus, pupils are expected to produce the desired responses to instructional stimuli generated by advanced technology of instruction and thereby to validate the appropriateness and success of such stimuli. Teachers are to adopt a new role relative to technology which compensates for their human qualities. Thus, unionization and defense of their traditional roles can lead to a contracted payoff in the form of better pay and better working conditions. The reason for their existence may no longer be justified; yet the compliant adoption of the new role imposed upon teachers will result in their continued participation in the main occupation of almost all groups in a technological society: the consumption and adoption of material goods and services that constitute the new form of general education.

The Social Context of Change and Mass Media

This analysis of the dissemination and utilization of knowledge has led to the formulation of a convergence model of the D & U process. The model, though an idealistic conceptualization, demonstrates how the three major D & U process models interact or can interact in explaining
the adoption of innovations in a given social system. Emerging from
the convergence model and based upon the social-interaction notion that
the diffusion process is a case of generalized learning, is the concept
that the act of adoption may be viewed as both a change in the cog-
nitive status of individuals - as in the adoption of an idea - and as
a more discrete, observable change in the behavior in the form of the...
use or consumption of mass produced goods and services. Thus, an
innovation or product is viewed as being the content of the general
social educational process called D & U and the adoption or consumption
of innovations and goods and services is seen as the desired goal,
response, or outcome of the educational process.

While it would be profitable to trace the adoption of an innovation
from the basic research phase to the point of adoption by the individual
and to consider the role of communications processes, group processes,
and the other areas of input, it is not possible to do so in this study.
The focus of attention now will be upon the elements in a social system
that are significant in enhancing the D & U process.

Mass media as methods of D & U process. The social context within
which constant change through innovation can occur is the subject of
this part of Chapter Two. While an historical study of the development
of a technological society to the point at which innovation and D & U
processes become the major form of general education in that society
would be extremely revealing, this study will focus primarily upon
present status of such a society. In so doing it is necessary to pro-
pose that the media of mass communications and mass-directed communi-
cations are the major forms or techniques used in the educational
process of D & U.

By analogy, the mass media and mass-directed communications of Western society are to the D & U general education process what the classroom and teacher-talk are to traditional concepts of general education. The social context within which individuals can be taught to adopt and consume innovations and goods and services is to a large extent created and maintained by mass media. While economic-political and social history would most certainly reveal numerous, related causes of the present stage of social development, the role of mass media in what Gerbner\(^\text{52}\) calls the "collective cultivation of the terms of reality" is of major significance in this study.

This part of the chapter, then, will relate the role of mass communications in a technological society to the process of D & U as conceptualized in the convergence model of D & U. In so doing it will review some of the research in mass communications regarding the role of mass communications and media in forming and changing attitudes and in defining or shaping the terms of reality. Finally, the role of mass media and communications in creating a context within which constant innovation and change occur will be formulated into a Theory of Attitude Formation.

Mass media research. The role of mass media and mass communications in modern society has, of course, been the subject of countless studies in sociology, psychology, speech, etc. A limited but

representative account of how some researchers view the role and effect of mass media and communications in modern society will be offered here.

A very sweeping and provocative conceptualization of mass media and communications is offered by Gerbner who views mass media and communications as constituting the most broadly shared terms of reality:

Never have so many people in so many places shared so much of a common system of messages and images and have the assumptions about life, society, and the world embedded in them while having so little to do with their making. The fabric of popular culture that relates elements of existence to each other and structures the common consciousness of what is, what is important, and what is right, is now largely a manufactured product.\(^53\)

Gerbner's statement reflects much of the concern expressed earlier in this paper. It suggests an awareness of a new reality stemming from the concept that learning is adopting whatever can be conceived or mass-produced. The role of mass media and communications in determining or structuring the common social-consciousness of what is, what is important, and what is right appears to be an essential component in forming attitudes and in creating the terms of a new reality created by technology.

Gerbner discusses, in general terms, this element of the D & U of the new reality when he writes:

New media of communication provide new ways of selecting, composing, and sharing perspectives. New institutions create new publics across boundaries of time, space, and status. New patterns of information animate societies and machines. Along with other dramatic changes, we have altered the symbolic environment that gives meaning and

\(^{53}\) Gerbner, loc. cit.
Thus Gerbner proposes that the new media do, indeed, shape and determine a sort of new reality. It is proposed in this work that the process of D & U described by the convergence model and the new reality outlined by Gerbner are manifestations of the same phenomenon. That is, the way in which all institutions and most organizations "educate" their clientele or publics toward specific adoptive behavior and the new ways of "selecting, composing, and sharing perspectives" are simply different conceptions of the same phenomenon. They both describe the extension of the industrial revolution into the very terms of reality that define our culture.

A review of the literature dealing with the influence and effect of mass media and mass-directed communication, however, fails to demonstrate successful efforts to form or change opinion. Klapper summarizes the results of numerous studies in mass persuasion by listing a major conclusion. He notes that:

1. Communications research strongly indicates that persuasive mass communication is in general more likely to reinforce the existing opinions of its audience than it is to change such opinions.55

Among the research factors and conceptualizations that account for this conclusion, Klapper includes predisposition relative to the intent of the communication, selective exposure, selective perception, and selective retention; groups and group norms; interpersonal dissemination

54. Ibid., p. 43.
of the contents of communication; the exercise of personal influence and opinion leadership; and the nature of the media in a free-enterprise society. 56

Some of these factors will be examined in more detail later, especially the factor of interpersonal relationships and the two-step flow concept of communication. While it would be useful to examine each factor by reference to the studies which support it, the generalizations reported by Klapper will have to suffice. Other generalizations of communications research as reported by Klapper also have significance here. In discussing other aspects of communications situations and their effects on persuasion, Klapper notes that the audience's image of the source - its intent, creditability, and prestige - affect the effort of persuasion. Generally, the more positive the image of the source, the more the audience is persuaded toward the intent. Further, the prestige of various media also tends to confer status on the persons and concepts for whom they are vehicles.

In summarizing the various content characteristics and devices aimed at making communications more persuasive, Klapper lists several which are paraphrased below:

a. Two sided presentation (of a position) is more effective than one-sided presentation in convincing the highly educated. However, one-sided presentation is more effective with less educated persons, and is more effective as a reinforcing device.

b. Persuasive communications that explicitly state conclusions are more likely to be effective than those which allow the audience to draw their own conclusions.

56. Ibid., p. 47.
c. Communications which evoke fear are less likely to persuade.

d. Repetition with variation nearly always increases effectiveness.

e. Communications which analyze existing needs are more effective than those which arouse new needs and then suggest ways of satisfying them.57

These major characteristics and devices of content presentation and the various factors related to the media and audience factors account for the impact or lack of impact of persuasive mass-directed communications. It appears, then, that the claims posited by Gerbner that the new media in effect create a new reality stand on rather shaky grounds. However, it must be noted here that research studies that lead to the conclusions reported by Klapper deal primarily with attempts to persuade audiences in behalf of certain points of view or arguments. As such, these studies examine only a fragment of the total impact of the mass media and mass-directed communications. In the area of creating a context or milieu within which constant innovation and change make sense, these kinds of communications, aimed at changing attitudes (or at reinforcing existing ones) serve the purpose of a direct, overt kind of persuasion. The more subtle, far-reaching kind of effect of which media and communications are capable according to Gerbner will be discussed later.

Research in the two-step flow concept. For now, it is important to examine the two-step flow of communication and to relate it to the process by which D & U processes described by the convergence model

57. Ibid., pp. 130-131.
operate. A good account of the effect of the two-step flow of communications is offered by Rogers.\textsuperscript{58} He notes that the origin of the term "two-step flow of communications" was a study by Lazarsfeld of the 1940 Presidential election. Essentially, this concept led to a reformation of the classic, "who says what, to whom, through what channel, with what effect," model of communications research which implied a one way flow of information from the source to the receiver. The two-step flow concept implies that information is diffused from the sender to opinion leaders in a given social system and from them it is diffused through the system to others. The first step from the source to the opinion leader is seen as a simple transfer of information while the second step, from opinion leader to others, involves personal contact and the spread of influence.

Rogers\textsuperscript{59} criticizes the two-step flow concept by suggesting that there is in fact a multi-step process which involves different levels of opinion leaders. Further, the concept of "opinion leader" itself is defined differently by various researchers, thus leaving some ambiguity in the entire concept. Sherif and Sherif comment on the same problem when they discuss opinion leaders as a concept:

\begin{quote}
NO amount of 'snowballing' or complete community surveys getting people to talk about themselves and other people can adequately uncover all of the significant reference sets and groups in a complex and highly differentiated society unless coupled with a return to the study of group life.\textsuperscript{60}
\end{quote}

\begin{flushright}
\end{flushright}
In spite of the difficulties of the concept and its oversimplification of the flow of information through a society, the two-step flow concept is the most accepted model of persuasive communications. It is powerful in that it relates human group interaction to the uni-directional flow of mass-directed communications. However, because of the difficulty involved in tracing flow from influentials to others in a social system, the actual effects of mass-directed communications cannot readily be determined. As Rogers notes, however, it probably remains true that in the adoption process, the mass media are most important at the awareness stage and personal influence is most important at the evaluation stage for nearly everyone.

Summary of the review of communications research. This brief account of research findings on the effects of mass media and mass-directed communication has revealed that certain principles of persuasive communications appear to be established and that the two-step flow concept of communications flow is the major research model in the area. However, neither of these findings sufficiently account for the kind of changes in modern society attributed by Gerbner to the mass production of messages.

The failure of research to reveal the kinds of effects and qualities often attributed mass media and mass-directed communications may stem from a too narrow conception of the nature of the media involved. It is with an understanding of the nature of media combined with a knowledge of the social-interaction processes involved in the two-step flow concept that a great many of the media effects cited by Gerbner can be explained.
Formulation of attitude. A consideration of the nature of media as distinct from their message content will result in the final step for the formulation of the process of attitude formation. It will attempt to relate certain aspects of the content of mass media to the nature of the media used to convey the content; further, the process will suggest relationships between D & U processes and the creation, through mass media, of a context within which those D & U processes appear to be appropriate.

Edling and Paulson in considering the nature of media suggest that the essential quality of all media is their capability for arresting, transforming, and reconstituting events. As distinguished from McLuhan's concept of media as extensions of some physical or psychological aspect of man, their concept views media as mediating the energy emanating from events. They identify three major qualities of all media that enable them to reconstitute events. Each is named and described by Edling and Paulson as follows:

1. The fixative property enables us to capture, preserve, and reconstitute an event.... In effect, this property permits us to transport an event through time.

2. The manipulative property enables us to transform an event... (It) may be speeded up, slowed down, stopped, or reversed.... In short, the range of stimulus alternatives that may be presented in a given situation is enhanced infinitely by the media.

3. ... the distributive property permits us to transport


an event through space, simultaneously, presenting each of the "viewers" with a virtually identical experience of an event.63

These three qualities of media provide some insight into the process by which any medium of communication attains its initial effect. That is, apart from any concern with content per se, it is possible to consider the likely effects of transforming one kind of experience - say hearing a word - into another kind - seeing a word - while essentially maintaining the same intent in the communicative process. Harold Innis points out that empires have been built on the power of one medium and have been ruined by its transformation.64 Edling and Paulson's formulation, then, provides a framework for the examination of media effects in relation to the kinds of experiences that a society can have or can be denied. While an exhaustive study of such experiential transformations is not possible here, the value of such an exploration has been demonstrated by Carey and Quirk, Innis, Carpenter and McLuhan, Ong, and others.65


64. Harold Innis in The Bias of Communication discusses the affects of a medium that affects time - such as the use of stone for preserving written records - compared with a medium that affects space such as the use of papyrus to extend the control of an empire over a wider territory.

65. See Carey and Quirk's article in the Spring and Summer, 1970, issues of the American Scholar, "The Mythos of the Electronic Revolution"; and issues of a journal edited by Edmund Carpenter and Marshall McLuhan, Explorations in Communications; and Walter Ong, S.J., The Presence of the Word, which traces the history of rhetoric to present literary traditions. See also Charles Morris, Signification and Significance, which develops a general theory of signs on value.
The three qualities of media, then, can alter an individual's perceptions of events and, by other fixative and distributive qualities, can bring people into contact with the same kinds of experiences even though their cultures and societies are disparate. Further, media can provide people with experience of events that occur, or have already occurred, far from their immediate surround in terms of space and time. These qualities along with organizations that control the media can indeed shape the experience and world of all people exposed to them or their intentions.

An important concept related to the nature of media as developed by Edling and Paulson is precisely the concept of mass communications. It is obvious that masses of people have always been reached by some media of communication. What is "new" about the new media, however, is that their fixative and distributive qualities now permit the mass production of messages that can readily be transmitted and shared. Gerbner makes this point clear when he writes:

... new means and institutions of production and distribution, the mass media, provided new ways of reaching people. ... (This) brought about... a conception of 'masses' related more to the movement of messages than of people. This is a conception of 'mass' publics as groups so large, heterogeneous, and dispersed, that only mass production and mass distribution systems are capable of reaching them with the same messages within a short span of time, and thus of creating and maintaining some community of meaning and perspective among them.66

Apart from the obvious relationship between mass produced messages and other mass produced commodities, it is clear that when experience of events can be packaged and mass produced for mass consumption, the

consequences for a social system are enormous. That is, if the terms of reality of a culture can be mass produced and packaged for consumption or adoption, then it seems clear that the new general education in the form of adoption and consumption of innovations and goods and services is dependent upon the media which provide the new reality or social context within which such an education appears rational. In essence, then, the new media can create, by manipulation of the events that define the individual's conception of reality, any need or awareness of need which can be satisfied or resolved by the adoption or consumption of the innovation or product that was the occasion for creating the need in the first place. This is the situation in which people are taught to expect only what their society can offer them.

A final elaboration on the process of communication in creating a social content that enhances the D & U process as the new general education is necessary. The question of how, precisely, mass-directed communication can induce change in attitude is now considered. Even assuming that Gerbner's notion of the mass-production of messages that answer the questions of "what is, what is important, and what is valuable" accounts for the broadly shared terms of reality, the precise nature of the media in accomplishing this is still ambiguous. Further, the research cited by Klapper above suggests that mass directed communications are mainly effective in reinforcing the status quo. Thus, even with the nature of media as formulated by Edling and Paulson, there still remains a strong doubt about the power of media to accomplish the creating of a new reality or social context.
How mass media shape attitudes. Every communication consists of a figure and ground. The figure is the content and the ground is the context of the communication. As Edling and Paulson note, each medium has fixative, manipulative, and distributive properties which restructure and preserve events. The operation by which events and the meanings they have can be mass-produced and disseminated in a technological society accounts for the creation of a general social context that enhances the new form of general education. That is, the capability of the new media to present any range of environments or contexts permits the creation of any desired terms of reality. As McLuhan suggests, the content of any medium is the technology or environment of a prior medium; thus, every medium creates a new environment while disseminating, as content, a prior context or environment.

At this point the fixative and manipulative qualities of media become crucial. That is, any event can be displayed in any medium or in any context which may be another medium. For example, a drama dealing with contemporary issues can be presented in the context of a distant social setting; or traditional values of a society can be presented in the form of a drama against a social context or setting in which those values have little or no meaning. The fixative and manipulative properties of media, then, permit the manipulation of content and context of communications in order to create new insights, beliefs, or feelings. It is precisely this capability of media that generates desired social attitudes toward adoption and consumption.

The general technique of mass communications in shaping an attitude favorable to change is to present content that a large segment of society will accept as consistent with their beliefs and expectations and to combine that content within a context or setting that suggests a new or desireable image of what ought to be. This principle is best illustrated by the popular culture entertainment productions in film, television, and radio. Blumer makes this point clear when he discusses the way in which motion pictures provide people with images of reality:

By providing people with images motion pictures obviously, then, shape their views and influence their interpretations - that is, in those areas of life where people do not already have definitely shaped images....

If one understands that motion pictures may furnish certain people with conceptions, one can appreciate their influence in schemes of conduct. To develop a certain view of an object or mode of living is to form a corresponding disposition or tendency to act towards it.

In television programs, films, and other mass media, the presentation of content - story line, plot, narrative content of documentary programs and news shows - frequently occurs within a context or setting that generates an image or conception of reality that is suggestive of new styles of life attainable by proper adoption.

The context of a communication. The way in which such images are mass produced and made effective by the mass media is by portraying them in the context of any content presentation. That is, the overt content of any communication consists of its story line, narrative or pictorial elements. The indirect influence of the context for the communication,

68. Herbert Blumer, Movies and Conduct, p. 190.
however, consists of visual or narrative images of a life style that may be portrayed as being desirable. It is asserted here that contexts consist of a wide range of potential sensory inputs into the communication. The context of any communication, through any medium, is conceived as being a discrete and distinct channel of information that is additional to the content of the communication. As already noted, the context may be very passive as in the case of paper and ink when the medium is print or it may have an active input nature as in the case of a luxurious home in which a drama is enacted when the medium is television or film.

The concept of context and its effect in many kinds of communications will be developed in the next chapter. It is only necessary here to suggest that media characteristics and the notion that the content of one medium is the environment or context of the prior one explain how the new media mass produce the images of reality cited by Gerbner. The media characteristics and the concept of communication context explain how mass media shape and create attitudes necessary for the D & U process that is the new general education.

The process of attitude formation. Thus, the ground is prepared for formulating the process of attitude formation. According to Sherif and Sherif, an attitude is a state of the individual inferred from "... characteristic, consistent, and selective modes of behavior directed toward or against relevant objects, persons, and events." Sherif and Sherif note certain characteristics of attitudes that

distinguish them from other internal factors. Among these criteria are the stipulations that attitudes are learned, enduring states of the organism that stabilize a relationship between the subject and object. Further, they note that the subject-object relationships involve motivational-affective properties that direct the individual's feelings (positive or negative) toward certain objects. In effect, attitudes lead an individual to a predisposition to act in some way.

Attitude formation, then, is the learning or acquisition by an individual of a disposition or characteristic mode of behavior toward an image of reality.

In a technological society in which the broadly shared terms of the reality of its culture are mass-produced messages constituted and manipulated by the various media that communicate them, and in which the messages are defined by their content and context, attitude formation is a function of the interaction between the content and context of mass produced messages; and attitude is a precursor to action. In the case of a technological society such as ours, the action in behalf of which all efforts of attitude formation are undertaken is the adoption or consumption of innovations or goods and services.

Thus, the desired outcome or goal of the social system in a technological society is the well-defined and specified behavior of adoption or the consumption of goods and services. The D & U processes are viewed as being the general education models used in achieving such goals. The mass media and mass-directed communications, themselves products to be consumed, are seen as being the chief method of instruction. This method is effective in creating an image of reality through
the use of massive amounts of information which, it has been seen, result in only a general image or notion of the meaning or value of the information, and (2) the creation of contexts in communications that result in the perception of a desired image of one's self that can be attained by adopting a certain life-style or consuming certain products.

Popular culture and attitude formation. In general, the role of mass media and communications as methods of teaching may be viewed as creating or forming attitudes favorable to the act of adoption or consumption that will apparently satisfy engineered need. This attitude formation though mass produced and disseminated message systems is achieved by the interaction of content and context. For example, the content of a popular television drama may involve the characters in resolving their conflicts by using well-known and formulated social values such as mutual respect, luck, optimism, law and order, etc. The content of the show, the general visual environment within which the action of the drama is set, may reveal a style of life, a consumer product, or innovative organization such as a computer company which together constitute an image of what the good life is. The portrayal of hospitals, airports, free-ways, natural environments, etc. in nearly all dramatic television programs and commercials is usually ideal. The story-line or plot of shows in which such images of reality are displayed in the context also, of course, involve stereotyped characters and very predictable actions. The appeal that these shows have is precisely found in their idealized contexts.

It would be a mistake to discount the interaction effect between
content and context simply because the content of popular culture entertainment is so highly stylized or because the context is so ideal. When all forms of mass media involve the same kinds of relationships such as is seen in magazines, newspapers, consumer packages, billboards, and what not, the overall lesson cannot fail. Repetition of the same relationship between content and context in all media is a very effective method of teaching adoption and consumption.

The more theoretical aspect of this notion of attitude formation bears-out the principle of content-context relationship as a determining factor in attitude formation. Sherif and Sherif discuss four factors that affect an individual's range of assimilation of communications that diverge from his own. These factors are related to attitude change in Sherif and Sherif's discussion. They cite the factors as being:

1. Degree of the person's involvement in his own position.
2. Degree and kind of ego-involvement with the source of communication.
3. Degree of structure in the stimulus situation.
4. The relative discrepancy of an object (e.g., communication) from the individual's own position.70

In their discussion of each of these factors, the authors found in general that:

... if the person is susceptible to change at all, communications advocating positions within his latitudes of acceptance or noncommitment will produce the greatest change, while communications advocating positions within his latitudes of rejection will either produce no change or ... will result

70. Ibid., p. 436.
These findings combined with those of Klapper reported above suggest that communications content that is within the individual's latitude of acceptance of the positions presented will result in some minor change in the person's attitude toward a given object, idea, or other person. What all studies of persuasive communications known to this writer ignore, however, is the role of the context of a persuasive communication. While in many such communications the contexts may be neutral or passive in nature (that is, they provide no new information or images apart from the content), it is also quite likely that the most persuasive communications in any message system are those that appear not to be persuasive in intent i.e., the large quantity of popular entertainment communications, commercials, etc. Thus, the serious question arises as to what criteria ought to be used in determining which messages or communications are persuasive and which are not.

**Summary of the process of attitude formation.** As posited earlier in this section, the relationship between the content and context of a communication is the major element in the formation of attitudes. The question that arises with regard to persuasive communications as they are generally conceived is whether or not an individual subjected constantly to images of a desireable or idealized reality in the contexts of purely entertainment oriented programs can absorb their

71. Ibid., p. 486.

72. See page 83 of this chapter.
contents without also desiring the portrayals of realities in which they appear.

The answer to this question, based upon the concepts of D & U and mass produced messages is that nearly all forms of mass-directed communications are indeed persuasive in intent. The general strategy involved in such persuasion is to offer content that will be well within the majority of the audience members' latitudes of acceptance while simultaneously creating through the context the situations that will expand or contract those latitudes of acceptance. The strategy, then, aims at forming attitudes that make the individual susceptible to change. It is not a strategy that aims at changing an attitude within the given latitude of acceptance, but rather, at changing the latitude itself.
CHAPTER THREE

I.C.A.S. DEVELOPMENT

Introduction. The purpose of this chapter is to develop a system for the analysis of instructional communication. As discussed in the last chapter, the terms "instructional" or "educational" may be used here to refer not only to discretely scholastic training and learning but to the broadly educative aspects of our society in general. The development of the analysis system will be based upon the idea of interaction between the content and context of any communication. The primary emphasis of the system as developed here will be upon television as an instructional medium. Further, the analysis system will be specifically concerned with what is generally called instructional television. "Instructional" in the sense of instructional television is taken here to mean (1) instruction which is undertaken as a result of curricular planning for the achievement of specified goals of a school system or (2) instruction that is aimed at the achievement of goals which are sufficiently comprehensive or general so as to include a wide range of the goals of most school curricula in a national sense.

Need For An Instructional Communication Analysis System

One major reason for developing an instructional communication analysis system based upon the notion of content and context
interaction is to provide educational media specialists with a relatively simple system for determining and understanding the instructional (social and curricular) effect of television and film.

As stated in Chapter One, it is a fairly widely held notion that the potential of television in instruction has not been fully achieved. The spectre of "no-significant difference" in television research comparing its effectiveness with classroom instruction has done little more than to convince educators that use of television will not diminish the learning of youngsters. Further, the need for a system of instructional communications analysis is clearly evident if the formulations of Chapter Two have any validity. If, indeed, the broadly educative aspects of our society are based upon the convergence model of D & U and if mass-media, mass-directed communications are basic elements of the so-called new general education, then it is of fundamental importance that their effects be understood by more competent and more qualified educators than those who may now be "teaching" society its lessons. This aspect of the need for an analysis system is not intended to raise the issue of "hidden-persuaders" that have deep and unknown influence over our desires and thoughts. Rather, it seems fairly clear to this writer that, indeed, the phenomena discussed in the last chapter do have substantial validity and that, as a result, the education of youngsters is more and more in the hands of institutions other than education.

Limitations. What the instructional communications analysis system as developed in this chapter may do, then, is to provide a starting point for a reconsideration and reconceptualization of what
educators must do in order to regain some control over what those terms of reality are and what they ought to be.

No claim is made that the proposed instructional analysis system will be a comprehensive gateway to understanding all of the effects of media. It will, however, develop a concept of message construction and effect that may be useful in making production and utilization decisions. More important, though, it is hoped that the system will act as a guide in the conduct of new research into the realm of the new reality that manipulation of symbols and message systems tend to create as was outlined in the last chapter.

### Media Characteristics

The Instructional Communications Analysis System is based upon two important aspects of communication: (1) the presentation form and (2) the medium used in the communication. These two aspects of a communication together determine the kinds of content and context interactions which the system analyzes. Presentation forms and media characteristics will be examined first, followed by a definition and clarification of the concepts of the content and context of a communication.

**Presentation form and intent.** Presentation form is the characteristic organization of the content matter of a communication. The notion involves, as well, the internal logical consistence of a communication's content matter and its coherence and unity. Essentially, presentation form is the manner in which a communication is composed. The criteria for determining the quality of organization, coherence, emphasis, consistency and unity in a communication are determined by
the presentation form or forms of a communication. It is also the case that any particular communication may consist of more than one form.

With these basic components of presentation form noted, it is necessary to indicate also that the intent of a communicator determines to a large extent what form his communication will take. That is, the most basic consideration in the analysis of any communication event and the purpose for the existence of any communication must begin with a concern for the individual communicator's intention. This notion of course is consistent with the definition of communication offered in Chapter One which states that it is the process by which an individual acts upon the environment in such a way that in another individual an experience occurs which is similar to the experience of the initiator of the communication and, in part, is caused by that experience.

Presentation forms defined. Presentation forms, reflecting the choice and intent of the communicator, are viewed as basic "mediums" by George Gordon who describes them as being "...discrete, highly differentiated conduits for the transfer of thought and feeling." He distinguishes these from the instruments or devices of expression founded in technology and generally referred to as the media of communications. Gordon, then, identifies three such "mediums" or presentation forms; they are (1) narrative, (2) picture and (3) re-

creation or enactment.

Narrative, according to Gordon, is associated primarily with the act of telling. It may involve writing or speech but generally it centers upon the use of words. It is clear, though, that telling can be achieved, as intent, through the use of pictures too. Narrative, then, includes as a presentation form all of the traditional literary forms such as poetry, exposition, prose, and also incorporates such notions related to literary form as fiction and, simply, fact.

Picture is associated primarily with the act of seeing. That is, as a medium or form, picture constructs or enhances message content by acting solely upon visual perception. This medium or form includes the presentation of content matter ranging from simple blueprints or figures to the most sophisticated artistic representations and compositions.

Re-creation, or more simply, enactment, involves elements of the other two forms. In effect, enactment suggests the re-creation of an event by an individual who in re-enacting the event adds to it his judgment of its value or its effect upon himself. Enactment includes such forms as those ranging from mimicry to serious drama. Perhaps, as Gordon suggests, dancing is a primitive or fundamental form of enactment.

The presentation forms for communications outlined here provide a general concept of the way in which communication content may be organized relative to the intent of the communicator. These forms of

2 Ibid., pp. 13-14.
course do not reflect the impact of information theory which has caused a reconsideration of basic concepts in communication. Basically the so-called communication process derived from electronic engineering and information theory suggests seven basic stages: (1) source, (2) encoder, (3) medium, (4) channel, (5) decoder, (6) receiver and (7) feedback. While this model may be useful in telecommunications system design, it appears to this writer to be basically a hardware concept, useful in explaining how a telephone or radio works but is useless in explaining significance. Thus, a more traditional concept of human "encoding" is held to be useful when human communications and intentions are considered.

Presentation forms and media. Another and perhaps more behaviorally based system of classifying presentation forms is offered by Tosti and Ball. A consideration of their constructs will provide an elaboration of the forms outlined above and will suggest some relations between the presentation forms and available media.

Tosti and Ball identify these dimensions of presentation form: (1) stimulus concerned with encoding and duration, (2) response, concerned with response demand and frequency, (3) and management requirements involving frequency of need for management and the purpose of management. The importance for the analysis of communication in distinguishing between presentation form and the media used for conveying the communication is noted by Tosti and Ball when they write that:

Media researchers to date have not chosen to distinguish a presentation form from the media which carry that form; this new model (the dimensions) requires that such a separation be made. The media in instructional systems carry not only the data of the instructional message but also data on students' responses and various other bits of data necessary to maintain the operating systems. It is the structure by which the information is carried by a medium that is called the presentation form. A student does not learn from the media. The student learns from the presentation form. Media do little more than deliver the information to be learned in whatever presentation form previously decided upon.\(^4\)

The assertion that students do not learn from the media but from the presentation form clearly indicates that the authors attribute a great deal of importance to the design of the communication apart from the mode used for conveying it. The notion that students do not learn from the media, however, is questionable and the point will be discussed later in relation to the concept of the content-context interaction. Still, the idea that a communicator's intent and the effectiveness of communicating it are essentially related to the presentation form he selects is very useful. As the authors note, separating form from media is an essential step in making an analysis of communications.

**Media characteristics review.** Media characteristics will be viewed in this work from the perspective offered by Edling and Paulson whose notions were discussed in Chapter Two. Basically, their definition of media depends upon the view that media are extensions of events. They define media in this way: "We ... define media... as

\(^4\) Ibid., P. 9.
the means by which an event is arrested, transformed, and reconstituted.” Generally, they equate the term "event" with "content". The characteristics of all media that give them the capacity to alter events are: (1) fixative, (2) manipulative and (3) distributive. The fixative quality of media permits man to transport an event through time; the manipulative, to restructure an event to suit particular interests (such as speeding-up, magnifying it, etc.); and the distributive, to transport an event through space.

Illustration of media characteristics. That these characteristics account for much of the significance of media in changing man's perception of reality is illustrated by briefly examining them in relation to one of the most important of all media, alphabetic writing. The system or means involved in the alphabet in "fixing" an event is to assign a symbol for each sound (or combination of discrete sound-units, phonemes). In this way, of course, speech is given a temporal quality. The manipulative quality of the alphabet is obvious in that it is infinitely manipulative; that is, words can be displayed in various combinations to create the conditions for literary composition. The distributive quality of the alphabet of course depends upon the availability of another medium such as paper, papyrus, clay, etc.; further, until the invention of printing, this quality had only limited impact in terms of its making writing available on a mass basis.

6 Ibid., P. IV-9.
The event of a medium. At this point in the discussion of media characteristics, however, a serious conceptual difficulty arises. The problem can best be stated in the form of a question. What is, precisely, the event(s) (or content) that is (are) "arrested", "transformed", and "reconstituted" by any medium and, in this case, by the alphabet?

The answer to such a question is the first conceptual step to the definition of the term "context". The event arrested by the alphabet is, of course, sound. Sound is the event transformed from a purely spatial phenomenon into a temporal one; sound is what the alphabet fixes, manipulates and, given another medium, distributes. Clearly, though, such a concept of the alphabet as a medium leaves much to be desired in considering its impact upon those who use it. If, rather than sound, speech were to be considered the event or content that the alphabet fixes, manipulates, and distributes, the impact of the alphabet seems to be more sufficiently explained. As soon as this step is taken, however, it is clear that one is attempting to analyze one medium by reference to another.

In other words, to understand the alphabet as a medium one must also understand that its content is another medium, speech. What is the content or event that speech "fixes" manipulates, and distributes? Obviously this question would be extremely difficult to answer concisely. This difficulty in conceiving the events or contents that are arrested, transformed, and distributed by means of particular inventions of man (media) is tentively answered by McLuhan who notes through the Vanishing Point: Space in Poetry and Painting, pp. 237-267.
that the content of any medium is the environment or structuring of the
terms of reality effected by a prior medium. By suggesting that all
media and technology are extensions of some part or function of the
body and mind of man, McLuhan posits a sort of organic unity between
man and his inventions. This concept is useful and revealing but is
so tied to unobservable phenomena as to have poetic rather than
strictly scientific significance.

Nevertheless, the notion that the terms of reality that one
medium is capable of effecting become the content of a succeeding
medium is significant. Thus, if speech in any way structures man's
perceptions of what is important, then its containment by another
medium that fixes, manipulates, and distributes it certainly has en-
ormous consequences. Thus, when the very terms of reality of one
social context become the content of a medium that can change those
terms, the conditions for a reconceptualization of what reality is may
arise.

The content and context of a medium. However, for the purpose of
formulating an instructional communications analysis system, the con-
sideration of what is contained (or what events are contained) by any
medium has immediate significance. Thus, McLuhan's notion of the con-
tent of any medium and Edling and Paulsin's notion of the event that is
altered by any medium as content can be combined to define the concept
of context. In the case of the alphabet as a medium, then, according
to the fixative, manipulative, and distributive properties, its con-

8 Understanding Media: The Extensions of Man.
tent, or the event that it alters, is sound; in the sense of McLuhan's notion, however, the content of the alphabet is the reality that was structured or constituted by speech. The context of this medium is the range of meanings or significations of the event which it alters. Thus, context refers both to the immediate event of the medium and its characteristic alteration (its fixative, manipulative, and distributive properties) and to the entire range of meanings or realities that the event thus altered can have or generate.

In other words, the context of the alphabet is both the sound (event) as altered by use of specific symbols for discrete sounds and the entire range of meanings and realities that sound - in this case the sounds of speech - can have or can generate. So, while the immediate context of the alphabet is a symbol (figure) upon a physical (or at least perceivable) ground that distinguishes the symbol, the more general context is whatever can be spoken.

Context, then, is the characteristic alteration of any event required or forced by use of a particular medium and the range of meanings or significations of which that event is capable of generating or reproducing.

The content of any medium is the presentation form (or forms) conveyed or distributed by the medium. In this sense, the event of a medium is always at least one presentation form. Thus, a drama as an event is characteristically altered by the alphabet by that medium's fixative property; the alphabet "fixes" a drama by "fixing" in visual, symbolic form the sounds that constitute its narrative or speech elements.
Display context and symbolic range of medium. It seems clear that the term "event" as used by Edling and Paulson refers more precisely to content in the sense of presentation form than to the "event" that is altered by a medium. For example, the "event" of the alphabet is sound, the event of a picture is light, the event of sculpture is touch, and so on. The way in which an event is manipulated or altered is the chief characteristic of a medium. Thus, the alphabet used light (picture event) to alter sound. A medium's characteristic, then, is the perceptual-sensory element through which any medium structures its event. What clearly occurs according to McLuhan is that whenever a new medium alters the perception of individuals, the sensory structure through which knowing is achieved is dramatically altered. Thus, the presentation forms that organize and compose messages or communications reflect the influence of preceding media on the cumulative structuring of the terms of reality in a given cultural period and tend to become highly stylized. In addition, the events of one medium (event in the sense of sensory element) are used and altered by another.

For example, the alphabet alters sound characteristically by making it visible in the form of symbols that represent certain sounds; the event of the alphabet is sound; the context of the alphabet is, first, its characteristic display of visual symbols and, second, its potential range of meanings typically determined by presentation forms.
The first sense of context will be called display context and the second sense of the term will be called symbolic range. Display context is the result of a medium's fixative, manipulative, and distributive properties as these affect the event of the medium. The symbolic range of a medium is a result of the cumulative and progressive alterations of presentation forms by all media.

Again, using the alphabet as an example these concepts can be examined in detail. The display context of the alphabet is the appearance of symbols on paper or on other surfaces. It is limited only by whatever can be communicated through narrative as a presentation form. Obviously, one can tell or describe anything through this presentation form. Consequently, the symbolic range of the alphabet is infinite. Yet certain conventions of narrative writing constrain its range. Thus literary conventions tend to arise and guide the composition of narrative in writing.

Stimulus and response characteristics of display context and symbolic range. Perhaps one could say here that the display context of a medium is what constitutes its stimulus and that the symbolic range of a medium constitutes the response (or responses) which it is capable of effecting. While a thorough study of media would involve the historical progression of the alteration of symbolic ranges affected by various media, this is not possible or necessary here. Rather, this work focuses primarily upon the relationship between display context and presentation forms of television.

Major focus of the study. From these considerations, then, it is possible to propose that the relationship between the display context
and the symbolic range of a medium defines the significance and meaningfulness of a communication. It must be noted that the presentation form of a communication affects the symbolic range of any communication to the extent that tradition and custom have resulted in conventions for the use of each form.

Simply stated, this work proposes that the context within which or through which the total range of meanings is presented determines the effectiveness of the communication. The context may be simply the display of stimulus inputs that a medium is capable of or in the more abstract media, it may also include the images of reality that can be initiated by the medium. As shown in the previous discussion, speech and the alphabet are perhaps the most abstract of all media since they seem to be capable of expressing or communicating any message or intent.

### Television Content - Context Relationships

**Display context of television.** The display context of television is always visual since its event is light; this aspect of television distinguishes it from radio and its distributive property distinguishes it from film. Other properties and characteristics of media distinguish it from all others but will not be elaborated here. Thus, while sound is associated with television, its display context is not part of the display context of television and must be considered separately and in most cases simultaneously.

**Figure-ground relationships.** The visual nature of television's display context can be analyzed in terms of figure-ground relationships. Since the display context of television is always composed of
visual stimuli, the figure-ground aspect of any act of visual percep­tion applies. The classic illustration of the figure-ground concept is the reversible figure; typically the vase - human profile stimulus is used as an example of the reversible figure. Depending upon how one perceives it, the stimulus may appear to be two human profiles nose-to-nose against a plain ground or it may be a vase against a similarly plain ground. The significance of such a factor in percep­tion is noted by Sherif and Sherif when they indicate that:

... stimuli do not have absolute stimulating values. Their significance is derived in an important way from being parts of objective patterns that are located in the faces (figure) or background at the time. They are perceived in terms of their "membership character" in the pattern.

The display context of television as stimulus adheres to the figure-ground structuring of visual stimuli. The display context of television can be categorized by reference to the kind of ground it presents. The ground of any television context display is either, (1) indistinct, (2) passive, (3) active or (4) interactive.

These constructs are useful in the analysis of television as a medium since they categorize the display context of television and account for its manipulative properties. Each category is defined below:

1. Indistinct. This category defines a blurred or visually indiscernable ground. Typically it occurs as a display

context when a close-up shot is made which focuses upon the figure.

2. Passive. This category defines a neutral ground. Typically the ground defined by this construct is simply a shade of light or dark or shades of colors. It may also include static symbols (such as a station's call letters) or simple designs that add no essential or particular information in relation to the figure.

3. Active. This category defines a ground that is clearly pictorial. It includes visual images of a physical environment such as cities, nature, buildings, streets, etc.; it also includes images of objects, people, interiors, sets, etc.

4. Interactive. This category defines a display context in which (1) the ground is not distinguishable from the figure, or (2) the ground and figure interact. The display context of the first case is a picture in which no distinct or particular figure or configuration appear; for example a pan-shot of a countryside or of a city in which numerous figures appear but are not emphasized as being the figure would be considered an interactive display context.

The display context for the second case is generally the same as "active" except for the important distinction that the ground acts upon the figure or the figure acts upon the ground. This may occur, for example, when an actor is hit by some part of the set in a drama as when
a wall falls upon him; or as another example, the ground may act upon the figure in animated cartoons in which the figure is "swallowed" by the ground that appeared to be a simple shade of color but becomes, say, a fierce animal.

The figure acts upon the ground in fairly obvious ways. For example, when a figure points to, touches, or in a visible manner reacts to the ground (such as by indicating through body actions a particular state of being or emotion), there is obvious visually observable action by the figure upon the ground. A very simple illustration occurs in many commercials when the figure is a person and the ground is a car or part of a car and the figure enters the ground or touches it without entering.

The perception of "figure" of course, depends upon individual perception and in some instances what is considered the figure of a display context may vary. However, there appears to be sufficient clarity in the concept of "figure" so that general agreement among viewers is not difficult to obtain.

Thus, the display context of television is conceptualized here for analytical purposes as being definable by reference to the constructs listed above.

**Display context types and presentation forms.** It will be useful at this point to examine the display context types in relation to television program types and their presentation forms. In such an examination, though, it is necessary to note that the display context
of radio associated with television must be considered in direct and simultaneous relation with the display context of television. The reason for this is that a major presentation form, narrative, is typically contained by radio— the audio portion of a television presentation—and is generally related to the display context of television. It is clear, then, that television presentation of communications is really a product of multi-media components unified by the communicator or by those who compose its discrete communications presented by television.

This examination will involve the relationships between presentation forms and the display contexts of radio and television as these combine to compose the presentation or program.

Narrative as a presentation form discussed earlier is typically contained by the radio display context, although it may appear to be the content of television display context types. For example, a news program involves as the intent of the communicator the act of telling about or describing an event. Thus, if the narrative of such a program is presented by the audio display context, the television display context type is generally passive or active. That is, while the narrative is presented, the visual usually involves a figure (the newsman) in a passive ground such as a plain colored flat or curtain. In some cases the figure may be the newsman within an active ground such as a scene from the event being talked about.

Numerous other examples can be given in which the relationships between display contexts (radio and television) are similar; a general principle of this relationship, however, may be stated here without
much further elaboration: When the main intent of a program involves a predominately narrative presentation form, this narrative aspect will be contained in the audio or radio display context which will be associated with an indistinct, passive, or less frequently, an active display context type in television. In effect, this principle suggests that when the main content of the communication is presented in the narrative of speech, the visual component will provide few or no visual stimuli inputs that might distract the viewer.

Re-enactment or drama as a presentation form for television programs typically involves the use of both radio and television display contexts as equally important in the program. While the radio display context contains the speech component, the television display context types are frequently indistinct, active and interactive. For example, the indistinct category would be used in relation to an especially dramatic or emotional speech or reaction to some event; the effect would be to display the figure, heightening the impact of the visual stimuli relative to the dramatic moment and the intent of the communicator. The interactive category of display context would occur frequently in relation to the dramatic motion of the figure (the actors) and their speech.

A general principle relating television display context types and the radio (audio) display context (not typed here but generally consists of the dialogue of the drama) to drama presentation form can now be stated: When the main intent of a program involves a predominately dramatic presentation form, the dialogue - monologue of the presentation will be contained in the radio (audio) display context which will
be associated with indistinct, active and interactive television display context types. In effect, the principle indicates that a dramatic presentation form for television will associate visual stimuli and audio stimuli relative to the desired dramatic impact and that, consequently, the visual stimuli will provide a wide range of inputs which may constitute the most important content of the presentation.

Picture as a presentation form for television programs involves mainly the use of the television display contexts, although the radio display context may contain key narrative elements to focus the viewers attention on discrete figure-ground relationships. The television display contexts involved in the picture presentation form are (1) active and (2) interactive. Thus, for example, a picture presentation of a process (such as car manufacturing or using certain equipment) would be presented by the display context type involving a distinct figure-ground relationship characteristic of the active display context. The radio display context might contain a narrative form of description which, in relation to the active category, would serve to provide additional information about the figure. The interactive category would typically be used to present information about a geographical location and, of course, the entire visual stimulus would involve no particular distinction between what is figure and what is ground. An accompanying radio display context might be associated with this particular television display context type to provide a narrative description such as naming the visual stimuli thus presented.

A general principle relating television display context types and the radio (audio) display context to the picture presentation form can
now be stated: When the main intent of a program involves a pre­
dominately picture presentation form, the narrative, if any is used, 
will be contained in the radio (audio) display context which will 
name or describe the figure-ground relationship of the television dis­
play context types; the picture will be contained by the active or 
interactive television display context types. In effect, the 
principle indicates that with a picture presentation form, the 
television display context types will provide large amount of visual 
stimuli which constitute the major and most important content of the 
presentation.

It should be noted also that the picture presentation form is fre­
quently associated with a narrative and sometimes a dramatic, intent 
on the part of the communicator. Still, the form may be used only with 
the intent to convey a notion of aesthetic qualities of shape, color 
and composition not associated with either narrative or dramatic 
intent.

These examples of certain relationships between radio and tele­
vision programs only suggest the possible range of relationships that 
are possible. However, the general principles derived from the ex­
amples provide a basis for the analysis of television programs in terms 
of the composition and possible effects of communications or messages 
thus presented.

It is obvious that the three general principles for the compositi­
don of television programs do not exclude the possibility that each 
of the elements described by the principles can interact in a wide 
variety.
For example, presentation forms can be combined in nearly infinite ways in the composition of television programs and the radio and television display contexts that structure them can do so in nearly infinite ways.

An example of the range of possibilities substantiates the point. Narrative presentation form can be combined with drama and both, to some extent, could be presented by picture as the presentation. In many television programs all presentation forms are used to convey the communicator's intent and these can be contained by various display contexts of television and radio-audio. In spite of the numerous possible combinations of presentation forms and display contexts, it is generally an easy matter to infer from the program what the intent of the communicator is and to infer as well what presentation form is the major organizing principle behind the communication.

Within the limitations just outlined, it is possible to suggest a general relationship between presentation forms and the television display contexts associated with them. This relationship is illustrated in figure 2.

<table>
<thead>
<tr>
<th>Presentation Form</th>
<th>Context Type</th>
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</thead>
<tbody>
<tr>
<td>1. Narrative</td>
<td>Passive</td>
</tr>
<tr>
<td></td>
<td>Active</td>
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<tr>
<td>2. Drama</td>
<td>Indistinct</td>
</tr>
<tr>
<td></td>
<td>Active</td>
</tr>
<tr>
<td></td>
<td>Interactive</td>
</tr>
<tr>
<td>3. Picture</td>
<td>Active</td>
</tr>
<tr>
<td></td>
<td>Interactive</td>
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</tbody>
</table>

Figure 2. Relationships Between Presentation Form and Context Types
Direct and indirect relationships between display context and symbolic range. Another concept necessary for the development of the Instructional Communication Analysis System can be derived from the analysis of context-content interaction in a communication. The symbolic range of a medium as discussed earlier is related to the display context of the medium. This relationship is defined by the quantity of stimuli required to generate the responses which can reasonably be associated with the display context. For example, the range of responses (internal states or images) which can be associated with the alphabet is almost unmeasurable. As noted earlier, however, conventions of use - literary genres - and logical principles of organization, development, etc. considerably restrict the symbolic range of the alphabet and tend to provide means of controlling the symbolic range for any particular literary communication. This relationship between symbolic range and display context is very complex in a medium like television because of its larger number of display-context types or categories. Subsequently, all visual media - such as the alphabet can be contained by television while its radio component can contain all aural media.

As far as the application of the Instructional Communication Analysis System to television is concerned, however, only the display context types associated with its visual or light event will be discussed in this work.

The relationship between symbolic range and television display context types can be viewed as being either direct or indirect. A direct relationship indicates that the stimuli that give rise to a
range of responses (symbolic range) are specifiable and discernable. For example, the visual stimuli displayed by the indistinct display context type would be readily perceived by anyone with vision. The possible range of responses to the stimuli from such a display context would depend, of course, upon the nature of the figure and its commonly accepted symbolic meaning. Likewise, the stimuli displayed by the passive display context type would also be readily perceived; hence, in both cases there is a direct relationship between the display context, its commonly accepted interpretation, and the symbolic range of the medium which is capable of displaying its event in those ways.

An indirect relationship suggests that the visual stimuli are less specifiable and discernable. That is, a relationship between the display context types that display the stimuli and the symbolic range or ranges associated with them is much more difficult to specify or discern. In the case of the active display context type, then, the large quantity of visual stimuli possible in terms of both figure and ground makes it almost impossible to determine precisely what stimuli or combinations of stimuli can be associated with possible responses; it is frequently impossible even to determine with any precision what responses may be invoked. The same situation attains with the interactive type of display context and may be even more remote in terms of specifying relationships between visual stimuli and possible responses.

Of course even in these instances certain conventions apply to restrict the symbolic range. Thus, an active display context in which the ground is a visual image of a garden, say, will as stimuli
have a generally known symbolic range, although the numerous visible objects that compose the image may invoke differing responses among different viewers.

The direct-indirect relationship between display context and symbolic range of television may be illustrated as shown in figure 3.

<table>
<thead>
<tr>
<th>Display Context Type</th>
<th>Relationship to Symbolic Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indistinct Passive</td>
<td>Direct</td>
</tr>
<tr>
<td>Active Interactive</td>
<td>Indirect</td>
</tr>
</tbody>
</table>

Figure 3. Television Display Context Types and Relationships to Symbolic Range

The significance of such relationships between stimuli and range of responses is that the more indirect (in a sense, unstructured) the stimulus, the more the individual perceiver must provide the necessary structure from his past experiences and other personal, internal resources such as imagination, creativity, etc. Thus, the more indirect the stimulus, is, the more involving it is as an aspect of communication. This concept of perceptual psychology is well summarized by Sherif and Sherif as they write:

As the stimulus situation grades by degree from highly structured forms, well-defined groupings, and sequence toward situations lacking such compelling properties, the organism contributes more and more to any psychological pattern that ensues. Because there is a tendency toward patterning in experience, this means that the contribution of internal factors to psychological processing is proportionately greater as the structure of the
of the stimulus situation decreases.

Thus an indirect relationship is likely to result in a more personally involving kind of communication; its effect is likely to have a more affective quality than a communication in which the symbolic range and display context are in a more direct relationship. It is important to note, however, that the symbolic range itself to a large extent determines the individual's psychological-cognitive and affective involvement. All that is suggested here is that the stimuli which engage or stimulate the individual's range of responses can also affect his involvement in making the communication meaningful.

The Instructional Communications Analysis System

A brief discussion of the presentation forms relative to their psychological effects will lead to the basic formulation of the Instructional Communications Analysis System.

Narrative as a presentation form may be considered to be a direct, cognitively oriented organization principle for a communicator's intended effect. It typically involves telling someone something as in a lecture, discussion, etc. While an inspiring orator may have a very emotional effect upon an audience, the case more often than not is that narrative forms are efficient organization patterns for cognitive effects.

Drama or enactment tends to be frequently associated with affective intent. The communicator wishes to make his audience feel some way about something. Its effect, then, may be considered to be

10 Ibid., P. 62.
primarily emotional in nature.

Picture as a presentation form may be either cognitively or affectively structured.

These considerations of presentation forms, medium characteristics of television and psychological states effected by the latter two may be summarized by the illustration in figure 4.

<table>
<thead>
<tr>
<th>Display Context and Types</th>
<th>Relationship to Symbolic Range</th>
<th>Presentation Form Related to Psychological Involvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Indistinct</td>
<td>Direct</td>
<td>Narrative</td>
</tr>
<tr>
<td>2. Passive</td>
<td></td>
<td>Picture</td>
</tr>
<tr>
<td>3. Active</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Interactive</td>
<td>Indirect</td>
<td>Drama</td>
</tr>
</tbody>
</table>

Figure 4. Summary of Elements of I.C.A.S. and Their Relationships

The elements for the Instructional Communications Analysis System have now been defined. It is possible to utilize these elements to analyze television communications and thereby to suggest broadly how instructional strategies and tactics as categorized by Hough and Duncan (discussed in Chapter One) can be effected by television programs. Further, the broadly educative aspects of the new general education defined by the convergence model of the D & U process can be related to the effectiveness of television in creating the attitudes or contexts appropriate to adoption.

The I.C.A.S. for television. The Instructional Communication
Analysis System for television is based upon the display context types defined earlier in this chapter. These display context types are constructs that permit the cumulative analysis of stimuli presented by television. Television is a medium that involves motion and sequence of the stimuli. Therefore a time sample procedure involving the observance of the frequencies with which each display context type appears in a given sample will provide an indication of the presentation form of the sample. Such an analysis will also indicate the kind of relationship between display context and symbolic range.

Since the categories of the I.C.A.S. are the display context types, it is important that they meet the criteria of all such categories. Fred Kerlinger lists five criteria for categorization:

1. Categories are set up according to the research problem and purpose.
2. The categories are exhaustive.
3. The categories are mutually exclusive and independent.
4. Each category ... is derived from one classification principle.
5. Any categorization scheme must be on one level of discourse.  

The categories in this analysis system were designated as constructs for the purpose of examining television's manipulation of its event, light. The categories appear to include all phenomena of light as it is displayed through television. The categories do not depend on each other and each excludes the other. The principle of classification used to derive the categories is the figure-ground principle generally used to derive the categories is the figure-ground principle generally

11 Foundations of Behavioral Research, P. 606.
related to visual perception. Finally, the level of discourse is the universe of television as a medium.

Thus, it appears that the category system of the I.C.A.S. satisfies the criteria for such systems as defined by Kerlinger.

Rules for use of the I.C.A.S. for television. The rules for applying the categories for the analysis of television programs are few and simple. Given an understanding of the phenomena categorized by the display context types scheme, the analyst must simply observe the program and determine which category of display context is presented; the analyst writes a number (representing a category) whenever that category appears or after each three second interval. A tally of the categories is thus kept, maintaining the actual order and quantity of their occurrences.

The data derived from this analysis is useful in indicating the proportions of the program sample containing each category and the ratio of any category to any other. Further, the sequence of categories can be displayed in a matrix to illustrate the moves from one category to another thus giving an indication of the strategy of composition. Perhaps most significant in this analysis of data is that the ratio between direct and indirect relationships of display context and symbolic range can be computed.

Prospective use of the I.C.A.S. for television. The potential use for such an analysis system appears to be simple and meaningful. Because it is very similar to the Flanders Interaction Analysis System in terms of its technique and intent, the Instructional Communication Analysis System (I.C.A.S.) techniques for data collec-
tion and analysis are familiar to many educators. Like the Flanders system, the I.C.A.S. is very simple to learn and to teach to others. Further, its use results in a potentially significant kind of knowledge about the effectiveness of television communications relative to the intent and need of the educator who might use television as an important medium for instruction.

The kinds of knowledge about television as a medium for instruction that could derive from use of the I.C.A.S. include production and utilization strategies and tactics. Given certain kinds of instructional objectives that range from purely cognitive recall to application of knowledge in convergent and divergent operations, the use of the I.C.A.S. to design the display contexts appropriate to such objectives is a clear possibility. For example, the use of display contexts associated with a direct relationship between context and symbolic range might effectively be combined with display contexts that result in an indirect relationship; thus, the knowledge required might be presented in the radio (audio) display context associated with an active video display context that contains the visual presentation of the consequences of several kinds of convergent/divergent applications of the knowledge. In this case the figure of the video display context might be the instructor. This kind of production strategy combines both direct and indirect display - symbolic range relationships and utilizes the medium fully.

One production strategy that is reflected in productions by the Children's Television Workshop is to use the active and interactive display contexts to enhance the achievement of affective and
cognitive instructional goals. "The Electric Company" for example uses numerous active and interactive display contexts as stimuli that generally activate the symbolic range of youngsters to form an image of popular television program types. Thus, such program types as commercials, soap-operas and quiz shows are represented in the active and interactive display contexts. In addition, the active and interactive display contexts in those scenes display other visual stimuli such as letters and words which, of course, have a more direct display - symbolic range relationship; but by displaying them in the active and interactive display contexts, these simply have the effect of increasing the stimuli displayed and increasing the symbolic range effected.

This example illustrates how a production strategy that uses as many display contexts as possible to increase the symbolic range relative to each results in a full use of the characteristics of the medium. Thus, strongly affective impact is assured by the indirect display - symbolic range relationship which creates for most children the image of an enjoyable experience; the more direct display - symbolic range relationships arising from the same active and interactive display context provides the didactic message. The presentation form of this show is almost exclusively drama, which, of course, reinforces the indirect-affective impact of the show.

Utilization strategies derived from use of the I.C.A.S. might center upon the analysis of currently available instructional programs. Thus, if the analysis were to reveal that a particular program had the qualities and quantities of cognitive and affective instructional characteristics required by the curriculum a decision as to when and
with which youngsters to use the program could be based upon reliable data rather than upon intuition and guess work!

**Instructional behavior and strategies and the I.C.A.S. for television.** The value of the I.C.A.S. as thus far developed appears to be substantial. However, one other consideration must be made before ending this discussion of the instructional value of the system. The relationship between the categories of the instructional process cited and defined in Chapter One and the I.C.A.S. as a guide in the production of instructional television programs is appropriate here. The categories defined by Hough and Duncan included clarification, response initiation and solicitation as substantive moves. In a general sense each of these categories of teaching behavior can be effected by television in terms of the I.C.A.S. elements. For example, (1) **Initiation** of information can be effected most simply by use of the indistinct and passive display context; (2) **Solicitation**, by use of the active and interactive display contexts; (3) **Response**, by all display contexts; and (4) **Clarification**, especially by the interactive and active display contexts. What is significant in the relationship between these two sets of categories, however, is that the teaching strategies defined by the moves from one category to another in the "O.S.I.A." * and the concepts of direct and indirect display - symbolic range relationships offer mutually complementary strategies for achieving affective learning such as valuing, appreciating, etc.

For example, it is quite conceivable that given specific instructional goals in the affective realm, both analysis systems could be

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12 "Observation System for Instructional Analysis" in Hugh & Duncan.
used to outline broad strategies for presentation by the teacher as one medium and television as another. Thus a television presentation strategy for, say, art appreciation would involve the use of display contexts such as active and interactive resulting in an indirect display-symbolic range relationship. The use of an audio display context containing a narrative form for naming and describing figure-ground relationships would be combined with a primarily pictorial video presentation form. The teacher, on the other hand, could clearly use a group-direct strategy of personal appraisal to clarify concepts and principles presented by television without restricting or limiting student affective-indirect involvement. Thus, those areas of an instructional strategy that are difficult to achieve by television alone (such as positive personal judgment, etc.) could be achieved by a teacher resulting in a truly integrated, multi-media approach.

It should also be noted here that the potential of television to effect strategic or tactical moves in the realm of appraisal behaviors (such as corrective feedback, acceptance, positive personal judgment, etc.) is greatly expanded by realizing its power to create an indirect display-symbolic range relationship. As noted above, the use of this indirect quality is exemplified by "The Electric Company" in leading children toward an affective-image range relative to the identification of a pleasant experience (such as watching a favorite television program) with learning a very powerful appraisal tactic. Thus, television can entertain and teach simultaneously. Other similar appraisal tactics could no doubt be effected by clever use of the indirect display-symbolic range relationship.
Conclusion

The instructional potential of television, then, can be realized more fully when the kinds of psychological states that can be effected by the structure and sequence of its display contexts are analyzed and related by the Instructional Communication Analysis System.

It is precisely the broad range of psychological states (both cognitive and affective) that accounts for much of the attitude formation required by the new form of general education defined in Chapter Two. In the figure-ground relationships presented by the display contexts of television and the strongly narrative nature of the audio display context component of television programs, one can see how attitudes favorable to the adoption of innovations are formed.

For example, the I.C.A.S. analysis of a typical entertainment television program or commercial would most likely reveal a high proportion of active and interactive display contexts. Thus, of course, the ratio of indirect to direct display-symbolic ranges would be very high. If, at the same time an analysis were made of the audio display context in terms of its content of highly acceptable, stereo-typed narrative comments, one would have the formula suggested by the process of attitude formation. That process as described in Chapter Three noted essentially that content (in this sense, both the visual and audio portions of a program) of mass media programs is well within the latitude of acceptance of most people, while the context of such programs presents a vision or sub-system of what life could be if one were to change by adopting the life styles or commodities displayed in the context.
That is precisely what an analysis of an entertainment program would reveal. The low structure of the stimuli presented in the display context invite personal structuring and participation. Thus, while the content of a program is very traditional, stereotyped, and direct in nature, the individual's active participation is achieved by the numerous stimuli (low structure) of the active and interactive display contexts. Ultimately, this is what the individual "learns" from such a program since he already is quite familiar with the content. Thus, the low structure of the display context types allows a wide symbolic range relationship for each individual. The symbolic range is not, however, completely indirect. Certain images such as clothing styles, certain kinds of cars, houses, environments, etc. are inevitably similar for all. These images, then tend to become the problems that initiate the D & U process.

This kind of learning from the display contexts of television is the most significant aspect of instructional and commercial television alike. One aspect of such learning will be studied and reported in Chapter Four.
CHAPTER FOUR

THE PILOT-STUDY

This chapter reports the findings of a pilot study dealing with a few important questions related to the I.C.A.S. One main question which the pilot study was intended to answer was the meaningfulness of the category distinctions for television application of the I.C.A.S. Closely related to this question was the question of the usefulness of the categories in terms of how readily others could learn to apply them.

Apart from the analytical value of the categories other questions guided the design of the pilot study. One was the question of the effect upon viewers of knowledge of content-context distinctions as developed in Chapter Three. This became the second main area of inquiry for the pilot study. It involved training one group of observers in broad application technique using the I.C.A.S. categories for television. This, it was assumed, would give the members of the one group a knowledge of display context types that would distinguish them from the general population of television viewers.

Consequently, as a pilot study this research was intended only to provide initial answers to the kinds of questions raised above. It was felt that if indeed the category distinctions had clear referents
in the stimulus situations of the display context of television programs, then more elaborate, experimental research in examining television production - instructional strategies based upon the I.C.A.S. for television could be revealing.

**Report of the Pilot-Study**

**Design.** The study was conducted under field conditions in which careful control of variables could not readily be achieved. Consequently, the findings of the study must be interpreted in light of the limitations imposed by non-laboratory situations.

Basically, however, the design of the pilot-study involved two groups of subjects. The control group was asked to watch a particular television program and, simply, (1) to write a response to a general question about the impact or effectiveness of the show and (2) to rate the show on a Likert-type rating scale relative to twenty descriptive-qualitative statements. The experimental group was given one half-hour of instruction in the display context categories for television and were then asked to rate each scene of the show according to the frequency of appearance of each category; they were then asked to write a description of the show and to rate it by reference to the same rating instrument used with the control group.

**General Procedures.** The application of the display context categories to each scene of the program resulted in frequency data for each category (Indistinct, Passive, Active, Interactive). Comparisons of the categories were made by a Chi square test. This non-parametric measure was made to give some indication of the observers' ability to apply the categories meaningfully. A comparison of the
Means for both group's responses to the rating scale was made to provide an estimate of the effects of a knowledge of display context categories upon an individual's evaluation of a program. In addition, the descriptive responses to the question about the impact of the show were categorized and compared.

Limitations and conditions of the study. As already noted, the pilot-study was conducted under field conditions in which strict sampling and randomization techniques could not readily be used. However, in order to control as much as possible the conditions and variables of the study, certain quasi-experimental procedures were followed. There can be no assurance, though, that the sample groups for control and experimental treatments were even remotely representative of the population from which they were drawn.

The sample for the study consisted of college sophomores, juniors, and seniors at a small, private liberal arts college in Columbus, Ohio. A test run to determine the organizational and conceptual efficacy of the design was conducted earlier with a similar population of college students from another college in the area. The results of the test run are not reported here since the main purpose was simply to smooth procedures and to determine whether or not a period of not more than forty-five minutes was sufficient for applying the categories.

The sample of seventy-three students was selected from classes in advanced experimental psychology, introductory educational methods, student-teaching, and general psychology. This rather narrow range of classes that participated was a result of the need to assure instructors that the experiment would be meaningful to their students in terms
of course objectives. Thus, psychology instructors tended to grant ready cooperation in the study because of their feeling that it might be interesting; education instructors were similarly motivated.

Members of each class that participated were randomly assigned to control or experimental groups on the basis of class rosters. A table of random numbers was used after each student was numbered consecutively. Only students who appeared at the assigned time were assigned to the control and experimental groups.

After assignment to a control or experimental group, each class was given a brief description of the purpose of the study. In general they were told that the study would examine certain factors involved in the production and use of educational television programs. The groups were then told that they would view a particular program and would be asked to answer a few questions afterwards. The control group was then asked to go to the viewing room where they were given instructions to view the show in its entirety. After viewing the program, they were asked to write their statements describing the visual impact of the show; this was followed by the rating instrument.

While the control group was viewing the program, the experimental group received instruction in the use of the display context categories. Each category was briefly defined and the procedures to be followed in the experiment were presented in written form. Subjects were encouraged to ask questions about the procedure and in all cases this led into a detailed discussion and presentation of the categories.

These general procedures, then, involved random assignment of subjects to each group, careful explanation of each group's tasks, and
a tightly controlled time-group management. In all cases both control and experimental groups completed their tasks within two-hours. This time limitation was imposed as a limitation due to the class schedules of participating students.

The materials of the study. The television program selected as the independent variable for each group was a full, half-hour production of "The Electric Company". This program was selected for two reasons: (1) it represents a new approach to educational television production as suggested in Chapter Three, and (2) because it attempts to teach for specific instructional objectives, it was appropriate as a subject of this study and it also permits an effectiveness measure based upon its techniques relative to specific instructional objectives.

Show number 114 was video tape-recorded using one inch, color video tape. All titles and credits were maintained and were played for the groups, although they were not analyzed as part of the program.

Other materials used in the study include direction sheets, response sheets, and the questionnaire. A copy of each form is included in the appendix. The construction, design, and use of the forms will be discussed as necessary in the reports of each phase of the study.

Category application phase. This phase of the study was concerned with establishing the usefulness of the display context categories as key elements in the I.C.A.S. for television. A full definition of each category was provided in Chapter Three, pages

A full application of the I.C.A.S. would involve a time-sample
observation procedure in which an observer would indicate which display context category was applicable every three seconds or whenever a change occurred. However, the main purpose of this study was to determine the ability of trained observers to understand the distinctions made by each category and to determine generally the observers' ability to apply the categories to the program viewed.

Consequently, it was determined that the requirement of rapid and accurate decision-making in the time sample procedure would overshadow the study of observer understanding of the categories. A less strenuous and demanding procedure was to ask the observers to view the program scene-by-scene and to rate the frequency of appearance of each category for each scene. Essentially, then, the major phenomenon that was studied was each observer's understanding of the categories.

Although each observer was asked to apply the categories to scenes, it was clear that such an application was of secondary importance to an understanding of the categories. In terms of developing and evaluating the I.C.A.S. for television it was obvious that the first step was to determine whether or not the categories made meaningful distinctions among the stimuli of the display context. Thus, the ability of observers to apply the categories was only remotely determined.

**Procedures for the category study.** The recorded program was divided into twenty-six scenes. Scenes were determined on the basis of oral narrative and obvious visual transitions such as fades, wipes, over-laps, etc. Although there was frequently a carry-over in terms of presentation form content from one scene to another, the visual
shift from one scene to another was fairly easy to determine.

Thus, a tally sheet was designed for notation of the observer's application of the categories in each scene. They were instructed, after having discussed the definitions of the categories, to observe each scene and to make informal notations of their observations relative to the display context categories appearing in each scene. It was suggested to the observers that they use a scrap-sheet of paper with the four categories (represented by the letters, A, B, C, D) represented in columns at the top of their page. Further, it was suggested that every three or four seconds - or whenever they noted a change from one category to another - they simply make a check mark in the appropriate category for that scene. Observers were then told to tally the marks in each category for each scene and to enter them on the tally sheet (that was mimeographed for their official report) according to the corresponding frequency.

The Tally Sheet was made up of (1) columns designating each category: A-Indistinct, B-Passive, C-Active, and D-Interactive and rows designating twenty-seven scenes (although only twenty-six scenes were analyzed because scene twenty-seven included credits). Frequencies for the estimated appearance of each category were designated: 0-None; 1-Seldom; 2-Sometimes; 3-Most of the time. (see appendix for sample Tally Sheet).

Thus, observers were asked to rate each category for each scene according to their judgment-estimate of the frequency with which each category appeared in each scene. The frequency designations refer simply to the observer's notation on his own, informal tally sheet and
were so designated to enhance the observer's translation of his tallies into the four frequencies on the mimeographed Tally Sheet.

Before observing "The Electric Company" program, all observers in the experimental group viewed numerous display context types from commercials, soap-operas, and news programs. The "stop-motion" capability of the tape deck enhanced the opportunity to provide specific examples of each display context category. Each category was thus exemplified and observers were asked to identify each from the examples. When unanimity was reached in the observers' classifications for each display context category example, they were then permitted to observe the program chosen for analysis.

Hypothesis of the study. Since the major focus of this part of the study was to determine the usefulness and meaningfulness of the display context categories, the experimental groups ability to apply the categories meaningfully was taken as a measure of the categories' usefulness. It was assumed that their estimation-judgment of the frequency of appearance of each category in each scene would not be the same as similar estimations-judgments made by chance by untrained observers.

Hence, the non-parametric statistic, \( X \), was chosen as being the most appropriate measure of the frequencies expected by chance and those that would occur as a result of an understanding of the categories. The null hypothesis was used:

\[
H_0: f_{o1} - f_{e1} = 0
\]
\[
H_1: f_{o1} - f_{e1} \neq 0
\]

= .01
Findings. The data thus obtained were analyzed and \( \chi^2 \)-values were computed for the first and last ten scenes. This was done in order to avoid an excessively high degree of freedom which is a product of the row and column df's. Thus, for ten scenes there were 27 df's (4-1 for the columns, 10-9 for the rows) which approaches the limit for df's for \( \chi^2 \).

The frequencies of each number (0,1,2,3) representing the observer estimate of frequency of each category were tallied for each column for the first and last ten rows (scenes). \( \chi^2 \)-values were then computed for each column. For the first and second sets of rows, the \( \chi^2 \)-values were:

<table>
<thead>
<tr>
<th>Category</th>
<th>Scenes 1-10</th>
<th>Scenes 16-26</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-Indistinct</td>
<td>( \chi^2 = 503.02 )</td>
<td>( \chi^2 = 481.88 )</td>
</tr>
<tr>
<td>B-Passive</td>
<td>( \chi^2 = 33.69 )</td>
<td>( \chi^2 = 89.62 )</td>
</tr>
<tr>
<td>C-Active</td>
<td>( \chi^2 = 32.97 )</td>
<td>( \chi^2 = 39.30 )</td>
</tr>
<tr>
<td>D-Interactive</td>
<td>( \chi^2 = 296.1 )</td>
<td>( \chi^2 = 316.17 )</td>
</tr>
</tbody>
</table>

With 27 df's for each set of scenes (rows) the \( \chi^2 \)-values required for rejection of the null hypothesis was 46.96.

For scenes 1-10, then, only the Indistinct and Interactive categories were found to have \( \chi^2 \)-values significant at the .01 level. For scenes 16-26, however, only the Active category was found not to have a \( \chi^2 \)-value significant at the .01 level.

Assuming that any sample of scenes for the application of the categories would have been sufficient for the purpose of this study, it was logical and appropriate to segregate the entire sample into two sets of ten rows each. A major reason for doing so apart from the limitations of the df's was to determine the effect of increased facility in applying and understanding the categories gained through practice.
This situation appears to have been the case since in the last ten rows, the Passive Category has a $X^2$-value significant at the .01 level.

In addition, the sums of the frequencies for each category were used to make an analysis. Thus, for scenes 1-10 and scenes 16-26, the sum of each frequency interval (0, 1, 2, 3) for each category is displayed in Table 1.

<table>
<thead>
<tr>
<th>Category</th>
<th>Scenes 1-10 Frequency</th>
<th>Scenes 16-26 Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 1 2 3</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>A</td>
<td>289 36 20 30</td>
<td>268 57 24 11</td>
</tr>
<tr>
<td>B</td>
<td>88 89 63 138</td>
<td>113 36 60 151</td>
</tr>
<tr>
<td>C</td>
<td>122 62 64 112</td>
<td>100 48 82 130</td>
</tr>
<tr>
<td>D</td>
<td>231 39 32 58</td>
<td>236 38 46 40</td>
</tr>
</tbody>
</table>

Table 1. Frequency totals for each category.

As the sums for each category clearly show, categories A (Indistinct) and D (Interactive) were judged in both the first and last ten scenes to be the least frequent in appearance (see "0" columns). By the same token, categories B (Passive) and C (Active) were judged as being nearly equal in frequency of appearance with 138 and 112 for scenes 1-10 and 151 and 130 for scenes 16-26 respectively.

Further, if the "0" and "1" frequency intervals are added for each category and a similar operation performed for the "2" and "3" intervals, the observers judgments of which categories appeared least and most often can be determined. For the last ten scenes, for example,
The nearly identical sums for categories B and C raise some interesting questions about the application of the categories.

Interpretation. It appears that there was some ambiguity in the definitions of the display context categories. The nearly identical combined scores for categories B and C suggests that observers were unclear about the meaning of one of the categories or that there was an insufficient distinction between what each describes. The closeness of the sums for each frequency within categories B and C suggests a similar difficulty.

The Chi square test tends to substantiate the proposition that there was ambiguity in what the categories B and C represented. However, the finding that only category C (Active) did not have a $X^2$-value significant at the .01 level suggests that the ambiguity in definition was a result of the observers' difficulty in distinguishing between display contexts defined by the Active and Interactive categories (C and D). That is, because of the similarity between the Active and Interactive categories in terms of the stimuli they define, it is most likely that the definition of the Interactive category was the source of ambiguity.

This interpretation is somewhat supported by the data from the last ten scenes. Category B in the first ten scenes did not have a $X^2$-value significant at the .01 level but did have in the last ten scenes. This, of course, suggests that the observers learned how to
make distinctions among the display context categories according to the rules of the system. The fact that category "C" did not attain a $\chi^2$-value of significance in the last ten scenes tends to suggest that observers were not distinguishing properly between "C" and "D".

None of these propositions to explain the lack of a $\chi^2$-value significant at the .01 level for category "C" can definitively or assuredly be supported by the available data. They do, however, suggest important questions for further, more comprehensive examination of the categories. The arithmetic analysis tends to suggest, simply, that there was indeed ambiguity or excessive confusion in the definitions of at least one of the categories. The very heavy loadings for categories "A" and "D" under the frequencies defined by "0" and "1" combined with almost equal sums for categories "C" and "D" under the frequencies "2" and "3" suggests that observers were sure of what was not present but were ambivalent or uncertain about what was present in the display context.

Thus, it seems reasonable to assume that the distinction between Active and Interactive contexts needs to be sharpened since, apparently, the stimuli defined by each are not mutually exclusive. That is, the Interactive category as presently defined depends upon the occurrence of stimuli defined by the Active category and can only be distinguished by reference to another kind of distinction - what the figure or the ground do to each other instead of how they appear in relation to one another.

This phase of the pilot-study indicates that a thorough test of each category should be made. This might involve production or taping
of a television program sample in which only one or two display context types appear, alternating among various combinations. In this way, definite comparisons between what was present and what was observed could be made to lead to a more efficient definition of categories.

Context Knowledge Effects phase

This phase of the pilot-study was undertaken to determine what, if any, were the effects of knowledge of the display context types upon an observer's evaluation of a television program.

As already noted, it was assumed that a person's knowledge of the I.C.A.S. categories for television would, indeed, be a strong indication of knowledge of the display context of television. Thus, those observers who were given training in the use of the display context categories were considered to be the experimental group. The "experimental" or distinguishing characteristic of this group, then, was simply their knowledge of the category system applied in the first phase of this pilot-study.

Design and procedures. Essentially this phase involved the comparison of the mean scores of the control and experimental groups' responses to the "Likert" type scale used to rate the qualitative-evaluative statements about "The Electric Company" program which both say.

The statements were generated from claims made by Children's Television Workshop about what "The Electric Company" program teaches
and about its ability to gain and hold the attention of children.\(^1\) (The statements are reproduced in the appendix for easy reference.)

In order to eliminate from the analysis careless or thoughtless responses to the statements, three statements were simply negatively weighted although they were otherwise identical to positive statements about the same quality.

In general all of the statements describe or assert particular qualities of the program. Thus, there are eight statements about what or how well some skill related to reading ability is taught and seven about how well the show gains or holds attention. In addition, there are five statements that relate educational qualities and purely attention gaining-holding qualities to display context categories related to the Active and Passive categories. Three of those statements refer to instructional content presentation within the display contexts and two, to attention gaining-holding qualities.

The control and experimental groups were administered the instrument after they wrote their descriptive statements. The rating scale included four intervals: 1. Strongly Agree; 2. Agree; 3. Disagree; 4. Strongly Disagree. The means for each group were computed:

- **Experimental:** \( \bar{x}_1 = 41.14, N_1 = 36 \)
- **Control:** \( \bar{x}_2 = 40.32, N_2 = 37 \)

The hypothesis of this study, of course, was that there would be a statistically significant difference between the means of each group.

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That is, it was assumed that a knowledge of display context types would significantly alter the experimental group's perception and hence, judgment, of the effectiveness of "The Electric Company".

Therefore, a "T" test was performed to compare the means of the two groups. The null hypothesis was used since no direction in the significance level was hypothesized. Thus:

\[ H_0: \bar{x}_1 - \bar{x}_2 = 0 \]
\[ H_1: \bar{x}_1 - \bar{x}_2 \neq 0 \]

The formula used was:

\[ T = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1 - 1)s^2_1 + (n_2 - 1)s^2_2}{N_1 + N_2 - 2} \left( \frac{1}{N_1} + \frac{1}{N_2} \right)}} \]

A T value of 1.99 or greater was required to reject the null hypothesis. The derived T score was:

\[ T = 0.58 \]

Thus no significant difference was found. This may be due, in part to the ambiguity of the definitions of the categories. That is, since the "experimental" group may not have had an adequate knowledge of the display context types to distinguish them from the Control Group. This proposition, however, is somewhat tempered by analysis of the ratings of two statements that referred to backgrounds and settings. These statements (numbers 13 and 17) were evaluative in nature and in effect were based upon the perception of the ground in numerous scenes as opposed to perception of both figure-ground configurations.

The mean score for item 13 as rated by the control group was 1.5
and was 2.5 for the experimental group. It is possible to speculate that the experimental group's relatively negative (disagreement) rating of the statement reflects a familiarity with the grounds typified by the Passive and Active categories. Thus, it may be that the experimental group focused attention upon the ground of each figure-ground relationship and found that it alone would not "...be effective in gaining and maintaining the attention of elementary pupils." This speculation gains some support from the exactly reversed mean score for the experimental group on item 17 which was simply the negative of item 13.

While it is impossible to support such a speculation by reference to any available data, such a finding does strongly suggest that future research might be undertaken to examine the effects of focusing a group's attention upon specific kinds of figure-ground relationships. It also suggests that such research might reveal that the figure-ground relationships as defined by the I.C.A.S. categories for television could easily be altered to provide grounds (backgrounds) that actively provide information or designs to attract and hold attention.

Thus, the second phase of the pilot-study failed to demonstrate that knowledge of display context-types makes any difference in the way a program is evaluated. However, individual item responses suggest the possibility of more research as suggested above. A reconsideration of the statements rated by each group also suggests that too much emphasis was placed upon statements that did not precisely deal with the effects of figure-ground relationships. A brief review of the questionnaire (see appendix) will reveal that substantive issues
such as lesson objectives, level, content, etc. were the most frequent subject of the statements.

**Open response phase of the study.**

Another phase, related closely to the one just reported, was the examination of responses to an open-ended question about the impact of the show. Both groups were asked to respond in as much detail as possible to the question: "What did you see that might explain the educational impact of the program?" Emphasis was placed upon the visual aspect of the program when requests were made for clarification of the question. There was no time limit imposed—except for the varying schedules of the observers. Thus, because the "experimental" group required more time to complete their viewing, many individuals in this group were pressed for time to complete their written responses. Generally, the control group wrote lengthier essays.

**Purpose, design and procedures.** This phase of the pilot-study was undertaken to discover what, if any, differences existed between the groups' responses. It was expected that the "experimental" group would contain more responses referring to figure-ground relationships than general and/or specific responses referring to the presentation forms. In other words, one major issue to be examined in this phase was whether or not observers exposed to knowledge of display context types would use figure-ground relationships rather than more general concepts (such as presentation techniques) to explain the impact and effectiveness of the show.

Categories were established to analyze the total range of responses. Essentially, there were two categories dealing with educa-
tional objectives of a specific or general nature and two categories dealing with general comments. For the former, one category dealt with references to figure-ground relationships and specific or general educational skills or objectives; another, dealt with relationships between presentation forms and specific or general educational skills or objectives. The last two categories dealt with (1) figure-ground relationships and general evaluative or descriptive statements about the effectiveness of the show, and (2) presentation forms and general evaluative or descriptive statements about the effectiveness of the show.

These category designations required careful application since general, evaluative statements could often be attributed to the figure-ground or presentation form categories only by the examiner's inferences or interpretations. A few examples will clarify the difficulty. Given a statement such as: "Children can learn from watching this show," a decision had to be made about the intent of the writer. Thus, only when specific references were made to stimuli issuing from figure-ground relationships (such as characters' names or descriptions, references to color, or to letters, etc.) were such general evaluative statements placed in the category dealing with such figure-ground relationships. Thus the example above would be placed in the presentation form-general evaluation category.

Findings. The responses of each group, then, were categorized and the number of statements placed into each category was summed. The categories were: (1) Figure-ground relationships and specific or general educational skills or objectives; (2) Relationships between
presentation forms and specific or general educational skills or objectives; (3) Figure-ground relationships and general descriptive statements; (4) Presentation forms and general descriptive statements.

The findings are shown in Table 2. The numbers refer to the number of statements categorized.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Educational Skills-Objectives</th>
<th>General Descriptive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Figure-Ground</td>
<td>Presentation Form</td>
</tr>
<tr>
<td>Control</td>
<td>148</td>
<td>138</td>
</tr>
<tr>
<td>Experimental</td>
<td>167</td>
<td>97</td>
</tr>
</tbody>
</table>

N= Control 37.  N= Experimental 36.

Table 2. Number of statements categorized from observer essays.

It can readily be seen that the experimental group's responses contained more references to figure-ground relationships for educational and general descriptive qualities of the show than did the control group's. Likewise, the control group's responses always referred to presentation forms more frequently than the experimental group's did to explain the visual impact of the show.

Thus, the expectation that the experimental group would refer to figure-ground relationships more frequently to explain the visual educational impact of the show was supported in general terms by this study. It is assumed that this phenomenon can be explained by the experimental group's having had their attention focused upon figure-ground relationships by their application of the display context cate-
Interpretation. It is impossible to assert with any reliable statistic or data that the findings of this study reflect a knowledge of display context categories. However, it is possibly significant that the experimental group used figure-ground relationships to answer the question asked. That the control group's responses more frequently included references to presentation forms—skits, cartoons, rhymes, etc.—suggests a much more general perception of the program. As noted earlier, the experimental group's responses tended to be very brief and rather general. This may explain the large quantity of general statements (category 3); at the same time, however, the control group which had more time also tended to make more general-descriptive statements than specific educational skills-objectives statements (see category 4).

The significance of this study, then, is that the display context categories appear to have had some effect in structuring or guiding the experimental group's perception of the show. It suggests that even though some ambiguity may have existed in the category definitions, the categories did describe or distinguish the stimuli that occur in the display context.

Conclusion of the Pilot-Study

This pilot-study with its three phases attempted to evaluate in a very general way the usefulness of the I.C.A.S. categories for television. Because of the numerous limiting conditions imposed by a field study of this type, only tentative conclusions can be made. First it is clear that the I.C.A.S. categories for television analysis must be better, more clearly defined. As suggested in the report of phase
one, the Interactive category appears to be the least clear of all the categories. Second, it cannot be empirically established on the basis of this pilot-study that a knowledge of display context types makes any difference in a person's evaluation or appreciation of a television program. Third, the findings of the third phase of this study indicate that the display context categories do have some effect upon the way individuals perceive or at least account for the impact or effect of the television program viewed.

Thus, it can fairly be concluded that the display context categories (or some of them) do describe meaningful, perceivable stimulus referents arising from a television program. Because the display context categories do appear to affect an individual's account of what he perceived, it can be concluded that further development of the I.C.A.S. categories for television would be profitable in terms of analyzing the effectiveness of television as a medium.

Further development, however, would depend upon more precise, carefully designed experimentation. In particular, each category and the kind of figure-ground relationship it defines should be tested independent of all other categories. Such a procedure might result in clearer definitions of each category and would provide substantial empirical evidence of its usefulness for research into television as an instructional medium.
CHAPTER FIVE

CONCLUSIONS, RECOMMENDATIONS, AND SUMMARY

This study has focused upon the development of an instructional communication analysis system that could relate the general terms of enculturation in a technological society to the discretely instructional strategies and tactics of the major institution responsible for such enculturation. The development of such a system required an analysis of the terms of enculturation, and based upon that analysis an expanded concept of education was developed. This expanded concept of education suggested or postulated that attitude formation as a necessary first step toward the determination of action was accomplished not primarily by curricular activities and processes of educational institutions but, rather, by the broadly educative activities of numerous, ostensibly non-educational institutions.

Conclusions and Recommendations

This study has attempted to describe and analyze the general terms of enculturation for our society and from such an analysis to formulate a system for the analysis of instructional communications. The expansion of the concept of education to include the broadly educational aspects of the media of mass communication which, according to Gerbner, cultivate the terms of reality, was a necessary step in the formulation of an instructional communication analysis system.

Essentially, this expansion of the concept of education reveals
that there is a sharp contrast between what is generally considered to be the domain of the educational institutions of our society and what was shown to be the major educational process in our society—the D & U of knowledge in the form of innovations and products. Thus, it was shown that the process of attitude formation which enhances the adoption of innovations is a major objective of the media of mass communications. That these unexamined and often unconscious attitudes and their subsequent encouragement of adoption may far over-shadow the value and techniques of educational institutions has been demonstrated by the analysis of the D & U processes.

Thus, the contrast between planned, curricular education that traditionally defines education as an institution and the planned dissemination and diffusion of ideas, innovations, and products reveals the operation of a new reality that places the traditional modes of education and their ends in a counter-educational position. The main issue of this study has been precisely this phenomenon as revealed by the analysis of the process of attitude formation. Thus, the importance of understanding how mass communications shape reality lies in the potential of such an understanding for giving educators more control over how the terms of the new reality are shaped.

The Instructional Communication Analysis System is designed to account for all instructional or broadly educational communications. It is based upon the concept of interaction between content and context dimensions of a communication and its potential for providing guidelines for the thoughtful and rational use of the new media has been suggested. While the study rests upon abstract, theoretical formulations,
it appears that the major focus of the study has developed a useful analytical tool for the design, production, and utilization of educational media.

Thus, the major purpose of the study has been achieved. A system that relates specific media characteristics to the selection and distribution of particular kinds of stimuli in relation to the desired or expected responses of an instructional system has been developed. Further, the entire range of responses that can be effected by various media - particularly cinema and television - is available for use by educators using mediated instruction. Thus, the cultivation of responses to particular images, stereotypes, or presentation forms as practiced by overtly non-educational institutions in behalf of the creation of pre-adoption attitudes serves the interests of educators using the new media.

Need for new research. What is essential as a conclusion of this study is to develop new research in instructional media that tests and evaluates the possibilities of using the new terms of reality - the pool of already cultivated responses to mass media - for specific, instructional ends. The I.C.A.S. for television suggests such uses of this pool of already trained responses. What needs to be done, then, is to provide new stimuli in new combinations or compositions of television display contexts to create a new teaching. Face-to-face group instruction in schools (elementary, secondary, or university levels) brings about a display context for literary and oral media that now radically alters their effectiveness. In addition, additional research in the audio display context and subsequent development of
appropriate categories is indicated.

Thus, the I.C.A.S. developed in this study suggests a way to use the characteristics of the new media for discretely educational purposes as determined by educators rather than by other professional and special interest groups whose major concerns are the diffusion and adoption of innovations or products the value of which are largely unexamined.

"The Electric Company." The use of television in instruction which typifies the potential of television is well exemplified by "The Electric Company" discussed earlier in this study. "The Electric Company" teaches without a teacher image. The "teacher" is, in effect, the composition of the program which fully utilizes all the presentation forms and display context types discussed in this study. Its use of direct and indirect strategies in relating display context stimuli to symbolic range responses suggests that more sophisticated and complex concepts could be taught by similar methods. In effect, the program uses the response pool already well known to young viewers through their exposure to non-instructional television to bring about specific instructional responses. Such a program breaks the classroom or school display context monopoly over the traditional educational experiences of individuals and typifies what can be achieved at all educational levels by professional educators who become aware of the new terms of reality.

Media classification. A final conclusion based upon the concepts formulated and developed by this study is that the I.C.A.S. provides a novel way of classifying media. By defining the display context of a
medium as being the way it manipulates its event, media that manipulate
the same event can be compared and classified by reference to the
symbolic ranges that each are capable of effecting. Thus, a critical
study of the historic development of media and their subsequent mani­
pulations of their events might provide a sound, empirical basis for.
postulating media effects on various societies. In this way the
traditions of presentation forms and media usage could be studied to
reveal novel combinations for message composition that might result in
creating new response pools.

Summary of Conclusions

The following conclusions may be stated with certainty:

1. The I.C.A.S. categories for television require finer and more
   thorough definition.

2. The I.C.A.S. as developed in this study suggests new areas of
   research in message construction and media usage for
   educational purposes.

3. Purposeful, intentionally educational and instructional communi-
   cations events are designed, produced, and disseminated by
   overtly non-educational institutions for the purpose of
   assuring or enhancing the adoption of innovations and consump-
   tion of products the value or significance of which are sel-
   dom a criterion for their adoption or consumption.

The following conclusions may be stated tentatively, dependent
for validity upon additional research:

1. The process of education in a technological society is deter-
   mined by the D & U process which measures learning by adop-
   tion of innovations and consumption of goods and services.
2. Curricular, schooled education in a technological society is a product and/or service offered by the overtly educational institutions and is measured by the adoption of specified, pre-determined meanings or behaviors.

3. The responses within the symbolic range of a medium can be predicted or controlled by the communicator's use of direct display context - symbolic range relationships; the more indirect the relationship between the display context, the less control the communicator has over the responses in the symbolic range; the more indirect the relationship between the display context and symbolic range of a particular medium used to communicate an intended meaning, the more psychological - perceptual involvement is required of the receiver.

4. Given a knowledge of the audience's pool of already trained responses to presentation forms related to particular kinds of display context - symbolic range relationships, television in instruction can effect instructional moves and strategies that traditionally have required face-to-face, two-way communication.

5. Display contexts for radio could also be developed.

The D & U process and the new education. The expanded concept of education, termed the new general education, was conceptualized as a function of the process of dissemination and utilization of new knowledge or innovations. A D & U process was conceived as being the new paradigm of education and was termed a convergence model of the D & U process. The convergence model suggested that (1) the content of the new education is an innovation in the form of ideas - such as
general systems - or products, and (2) the objective - in behavioral terms - of the new education is the adoption or consumption of the innovation. The major method or technique used in this new education was seen to be the mass media. By analogy, the mass media were conceived as being to the new education what teacher-talk was to the traditional or schooled form of education.

Role of the mass-media. This conception of the new paradigm for education in a technological society depended upon the role of the mass media in forming attitudes. It was pointed out that information overload - a huge quantity of information available to nearly anyone - resulted in a general image or judgement of the value of any innovation or consumer product. This split between thought and action was seen to be an important prerequisite for the operation of a new education. Partly this split resulted from increased specialization in research and division of labor. The historical development of this phenomenon was not, however, discussed in any detail. Thus, the role of information and the increased quantity and availability of information in a technological society have not resulted, necessarily, in better decision-making or in more facts or knowledge to be utilized in the thought-processes. It was postulated that because of this increase in information and a simultaneous exaggeration of the split between thought and action, the process of attitude formation became the central objective of mass media.

Thus, the creation of a social context in which needs or problems are defined by the institutions or organizations which ostensibly serve those needs was postulated as being a primary function of the
mass media. In essence, the mass media were seen as creating an awareness of a short-coming, the solution to which would be the adoption of a given innovation. The first step toward adoption of an innovation is the awareness of a need for it. The mass media create such awareness and in so doing create an attitude that inclines the individual toward adoption.

**Attitude formation.** This process of attitude formation, it was suggested, involves a consideration of the content and context of a communication. That is, the content of a communication is generally— if it is to be persuasive and effective in encouraging adoption—well within the majority of the audiences' latitudes of acceptance. Thus, the general story-line, conflicts, and values thereby presented as the content of a communication are reflective of the mores, values, and belief systems of a majority of the audience. However, the larger context of the communication includes the setting and portrayal of the content; in essence, the context of a communication through its selection, emphasis, and processing of images or stereotypes for concepts of community, life-style, neighborhood, ecology, etc., creates a sort of dissonance between the content and audience member's self-concept. The context of a communication, then, reflects what could be if the audience member were to adopt the requisite innovations or products as suggested by the context.

Thus, the role of the mass media in the new education paradigm defined by the convergence model of the D & U processes is primarily to provide an interpretation or image of the meaning or value of innovative ideas or products. Perhaps the clearest example of this role
in operation at a very elementary level is the typical toy commercial. A new toy as an innovation or product is displayed along with supposed facts about its nature (what it is made of, how harmless it is, etc.) in a context that interprets its usefulness and its potential value. A toy scoop-shovel, for example, is displayed in a realistic-looking construction site which could not be duplicated in the average home. The context of such a communication is not only the visual image of the ideal setting but the internal, personal image-making of the youngster who feels a need for such an experience with a toy. The attitude is formed and adoption almost assured. The relationships between stimulus inputs offered by mass media and the range of images or conceptualizations of reality that can be effected by responses to such stimuli were viewed as constituting the context of a communication. It was in this sense of context that the stereotyped, predictable presentation forms of communications - whether entertainment or persuasive in nature - constitute the acceptable content that acts as a sort of excuse or occasion for the development of attitude-changing contexts.

Purpose of the I.C.A.S. Thus, the purpose, scope, and techniques of the new education were postulated. In order to develop a basis for using the mass media for more meaningful and thoughtful educational processes than those characterized by the convergence model of the D & U processes, this study attempted to formulate an Instructional Communication Analysis System. The primary value of such a system was its potential for giving educators more conscious control over the shaping of the terms of reality through the media of mass communications. The I.C.A.S. was intended as an analytical tool for determining how
the mass media shape reality and as a potential guide to the development and production of communications that reflect the intentions of educators in the traditional sense of the term.

Media characteristics. The I.C.A.S. was based upon the concept of interaction between the display context of any medium and the symbolic range which the display context is capable of effecting. The display context was viewed as being the stimulus of a communication and the symbolic range, as the potential universe of responses. The discussion of presentation forms - narrative, enactment, and picture-indicated that these reflected the traditions of using a given medium and served to limit the symbolic range of a display context. Thus, for example, the literary conventions current in any time period restrict and determine the potential range of meanings or significations of which print - publication - are capable of effecting.

I.C.A.S. for television. Primary emphasis for the I.C.A.S. in this study was placed upon television. Thus, while the I.C.A.S. as developed in this study could be used to generate categories for the display context of any medium, only the display context types of television were developed. It is important to note that the concepts of display context and symbolic range when combined with presentation forms that reflect the intent of the communicator are the major elements of the I.C.A.S. Thus, the I.C.A.S. is a system that attempts to relate media characteristics (display context and symbolic range) to the communicator's intentions.

As a system that was designed to analyze the interaction between content and context, the I.C.A.S. categorizes content into the three
presentation forms and context into the display context and the symbolic range of a medium. It was suggested that the context of a medium is the way in which its event is manipulated and the symbolic range effected by the display context. The display context of television was defined by the figure-ground relationships it is capable of effecting. These display context categories were: Indistinct, Passive, Active, and Interactive. The concept of indirect and direct relationships between the display context types and their symbolic ranges suggested that the more stimuli (of a visual nature) present in a display context, the more indirect were their effects in producing predictable responses in the symbolic range.

Thus, the effectiveness of television was suggested as being its potential for effecting a very wide-range of responses. It was suggested, further, that when the relationship between display context and symbolic range is indirect, the individual must more actively participate in the communication. Further, a relationship between display context types and the symbolic ranges typified by the three presentation forms was suggested.

Potential uses of I.C.A.S. for television. The value of I.C.A.S. for television was seen to be its potential for relating a wide range of desired or intended responses typified by presentation forms to specific display context categories of television. The I.C.A.S. for television suggests that specific instructional strategies can be effected by television by consciously relating presentation forms and display contexts.

Thus, for example, if the educator's intent is to initiate infor-
mation or opinion of a cognitive nature and specific, measurable objectives have been established for such a lesson, then a relatively direct, narrative presentation form would be combined with passive and indistinct display contexts. The responses to such display stimuli could easily be measured by objective tests. In this case, then, the relationship between the educator's intent, presentation form, and display context is clearly indicated by the I.C.A.S.

However, if the educator wishes for clarification of the narrative content, then the I.C.A.S. would indicate the need for an indirect relationship between display context and presentation form. Thus, since clarification is a response kind of behavior, the educator would have to be certain of what kinds of requests for clarification would most likely arise from an audience. This means that the idea or concept that might require clarification must be presented in a direct relationship between presentation form and display context. Such a direct relationship places the responses of the viewer under closer control of the communicator thus permitting a fair estimation of the need for clarification. In such a case, as already indicated, the presentation form should be narrative combined with a passive or even indistinct display context.

At this point in the design of the communication, the responses and the need for clarification can be seen to be more or less controlled by the communicator. Long experience with teaching and a general knowledge of the learning state or level of the audience further control the responses. However, in the case of television or other media that lack two-way channels of communication, the typical procedure for providing clarification is to use narrative to tell the audience what
is meant or what the implication of an idea or concept is. Thus, educational television when dealing with sophisticated or difficult concepts tends to be a slightly illustrated lecture. The I.C.A.S. would suggest, though, that clarification of such ideas be accomplished by using an indirect presentation form - display context relationship. Thus, for clarification, the interactive or active display contexts should be used to heighten individual participation associated with such indirect relationships and to provide simultaneous clarification.

In this regard, then, when a concept that arises from a direct - narrative - passive context requires clarification, it should be offered in an active or interactive display context that uses picture or enactment to show the implications or interpretations of the narrative presentation. No necessary relationship between the narrative and the clarification in the active or display context need exist. In other words, the clarification ought to stand alone without "captions" offered in the narrative.

The I.C.A.S. offers numerous such composition suggestions for educational television. The instructional tactic or move identified by Hough and Duncan as solicitation can be effected by television in much the same way as clarification. Thus, given a basic, say narrative presentation, an educational television program might be composed of direct - narrative - passive components while solicitation of a response might be effected by using a dramatic picture presentation in an active context; this indirect relationship between presentation form and display context would result in less response control by the communicator and higher involvement by the viewer. Combined
simultaneously with a direct narrative, this composition could be anticipated to solicit questions about the relationships between the two simultaneous presentations. The kinds of questions likely to arise could also be anticipated and additional narrative or direct display context relationships could be used to clarify or simply respond to the forced solicitation.

Other combinations of relationships between presentation form, display context, and direct or indirect symbolic ranges could readily be suggested by reference to the I.C.A.S. for television. However, it is only necessary here to suggest that the entire range of mass communicated messages provides a sort of pool of predictable, manageable responses that could be used by educational television producers and educators. That is, the fifty or more years of practice and knowledge of how to create certain ranges of responses is at the disposal of educators as well as producers of commercial entertainment programs. Hence, the use of certain television and cinematic techniques has created a body of visual literacy knowledge which can readily be used for educational purposes.

The I.C.A.S. for television, then, as developed in this study offers a systematic - though unsubstantiated - analysis of television characteristics and a way to relate those characteristics to traditional presentation forms that reflect, carry, or contain the instructional intentions of the educator. By contrast with the classroom, which relies upon teacher-talk and rather straightforward print display-contexts, television as conceived in this study can expand the range of meanings or significations relevant to desired instructional objec-
tives. Further, it can do so without the negative learned meaning of school and classrooms as display contexts themselves.

The I.C.A.S. evaluation. Apart from theoretical considerations summarized here, this study also attempted to validate or at least to substantiate some of the concepts of the I.C.A.S. for television. The pilot-study which attempted to ascertain the usefulness of the display context categories indicated that a great deal of ambiguity existed. Thus, further research in the area of definition of the categories was indicated. Other phases of the pilot study intended to ascertain the effects of a knowledge of display contexts upon the evaluation and perception of a television program were inconclusive. However, numerous suggestions for further research arose from the pilot-study.
APPENDIX A

Electric Company Questionnaire

1. The scenes in which specific reading skills were presented would be able to hold the attention of elementary pupils.

2. The show would have more an instructional than entertaining effect upon elementary pupils.

3. Elementary pupils would be likely to pay too much attention to the costumes, facial expressions, and funny actions in many scenes to learn whatever specific skills are being presented at the same time.

4. Specific reading skills that involve consonant blending, vowel combinations and sight words were presented at levels most likely to be appropriate to elementary pupils up to fourth-grade level.

5. Varied methods of presentation such as "Wild Guess," animated skits, cartoons, and "Love of Chair" would effectively gain the attention of elementary pupils.

6. Important concepts in reading such as comprehension, structure, use of context clues, etc., were presented at levels appropriate to elementary pupils up to fourth-grade level.

7. The use of entertaining skits or mock television formats (such as quiz show, melodrama, man-on-the-street interviews) would tend to overshadow a pupil's attention to whatever is being taught.

8. Parts of the show would encourage elementary pupils to make a response (internal or observable) such as saying a word.

9. The rapid pace of the show would most likely be effective in holding the attention of elementary youngsters.

10. The show would provide elementary pupils some opportunity to practice sounding-out various combinations of vowels and consonants.

11. The show would be more entertaining than instructive for an elementary pupil.

12. The show repeated important concepts or skills frequently enough for elementary pupils to achieve at least some familiarity with them.
13. The varied settings and backgrounds displayed throughout the show would be effective in gaining and maintaining the attention of elementary pupils.

14. The show did not introduce so many skills or concepts that an elementary pupil would be discouraged or confused.

15. The scenes move and change so frequently that an elementary pupil would be confused by the pace and consequently his attention would be lost.

16. Most elementary pupils who watched this show would not be discouraged by a presentation of a large, confusing amount of skills and knowledge dealing with reading development.

17. The varied settings and backgrounds that are displayed in numerous scenes would be distracting for elementary pupils.

18. The show would lead many elementary pupils to feel excited about learning how to read.

19. An elementary pupil could learn several important reading concepts simply by watching the show.

20. The show would encourage many elementary pupils to engage in a range of observable actions such as speaking (at appropriate times), applauding, singing, or laughing.
APPENDIX B

Context Analysis Data Sheet

You are being asked to analyze the context or general visual environment of a particular TV program. There are four kinds of contexts, defined below, with which you are to become familiar. After learning how to recognize each kind, you will be directed to rate the frequency of occurrence for each in a particular television program.

Context types. The four contexts are: (A) Indistinct; (B) Passive; (C) Active; (D) Interactive.

Definition of terms:
1. "Context" refers to the general background or environment within which a figure or configuration acts.
2. "Figure" refers to the visual element that most attracts your attention; generally the figure or configuration includes a human being or a group of human beings. Animated cartoons may often include animals or inanimate objects as well as human beings as the figure or configuration.
3. "Context types" refers to the kinds of backgrounds or environments within which or upon which the figure-configuration acts. Each is defined below:

A. Indistinct: The viewer cannot see background or distinguish its parts even though he may know logically what it is from a previous shot; generally blurred.

B. Passive: A plain or neutral background - it adds nothing but a shade of light or dark (or color) or simple static symbols.

C. Active: The background is visible and the viewer may know immediately what it is or what it represents.

D. Interactive: This is the same as active but the figure-configuration acts upon the context, points to it, or in some obvious way reacts to it. This is also the context when no particular figure is discernable.

Directions for rating:
1. Become very familiar with the contexts and the letters that
represent each.

2. As you view each of the 27 scenes of the half-hour program, make a tally of the occurrence of each context. A separate sheet of paper is needed for the scene tallies.

3. After each scene rate the occurrence of each context as follows: 0—none of the time; 1—seldom; 2—sometimes; 3—often or most of the time. You must rate each context (A, B, C, D) under one and only one of the frequencies.
BIBLIOGRAPHY


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