A model for the analysis of receiver responses to communication

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INTRODUCTION

This thesis is concerned with communication as the basic process of human interaction: as the process by which one person attempts to convey to or receive from another information, ideas, emotions and skills; as the process through which one person tries to influence the behavior of another and in turn is influenced by him.

While communication is central to all human social behavior, and while man devotes a major portion of his waking hours to communication of one form or another, few of those involved in the process realize its complexity. Communication is complex because it involves the interaction of at least two people and can be achieved only indirectly. The things which humans want to transmit to one another--information, ideas, emotions, skills--are psychic phenomena and of themselves are not transmittable. Rather, they must be transformed into representative symbols--words, pictures, gestures--which can be observed and which can be transmitted. However, these symbols are arbitrary: they have no intrinsic meaning. The individuals involved in the communicative act must give meaning to the symbols and must act upon the meanings they assign. Herein lies the complexity of communication.

Because of its complexity and because it is so basic to the notion of humanness, many persons--from Aristotle to the present day--have advanced principles, models and theories to explain the process by which communication takes place.

This thesis represents one further attempt toward understanding communication. Its primary objective is to develop a generalized model which will account for the what and the why of receiver responses to communication.
The ideas included in this model are by no means new or uniquely those of the author. The model draws extensively upon existing theories, hypotheses and conceptual schemes as well as the findings of past research. The major new aspect of the model is the synthesis and arrangement of the concepts.

The model will be operationalized in the analysis of the differential responses which the members of a potential audience made to one specific communication event. The degree to which the model predicts these differential responses will be tested.
THEORY

Approaches to Understanding Communication

For a number of years, human communication has been a major concern of philosophers, linguists, information theorists, sociologists, psychologists and journalists. Workers in each of these disciplines have brought to the study of communication the theoretical approaches, terminology and methodology characteristic of his own discipline. The result has been a proliferation of numerous specialized and partial theories, each with its own body of empirical support and each incorporating its own special language. Thus, a major problem for the communication researcher is knowing what is known. Assuming something is known within the various disciplines, the major problem in knowing becomes synthesis of concepts. One purpose of this thesis is to attempt to begin such a synthesis within a relatively small area: how receivers respond to communication stimuli.

To achieve a synthesis in any field one first needs a set of concepts, a conceptual framework, which is general enough to encompass all the fragmented concepts one wishes to bring together. A general theory which can encompass all research in communication to date is semiotics, the general philosophical theory of signs and symbols.

Semiotics can be sub-divided into three main areas: syntactics, semantics and pragmatics (Cherry, 20; Watlawick et al., 78). Syntactics, the most abstract of these areas, deals with the rules of symbol use in abstraction of meaning and users. Semantics is concerned with meaning of symbols, but this meaning is abstracted from all specific users of the symbols and from all environmental factors. Pragmatics is the most general
level of study and includes all personal and psychological factors which distinguish one communication event from another, all questions of purpose, practical results and value to symbol users (Cherry, 20). In short, pragmatics is concerned with how communication affects behavior.

This thesis is primarily concerned with the pragmatics of human behavior, as are most of the communication studies conducted by psychologists, sociologists, social psychologists and journalists.

One major effort to understand the pragmatics of human communication is found in the efforts to develop theoretical constructs, or abstract models, of the system within which the communicative act takes place. Another major effort centers on discovering the processes by which receivers respond to communication. The model developed in this thesis draws upon the hypotheses and findings associated with both the communicative system approach and the receiver response processes approach. Thus, it will be beneficial to examine these conceptualizations in greater detail.

A System of the Communicative Act

One of the earliest, and perhaps best known, attempts to understand human communication has been the development of models which systematically integrate the major elements and functions of the communicative act. Bettinghaus (9) and Berlo (8) among others, cite Aristotle as advancing the earliest and simplest communication model. Aristotle divided the study of verbal communication into a consideration of the speaker, the speech and the audience. In recent years increasingly sophisticated attempts to further explain the communicative processes have resulted in the formulation of a host of additional models. Among the verbal and diagrammatic models
of this type are those of Schramm (70), Shannon and Weaver (73), Berlo (8), Riley and Riley (66), De Fleur (23) and Hartley and Hartley (31). These models vary considerably in detail, yet a basic consensus exists among them. Most of those engaged in constructing these models agree that at least four major elements are involved in every communicative act. There is a sender; there is a message; there is a channel through which the message is conveyed; and there is a receiver. In addition, two major functions are included in nearly all the models. These are: (1) the sender's function of encoding the message and (2) the receiver's function of decoding the message. Some models of the communication system include a third function, that of feedback. Some include a fifth element, noise, which attempts to account for the fact that the communication system always functions less than perfectly. An elaboration of these concepts and a diagram of their relationships (see Figure 1) follows.

Elements and functions of the communication system

The communication sender is that person (or group of persons) who originates and sends messages. A major function of the sender in the communicative act is to encode his meanings and ideas (which are psychic phenomena and not transferrable) into symbols which are audible or observable and which can be conveyed.

The message is the encoded (symbolized) content or idea which the sender wishes to convey to the receiver. There are at least two major aspects in every message: ideational content and treatment. The ideational content of a message is found in the assertions—the arguments and appeals as well as the main theme or conclusions—which define the topic.
Figure 1. A generalized model of the sender—message—channel—receiver conceptualization of the system within which the communicative act takes place.
Message treatment includes the code the sender uses, the ordering of assertions and other stylistic features included in the process of encoding. A sender can treat any ideational content in an almost endless variety of ways.

The communication channel is the mechanical means used to convey the message from the sender to the receiver. Berlo (8) holds that channel can also be considered as the sensory processes involved in the communicative act—seeing, hearing, smelling, touching, tasting. However, most other authors consider channel to be the institutionalized mediums of communication, e.g., the printed page, including newspapers, books, magazines, letters and booklets; the electronic media, including radio, television, telephone and telegraph; face-to-face verbal behavior, including informal conversation, formal speeches and lectures; art; and music. A combination of sensory processes may be involved in sending and receiving messages through any of these institutionalized channels.

The communication receiver is that person or persons who actually receives, reads, listens to or sees the message which has been originated and conveyed by the sender through a communication channel. A major function of the receiver is to decode the message content. In this process he translates the symbols (which are the transferrable components of message content) into meanings and ideas of his own.

Some authors include a third function, feedback. This is the process by which the receiver transmits cues of his response to the message back to the initial sender. It is most easily demonstrable in the case of face-to-face verbal behavior where the receiver's facial expressions, nods of approval and verbalizations give the sender indications of how his message
is being received, and causes the sender to modify his message accordingly. In one sense, feedback may be properly considered as another communicative act, where the initial receiver and sender reverse roles.

A fifth element, noise, is added to some models (Shannon and Weaver, 73; Schramm, 70; and De Fleur, 23). Noise is any factor in the communication system (psychological, social or mechanical) which results in the meanings given a symbolized message by the sender and the receiver to be less than absolutely identical. To some degree, noise is present in every communication system since meanings are never completely shared by the sender and the receiver. Obviously, it is present to a greater extent in some systems than in others.

Utility of SMCR models

The sender-message-channel-receiver models of the communication process do not seem to fit the rigorous requirements proposed by some in defining a model (Brodbeck, 15; Rudner, 69). As Bettinghaus (9) notes, these models can be operationalized only indirectly through the use of theory and conceptualizations from other disciplines. They do not specify relationships among the elements and functions in such a way that new relationships can be generated from the model itself. And, the sender-message-channel-receiver formulation is not completely isomorphic; that is to say, its elements do not exist in an exact one-to-one relationship with the process of communication as it exists in the real world. However, it is a useful way of looking at the important elements and functions involved in the communicative act.
One of the most important contributions of the sender-message-channel-receiver model has been to break down the complex phenomena of communication into smaller, more manageable analytical units. Most empirical studies of communication have taken advantage of this analytical division and have focused primarily on one of the four major elements.

One area of study has been of how the sender performs his role. Breed (14), for example, has analyzed the social constraints which act upon the newsman as he performs his role. Pool and Shulman (65), Bauer (3), White (80) and Gieber (29) have conducted similar studies. One advantage of the Westly-MacLean model of mass communication (79) is that it accounts for the "gate-keeping" function of professionals (teachers, journalists, etc.) who intervene between the original source and the ultimate receiver. Wells and his students have recently shown that a rather complex series of "gatekeepers" intervene between the original source and the intended receiver in many mass communication systems (Lassahn, 51).

Another important area of communication research has focused specifically on the message. Some conceptualization and research has been aimed at developing techniques of content analysis (Berelson, 7; Pool, 64). Others have developed formulas to measure the difficulty of written communication messages (Lorge, 56; Flesch, 27). Still others have studied the relationship between message structure and its effectiveness. The order in which assertions are made, logical vs. emotional appeals and fear-arousing assertions are but a few of the many other areas into which researchers have delved in studying the role of the message in communication (Hovland and Janis, 35; Hovland, et al., 37; Klapper, 46).
Yet another major area of research has focused on the communication channel. Researchers have been concerned with enumerating the unique abilities of different kinds of media, e.g., newspapers, books, radio, TV, to convey information and to promote the acceptance of ideas. Klapper (45) recently summarized much of the conceptual thinking and empirical findings of this focus. It should also be noted that most of the enormous amount of "marketing research" and "audience surveys" regularly conducted by private research agencies, advertising agencies and by the media themselves are aimed at establishing the comparative effectiveness of different communication channels to reach and persuade specified audiences.

Most academic research, however, has focused on the receiver. So will this thesis. There is good reason for this focus. The sender's purpose in wanting to communicate is to produce some defined change in the behavior, attitudes or cognitions of a specified audience of receivers. To achieve this end, the sender is able to manipulate his message and choose the channel. However, the receiver also plays an important role in the process. He can and does attend or not attend, attach meaning and accept or reject the messages which confront him. In doing this, the receiver injects into the communication situation a host of factors not previously included (his needs, wants, motivations, habits, values, frames of reference, roles—however we wish to classify his purposes and his social-psychological state) which will influence the effect of the message.

There is little the sender can do to directly control the factors receivers bring into the communication system. At best the sender can become aware of what these factors are and how they operate, and then attempt to fashion his message and choose his channel in such a manner that
these receiver-introduced factors can be utilized to achieve his (the sender's) purpose most efficiently.

In order to understand what these factors are, and how they mediate communication impact, the sender needs more information about the mechanisms by which communication achieves effect than is included in the sender-message-channel-receiver model. The following section will review some of the theories and hypotheses which have been offered to explain the responses of receivers to communication stimuli. In another section of this chapter these concepts will be drawn upon to formulate a model which may be used to analyze these responses.

Approaches to Understanding Receiver Responses

It has been stated that a fair degree of consensus exists about the elements and the gross functions of the system within which the communicative act occurs. However, considerably less consensus has emerged from the efforts to discover the processes by which receivers respond to communication stimuli. This is not so much the result of disagreement among theorists and researchers as it is of the fact that a bewildering array of phenomena have been hypothesized—and to varying degrees empirically verified—to be causes of communication response. The major discoveries of these processes have been made during a period of less than 40 years. Many have been made during the past decade. Thus, there has been relatively little time in which to collate and synthesize the divergent hypotheses.

It is beyond the scope of this thesis to review and compare the many ideas about the processes of receiver responses which have been offered. One could include under the rubric of "response processes" the theory of
consistency—congruity, balance and dissonance. This theory holds that the human mind has a strong need for consistency and that attitudes are generally changed in order to eliminate some inconsistency. One could also examine theories of the role of social relationships in the communication process—opinion leadership, personal influence, the two-step flow of communications and many others.

Four conceptualizations which attempt to account for the "what" and "why" of receiver responses, and which the author thinks are most promising for further development will be reviewed. These are:

1. The stimulus-interpretation-response theory of the way man learns and reacts to symbols.

2. The hypothesis that a receiver goes through several functional stages in the process of decoding or interpreting a message.

3. The conceptualization that factors in the receiver's experience world—both psychological and social—"predispose" him to react to a given communication event in a given way.

4. An explanation of "why" man interprets messages and why his predispositions make the outcome of the interpretative process predictable.

As will become apparent, these four conceptualizations of receiver response processes are not independent. This is fortunate. For it is only by fact of their being related that hope exists for synthesis.

One of the purposes of this thesis will be to show—in a rudimentary way—how these four conceptualizations relate to one another. An attempt

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1 Brown (16) has recently summarized much of the research in consistency theory. References for further reading in this topic area can be found in his chapter, "The principle of consistency in attitude change", pp. 559-609.

2 Additional information on the role of social relationships in communication can be found in Katz (40, 41) and Katz and Lazarsfeld (42).
will also be made to show how these conceptualizations of receiver response processes relate to the models of the system within which the communicative act takes place. Before this attempt at integration is made, however, it will perhaps be beneficial to examine in greater detail each conceptualization.

S-R theory

One theory regarding the way receivers respond to messages is that of Stimulus $\rightarrow$ Response. This has been called the "hypodermic needle" explanation of receiver response. One "innoculates" an audience with a message and the audience responds in an invarying way to that message. S $\rightarrow$ R theory was in vogue shortly after World War I and appeared at that time to explain the generally influential nature of the propaganda campaigns of World War I. As De Fleur (23) has noted, the assumption is incorrect that S $\rightarrow$ R theory as applied to communication held that nothing intervened between the media and an individual's response. On the contrary, this theory included definite assumptions about human nature and the nature of the social order. One basic assumption was that man's behavior was governed by inherited biological mechanisms which were more or less the same from one individual to another. These built-in biological mechanisms gave the individual motivations to respond to given stimuli in given ways. Another assumption of S $\rightarrow$ R theory was that man was a member of mass society. In mass society the individual is psychologically isolated from others, is impersonal in interactions and is free from binding social obligations. Given these assumptions about the nature of man and the nature of the social order, the communication sender was concluded to have enormous powers of persuasion.
All one had to do to persuade was to construct the proper message and the receiver would be at one's command.

Today S → R theory is largely discredited. Current theory holds that the receiver's response to a message is a two-stage process:

Stimulus → Interpretation → Response

One responds not to the stimulus per se, but to the interpretations or meanings which he assigns to the stimulus within the environmental context wherein the stimulus is perceived (Bohlen, 12). The meanings one assigns to a stimulus are based upon what he has learned through his experiences in the social world. Since the experiences and learning of individuals differ, different individuals will assign different meanings to the same stimulus.

There is an enormous difference between the potential assigned to the sender in terms of persuading his audience under the S → R and S-I-R conceptualizations. These differences will become clearer in the remainder of this chapter.

Decoding or interpretative stages

The previous discussion indicated that the receiver performs a major role in the communication process by "decoding" or "interpreting" the messages presented. Several investigators have noted that decoding is not a simple one-step process. For example, Hovland et al. (35, 36) have delineated three stages of the decoding process as attention, comprehension and acceptance. Nearly the same division has been made by other authors. The section titles in a compilation of articles edited by Schramm (70) include "The Primary Effect—Attention", "Getting the Meaning Understood" and
"Modifying Attitudes and Opinions". Hartley and Hartley (31) say that the communicator must discover the principles which govern the receiver's attending, perceiving and responding. Waples et al. (76) earlier recognized essentially the same division. Lazarsfeld et al. (53) identified the "selective processes" including selective attention, selective perception and selective retention. In this thesis the terminology of Hovland et al. (35, 36) is used.

Attention is the process by which the individual selects the stimuli from his environment upon which he will focus. Far more communication stimuli are available to an individual than he has time or interest to attend. Fortunately, humans have a biological capacity to focus on some of these stimuli and to avoid others. William James (39) referred to this as the "narrowness of consciousness" and concluded that it is one of the most extraordinary facts of our life. "Although we are besieged at every moment by impressions from our whole sensory surface, we notice so very small a part of them."

Comprehension is the process by which an individual transforms sensory stimuli into meanings. Once an individual has decided to read or listen to a message, he may proceed (many times below the level of awareness) to select certain parts of it for special attention, often distorting them, and meanwhile overlooking other parts entirely (Riley and Riley, 66). He does this because of his human penchant for seeking to give organized meaning to concepts—even those which are strange and new (Krech et al., 50). The meanings an individual gives stimuli are based in large part upon his previous experiences. These experiences have set up expectancies that will
determine the way he will respond. He assimilates the new with the old, the unfamiliar with the familiar.

Acceptance is the action the receiver takes in regard to the meanings he comprehends. This acceptance may be cognitive or affective, as in the case of attitudinal acceptance, or it may be overt action, e.g., adopting hybrid seed corn. The receiver may also reject the message on the basis of the meanings comprehended and may even take actions counter to those intended by the sender. The most common response at this stage of the decoding process, however, is reinforcement of the receiver's existing attitude state and/or action previously taken (Klapper, 46).

Response predispositions

Research has established fairly conclusively that the differential response of individuals to a message in terms of attention, comprehension and acceptance is not a random process. Rather, this research has supported the theory that individuals are "predisposed"—through their previous experience, through what they perceive to be their "interest"—to react to a given message in a predictable manner.

The notion that predispositional factors underlie an individual's responsiveness to influence is not a new one, nor has the concept been limited to the study of communication responsiveness. As noted by Janis and Hovland (35), theorists and research investigators in many different areas of human behavior—attitude change, group dynamics, psychotherapy, hypnosis and social perception—share an interest in understanding an individual's predispositions. And, as used in this thesis, the notion of predispositions is a broad conceptualization. Although the concept is
sometimes limited to psychological factors, such limitation appears unnecessary. Rather, many social factors in the receiver's situation—the social groups of which he is a member or to which he aspires to become a member, the social statuses he occupies—can be factors predisposing his responsiveness to communication stimuli. Often such social characteristics are at the base of such "psychological" measures as attitudes and knowledge.

The major difficulty with a general term like "predispositions" is its lack of preciseness. Waples et al. (76) have written that almost any phase of a receiver's personality may be involved in his reaction to a message. While this may be a valid conclusion, it is not very helpful. Obviously one cannot know with an acceptable degree of preciseness a receiver's total personality. And if one did, the resulting mass of data would be too cumbersome for meaningful analysis. Furthermore, there is reason to believe that in any given communication situation, some predispositions are more relevant than others.

**Predispositions towards classes of stimuli**

Hovland and Janis (35) have made an important contribution toward understanding the concept of predispositions by delineating several classes of predispositions which a potential receiver may hold in a communication situation. On the broadest level, Hovland and Janis divide predispositions into those which are "communication free" and those which are "communication bound", or as we will refer to the latter category, "communication related".

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1The author has also changed the terminology of other aspects of the Hovland and Janis classification scheme in an effort to make the concepts more compatible with terminology used in other models. The terms used in this thesis and the original Hovland and Janis terminology (in parentheses) is as follows: communication related (communication bound), message content related and message treatment related (content bound), sender related (communicator bound), channel related (media bound) and reception environment related (situation bound).
Communication free predispositions involve the individual's general susceptibility to many kinds of persuasion. Research by Hovland and his associates (35) indicates that some individuals are more susceptible to persuasive communications—regardless of content, sender or channel—than are other individuals. However, this research also indicates that communication free and communication related predispositions should be considered as the ends of a continuum rather than as a simple dichotomy. Some predispositional sets seem to bind a receiver's susceptibility to influence, but only to a very broad range of topics. For example, some individuals might be generally predisposed to accept communication messages about a wide range of safety or health innovations—seat belts, smoking-cancer linkages, civil defense measures. However, their predisposition toward messages on topics outside the safety or health topic area might be quite specific and restricted.

Communication related predispositions are, as the name implies, those social and psychological factors of the individual which are responsive in a particular communication event. Relevant predispositions at this stage are dependent upon the content and other specifiable features of the communication situation. Hovland and Janis (35) have listed four subclasses of communication predispositions. Changing their terminology slightly,¹ these subclasses are: message related, sender related, channel related and reception environment related.

¹See footnote on page 17.
Message related predispositions The message is the encoded (symbolized) content or idea which the sender wishes to convey to the receiver. As stated previously, there are at least two major aspects to every message: ideational content and treatment. The effectiveness of a message is partly dependent on the receiver's predispositions toward its content and the way this content is treated.

Message content predispositions Many studies have given support to the notion that an individual gives attention to messages whose ideational content is consistent with his predispositions and exclude messages inconsistent with his predispositions. Other studies have supported the notion that message content related predispositions have a strong relationship to the manner in which the receiver comprehends and accepts the content of a message.

Message treatment predispositions For any message content numerous stylistic treatments are possible. The sender can vary the order of assertions; he can use logical or emotional appeals; he can use "abstract" or "simple" language; he can choose any of the thousands of stylistic options available to him within the media through which he sends his message—e.g., different camera angles, lighting, color and composition.

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1 For examples of the findings on the relationships between message content predispositions and attention see: Beal et al. (4), Bogart (11), Cannell and MacDonald (18), Cartwright (19), Ehrlich et al. (25), Klomlan (48), Lazarsfeld (52), Lazarsfeld et al. (53), Schramm and Carter (71), Starr and Hughes (75) and Yarbrough (84).

2 For examples of the findings on the relationships between message content predispositions and comprehension and acceptance of messages see: Allport and Postman (1), Bruner and Goodman (17), and Kendall and Wolf (43).
in visual media; or variations in tone, volume and tempo in the audible media.

Although an enormous amount of research has been conducted on the effects of alternative treatments of message content, relatively little of this research has focused upon how receiver predispositions might be related to alternative treatments. The research which has been completed, as well as theoretical notions, indicates strong, but quite complex relationships between an individual's predispositions toward various message treatments and his response to the message. In short, stylistic preferences and the abilities of a receiver to interpret messages sent in different stylistic modes are learned.

**Sender related predispositions** The impact of a communication message depends not only on the content and treatment of that message, but also on the receiver's evaluation of the sender. Research has generally indicated that messages are more likely to be responded to favorably if the receiver evaluates the sender as credible—trustworthy, objective and expert (Greenberg and Miller, 30; Hovland et al., 36).

**Channel related predispositions** In reviewing research on the effectiveness of different communication channels, Klapper (45) has concluded that face-to-face discourse is more likely to persuade than is transmitted voice which in turn is more likely to persuade than print. However, he also noted that the effectiveness of channels varies with the characteristics of the receiver (his predispositions). For example, less

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1 For examples of the findings on relationships between message treatment predispositions and communication responses see: Flesch (27), Hovland and Janis (35), Hovland et al. (36, 37) and Klapper (45).
intelligent persons are more-apt to be persuaded by aural than by printed messages, while for more intelligent persons just the opposite is true.

Reception environment related predispositions  Individuals rarely receive messages in a situational surrounding which is completely neutral. Rather, the surroundings are socially organized, complete with the expectations of the receiver's own status-roles and with other individuals who have social roles relevant to the receiver, and the atmosphere is filled with extraneous stimuli—some pleasant, some noxious; some promoting, some retarding favorable reaction.

The situational variables which might have relevance to the differential response individuals make at the various stages of the communication decoding process are almost without end. Research has shown that the mood and mental set\(^1\) of the individual—that is, the immediate temperament of the individual—can have profound effect upon his response to the message (Krech et al., 50). For example, a hungry man is more likely to notice food than is one who has just eaten.

The active participation of the receiver in the communication event is another situational factor which can predispose his acceptance of the message (Hovland et al., 36). For example, a debater who is forced to defend a position he personally opposed before the debate is quite likely to change his beliefs to conform to the arguments he is forced to make.

Another situational factor which may predispose the communication response of the individual is the reaction of the remainder of the audience.

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\(^1\)Some authors use the term "mental set" in a much broader context than is used in this report. For example, Hartley and Hartley (31) use the term to include much the same notion as the term "predisposition" includes in this report.
People often laugh aloud at humor in movie houses, but rarely does one laugh aloud when reading the "comic" page of the newspaper.

**Social and psychological classes of predispositions**

The classes of predispositions delineated by Hovland and Janis attempt to answer the question, "Predispositions toward what class of stimuli in the communication situation?" As such they provide a useful device for beginning to break the complex notion of predispositions into meaningful analytical units. Another way of classifying predispositions is in terms of their social and psychological bases. In this thesis, four classes of social and psychological predispositions are examined: the individual's values (including beliefs and sentiments), his habits, his skills and his social situation.

If we are to understand why such social and psychological classes of predispositions exist and if we are to understand how such predispositions operate to produce responses to communication we must delve into the manner in which man thinks and how he deals with symbols. One such explanation has been formulated by Bohlen who synthesized social-psychological and philosophical notions in an exposition of "How Man Thinks". The discussion which follows is based largely upon Bohlen's outline and attempts to show how predispositions arise. The discussion is summarized diagrammatically in Figure 2.

1 Initially published in 1961 (Bohlen and Beal, 13), the concepts of "How Man Thinks" were elaborated and applied to the adoption-diffusion process in 1967 (Bohlen, 12). Although the conceptualization had been applied to communication process at a much earlier date, the first published application of "How Man Thinks" to communication process appeared in 1967 (Yarbrough et al., 85).

2 In this discussion concepts will also be drawn from Dewey (24), Fearing (26), Hobbs et al. (33), and Krech et al. (50).
Figure 2. Assumed derivation of man's organized predispositions
One starting point for attempting to understand how predispositions arise is to reconsider one of the communication models discussed earlier—that of Stimulus-Interpretation-Response. In discussing this model it was noted that man does not respond to stimuli directly in terms of "wired-in" or inherited instincts as implied by a simple reflex arc. Rather, man is an interpreter. He responds not to the stimulus, per se, but to the interpretation or meaning which he assigns to the stimulus within the environmental context wherein he perceived the stimulus. This pattern of response (S-I-R) is a function of the unique nature of man.

In order to say that man responds to stimuli in the two-step process described above, it is necessary to make the following assumptions about his nature:

1. Man is an acting being
2. Man is an organizing being
3. Man is a telic being
4. Man is a symbol user
5. Man is a conserving being.

Man is born with certain biologically determined potentialities among which is a predisposition to act, or to sustain physical activity. And man must act in order to live. He must move, respond to stimuli and relate himself to his environment. In this sense, man differs from no other living creature.

One of man's actions is to place all the phenomena he perceives into patterns of meaningful interrelationships. He organizes the world around him into subjective cause-effect relationships which appear rational to him. In principle, man shares this tendency to organize the world with all other animals; however the extent and complexity of man's penchant for
organizing and the manner in which he organizes the world is far different from that of any other animal.

Man is also a telic or ends oriented entity. There is some state of future affairs he desires which motivates his behavior and there is some means of which he is aware which can be used to attain this goal. Although we might conclude, as does Fearing (26), that all animal behavior is goal directed, the nature of goal orientation in man is a vastly different phenomenon. It is different because in large degree man is able to select the goals he wishes to attain. Even though many of man's goals revolve around satisfaction of biological needs (as do all the goals of other animals), and even though many of his "higher" aspirations\(^1\) may be partly rooted in biological needs, man still has a great range of options available for determining exactly in which of the alternative ways he would like to be related to the phenomena of his subjective universe at some future time and which of the alternative means available he would be willing to use to attain this goal.\(^2\)

\(^1\)Maslow (57) has postulated a hierarchy of man's needs from lower to higher order as: 1) physiological needs (i.e., hunger, thirst, warmth); 2) safety needs (e.g., security, order); 3) belongingness and love needs (e.g., affection, identification); 4) esteem needs (e.g., prestige, success); and 5) need for self actualization (i.e., the desire for self-fulfillment). According to Maslow the lower, or basic, needs are dominant until satisfied.

\(^2\)The terms needs and goals (ends) and goals and means have been used rather loosely and interchangeably in the above discussion. This is somewhat proper since these are relative terms. As Hobbs et al. (33) have noted, needs may be defined as a continuing source of motivation for the individual and goals are empirical referent of the need. The accomplishment of a goal is a means for the satisfaction of needs. In short, needs and goals are interdependent. One does not exist without the other. Dewey (24) noted a similar relationship between goals and means. In his discussion of the means-ends schema, he pointed out that although an individual might be oriented toward the (Footnote continued on next page.)
Man is able to be the active, organizing, telic being that he is because of the one unique characteristic which distinguishes man from all other forms of life: he is a symbol creator and user. He has the ability to relate himself to the phenomena of the universe without being in immediate sensory contact with them. This ability to create symbols which stand for empirical entities—man's ability to deal with abstractions—allows man to communicate and relate himself to innumerable aspects of the universe which are barred from other life forms. The faculty of symbolic communication allows man to respond to stimuli, taking into consideration not only his own past experiences but those of other men who met similar situations in other places and at other times. Man is even able to create symbols and entire thought systems for which there are no direct empirical referents—e.g., God.

As a result of his experiences with reality, man the active, organizing, telic, symbol user, develops two kinds of cognitions. One type of cognition is his beliefs which are his subjective ideas about the relationships which exist between two or more phenomena.¹

(Footnote continued from previous page.) accomplishment of a particular goal, he may view the accomplishment of that goal as only an intermediate step, or a means, to the accomplishment of some goal which has greater value for him. Thus what is a means and what is a goal is a matter of level of generality.

¹ Because beliefs about the "world out there" are developed from the individual's own needs and his own evaluations of past experiences, we often say that the world is perceived in terms of the perceiver. This is correct, so far as it goes. But, as Fearing (26, p. 46) has stated, "There is...a limit to the meanings which can be projected outward. The world out there has its own organization. It is filled with objects and people that have structure, shape, contour, size, solidarity and, unless we are hallucinated, these may not be evaded." Thus, our beliefs come to be a combined product of our needs as persons and the character of the tangible reality with which the belief is associated. This check of reality is not strong enough, however, to assure that man does not sometimes assign relationships among phenomena which are erroneous from an objective viewpoint. In nearly all cases man forms his beliefs without taking into consideration all data which are known or available to know.
The other basic type of cognition man develops is sentiments which are his ideas about what should be the relationships between two or more phenomena. Sentiments might also be called normative beliefs. They involve evaluations of good or bad; satisfactory or unsatisfactory; pleasant or unpleasant; rewarding or unrewarding.

When an individual is forced to deal with the same stimuli and these stimuli repeatedly evoke the same beliefs and sentiments, he begins to organize these beliefs and sentiments into unified and enduring systems of response dispositions. He does this because he is a conserving being. He conserves intellectual energy by utilizing the learning of his previous experience. Thus, an individual's beliefs and sentiments, along with his memory of the experience which produced them—all products of his learning experience—become the building blocks of the simplified response models he constructs to allow him to deal more efficiently with additional stimuli of the same general nature. In short, the individual has now developed a predisposition toward the stimuli.

There are many ways, of course, of classifying the predispositions which individuals develop. As mentioned previously, four classes of predispositions are examined in this thesis: values, habits, skill and social situation.

**Values**  An individual's values are his enduring systems of positive and negative evaluations, emotional feelings and pro or con action tendencies with respect to general classes of phenomena. An individual's values include the cognitive bases of beliefs and sentiments about the phenomena.1

1Although all values include beliefs and sentiments, all of an individual's beliefs and sentiments are not necessarily incorporated as parts of value complexes.
And, as the concept is used in this thesis, attitudes are derived from values and are more specific. Whereas an individual's values predispose his action toward general classes of phenomena, his attitudes relate to specific instances of this general class.

Every value and attitude may be measured in terms of its several dimensions. Values and attitudes have direction--i.e., the individual is favorable or unfavorable toward the cognitive object. Second, a value or attitude may vary in the degree or intensity with which it is held. One person may be very favorable toward the idea while another person is moderately unfavorable. Values and attitudes also vary in their salience for the individual. By salience is meant the relative importance which a given value or attitude has for an individual, compared with his values and attitudes toward other classes of phenomena. Salient values and attitudes are usually well developed systems of cognitions, sentiments and action tendencies toward phenomena. However, non-salient attitudes are usually loosely organized.

Habits When an individual receives a similar stimulus repeatedly and each time responds in a similar manner which gives him satisfaction, he gradually changes the procedure of response. At first much thought may go into interpretation before he makes a response, but as each additional interpretation is made and the results are satisfying, the individual puts less and less thought into interpreting the stimulus until he reaches the point where, after only cursory scrutiny of the stimulus, he responds in a way which has proved satisfying in the past. When he reaches this point, the individual has formed a habit--a convention whereby he can cope with relatively similar and familiar stimuli with a minimum of intellectual
effort. In a sense, the individual has moved beyond the level of response predisposition to the level of routinized behavior. Perhaps a majority of man's behavior (including his communication behavior) is habitual.

**Skills**
Skills may be thought of as highly specialized complexes of habitual behavior which have been learned. An individual's ability to communicate through the use of language—to speak, to understand spoken symbols, to write, to read—is one example of learned habitual behavior which can be called skills. In communication behavior the most important skill is an individual's ability to deal with abstract symbols, to be able to decode the symbols and manipulate the meaning symbolically.

**Social situation**
Normally, factors in an individual's social situation—e.g., the social groups of which he is a member or to which he aspires to become a member and the social status-roles he occupies—have not been considered predispositions. Rather, they have been thought to lie "outside" the individual. Although they might be involved in forming his "internal" state of readiness and although they might limit the range of an individual's response alternatives, social factors generally have not been thought to constitute predispositions in and of themselves. The author takes exception with this view. In his opinion, some aspects of an individual's social situation—especially his social status-roles—definitely constitute "internal" predispositions to act and cannot be included under such other predispositional categories as values, habits or skills. James' (39) elaboration of the notions of the "I", the "me" and the "self" would tend to support this view. Other aspects of the individual's social situation—e.g., the norms of society at the time and in the place he lives—are not predispositions, but affect the individual indirectly by causing
the development of such internal predispositions as values. The essence of this argument is that an individual partly molds, and is partly molded by his social situation.

**How predispositions operate in the interpretative process**

When man the interpreter is confronted with a new stimulus, he utilizes the accretions of his past experiences with stimuli—his predispositions—in interpreting and responding to the new stimulus. Thus, predispositions are both the product of past experience and the agents which structure new experiences. They allow man to establish stable relationships between himself and the phenomena of his environment.

As Bohlen^1 has noted, man's interpretation of stimuli involves recalling the past and projecting into the future, in order that he might act in the present. It is in this process of recall-projection-action that man's organized response dispositions come into play and simplify what is otherwise an extraordinarily difficult intellectual task. This process of interpretation is summarized diagrammatically in Figure 3. The stages of interpretation are discussed in the paragraphs below.

**Recall of the past** When man is faced with a new stimulus he looks into the past and asks himself such questions as: "Have I ever received a stimulus such as this?" "How did I respond?" "Was the response satisfactory?" "Did it help me satisfy my needs?" In short, he recalls the experience and his evaluations of that experience. He is also able to recall

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^1The discussion in this section follows closely the ideas expressed by Bohlen in explaining "How Man Thinks". See references cited in footnote 1 on page 22.
Figure 3. How predispositions operate in the interpretative process (adapted from Bohlen, 12)
from his past experiences his predispositions—values, skills and salient aspects of his social situation. These predispositions become important as he moves into the next stage of interpretation: projection into the future.

**Projection into the future** When man the interpreter looks into the future he asks himself such questions as: "What kinds of relationships do I want to establish between myself and the phenomena involved?" "Do I want the same kinds of outcomes as when I previously acted in relation to this type of stimulus?" "In view of my values, what ends or goals do I desire and what are the acceptable means for achieving these ends?"

In this projection into the future, man also asks questions about the possible as well as about the desirable. He asks: "What is the range of alternative goals available?" "In view of my skills and social situation, what are the means available to attain each of these alternatives?" He evaluates the direct and indirect consequences of his choice of a combination of an alternative end and a means to attain the same. And he makes a decision for action.

**Action** Action comes after the individual has interpreted the past and the future. And when he acts, there are two distinct residues: 1) the impart of the physical experience and its recall and 2) an evaluation of the results of the action. If the action is not judged to be rewarding, the individual may change his predispositions toward responding to similar stimuli in the future. If the action is judged to be rewarding, his response disposition is reinforced.

**Habit** As noted previously, when man has routinized a behavior he is able to respond to a stimulus after only cursory scrutiny of that
stimulus. For habits are intellectual short cuts. When such habitual behavior occurs, man's response to a stimulus appears to be of the nature of a reflex arc: \( S \rightarrow R \). However, this is not an accurate view since the individual went through an elaborate interpretative process and was rewarded for his choice many times before he habituated his response pattern.

**Interrelationships Among Six Approaches to Understanding Communication Process**

Figure 4 summarizes diagrammatically the relationships which the author sees among the six approaches to understanding communication process reviewed in this thesis.

The SMCR model of the communication situation, the S-I-R theory of communication process and the Hovland notion of decoding stages have a commonality in that all three approaches attempt to account for the responses of the receiver. In the case of SMCR models, just exactly what are receiver responses is vaguely denoted by the function of "decoding". S-I-R theory can be thought of as an elaboration of this decoding function. The individual attaches meaning to the stimuli of the communication event (which includes stimuli of the sender, the message and the channel) and then makes responses on the basis of this interpretation. The Hovland notion of "decoding" stages can be seen as a further elaboration. Interpretation includes the process of attention and comprehension and also some of the "trial" acceptance responses. The final acceptance responses in the Hovland formulation (which might include cognitive and affective acceptance as well as overt action) correspond with the "response" stage of the S-I-R formulation.
Figure 4. Interrelationships of six approaches to understanding the communication process
III. PREDISPOSITIONS AND THE INTERPRETATIVE PROCESS

**Basic Assumptions**
- Man - An Acting Being
- Man - A Telic Being
- Man - An Organizing Being
- Man - AConserving Being
- Man - A Symbol User

**Man Thinks In Terms Of**
- Past
- Present
- Future

1. Recalls
2. Acts
3. Projects

**Operation of Predispositions**
Two ways of classifying a receiver's predispositions were reviewed: the Hovland and Janis formulation of predispositions toward what classes of stimuli and categories based on the social and psychological nature of the predispositions. The social and psychological classes of predispositions delineated—values, habits, skills and social situation—can be thought of as subclasses of Hovland and Janis's message, sender, channel and reception environment related predispositions.

The final theory reviewed moved from a set of basic assumptions about man and attempted to show how predispositions arise. This conceptualization also attempted to show how predispositions operated in man's interpretation of and response to communication stimuli.

A Model of Receiver Responses to Communication

Thus far, the discussion in this chapter has dealt with what is meant by communication and has examined the theoretical considerations and some past research on two major conceptualizations of communication: models of the communication system and theories of receiver response to communication. An attempt has also been made to show how these conceptualizations relate to one another. The task remaining is to construct a model of the process of receiver response, drawing upon the conceptualizations which have been discussed.

Such a model is summarized diagrammatically in Figure 5. This model takes the sender, the intent and the content of the communication message, and the channel through which the message is conveyed as given and focuses upon the responses which the total potential audience of receivers make. These receiver responses are recognized to be diverse, involving awareness
Figure 5. A model of receiver response to communication
and comprehension of communication stimuli and changing and/or reinforcing of cognitions, feelings and overt actions. And, the responses of a potential audience of receivers to a communication event is not relegated to only those who have primary contact with the message conveyed by the sender. Those who receive an "original" message often discuss the content with others who did not receive the message. Furthermore, the model is intended as one which can account for the "why" as well as the "what" of receiver responses.

In the following section are discussed the limitations of the model and some of the assumptions made in the model about the role of the sender, about the nature of communication "effectiveness" and about the nature of the communicative act. The major concepts of receiver responses will be elaborated in later sections.

Limitations and assumptions of the model

Limits of applicability The model is intended as one which can be applied to the analysis of fairly diverse communication situations. In earlier stages of development, the general concepts included in this model have been successfully used as an analytical framework to 1) measure the impact of a single agricultural pamphlet upon an audience of farmers (Yarbrough, 84), 2) to measure the impact of a series of newsletters concerning area economic development, and also a specific newsletter within this series, upon a selected audience of community leaders (Beal et al., 4; Kern et al., 44) and 3) to measure the differential impact of two versions of a newspaper article (Hilleman, 32). In its present state, the model should be applicable to "mass" communication events ranging in complexity
from those involving a single message to those involving multiple messages, e.g., a communication campaign where several messages are presented over a period of time. In its present state the model is not sufficient to explain the process of communication in a face-to-face situation involving a diad or triad of persons where sender and receiver roles rapidly change; although many of the concepts would have some application in these situations.

The problem of communication "effectiveness" Implicitly or explicitly, most of the persons who have written about communication have been concerned with the question, how does one make communication more effective? The dilemma in this question is that its answer, in large part, depends upon exactly how one defines the concept communication. For example, Watzlawick et al. (78) hold that communication is but a specialized form of acting. Since it is, by definition, impossible to not act, all communication has effect. The difficulty with this position, as with all other tautological arguments, is that it is not very enlightening. Mead's (58) definition of communication is diametrically opposed to that of Watzlawick et al. His position is that communication is achieving a "commonness". Communication is dependent upon the intent of the sender and does not occur unless there is shared meaning (emphasis upon comprehension) between sender and receiver. One difficulty of the Meadian position is that it does not tell us what phenomenon it is we have when a receiver perceives and acts upon a meaning not intended by the sender.

In this thesis, communication is defined as a process by which one person attempts to convey to (or receive from) another--ideas, emotions and skills; as the process through which one person attempts to influence
the behavior of another and in turn is influenced by him. Effectiveness is
an evaluation of the outcomes of this process. Furthermore, a basic
assumption of this thesis is that the question of effectiveness is relative.
It is relative to the vantage point from which one views the communication
event and it is relative to one's reasons for asking the question.

The effects of a single communication event are many and varied. Some
of the effects may be intended by the parties involved in the communication
act; others may be unintended. For example, the act of two or more indi-
viduals communicating has implications which can be viewed from a societal
viewpoint. The effects of communication can also be judged in terms of the
purpose the sender had for producing a message or in terms of the purpose
the receiver had in attending to the message.

In this thesis, communication effectiveness is viewed in terms of the
extent to which the sender's purpose was achieved through the responses of
the receivers. The reason for taking this position is that although other
purposes are involved in the communicative act, the primary reason people
bother to produce and send messages is to affect the behavior of others.
Thus, from the sender's viewpoint, communication is effective only to the
extent that the message is attended to by members of the intended audience
and that the meanings which the sender intended the symbols to represent
approximates the meanings which the receiver gives to them and, further,
that the acceptance responses of the receiver regarding these symbols is
that desired by the sender.

All of this leads to another basic assumption of this thesis: effective
communication is always a matter of degree; it is never perfectly
achieved. It is not perfectly achieved, first, because of the complexity
and indirectness of the communicative process. Individuals respond to stimuli on the basis of experience and needs. Because the experience world and needs of two individuals are never identical, they can never assign identical meanings to the same stimuli. Another reason for failure to achieve perfect communication is pragmatic. Far more messages are aimed at the average individual (at least in the Western world) than he has the time or interest to receive or attend to. As Schramm (70, p. 29) states it, "Communication is a buyer's market".

Assumptions about the sender Although the model developed in this thesis is primarily concerned with the responses which receivers make to messages, several assumptions must be made about the functions of the sender.

One assumption is that in attempting to communicate, the sender has a specifiable intent. This intent is to produce some observable effect upon the understanding, attitudes and/or action of the receivers. This desired effect can include changing, maintaining and/or reinforcing the receiver's existing cognitive and action structure.

Another assumption is that the sender wishes to produce this effect upon a specified potential audience of receivers, whom he can define.

A final assumption is that to achieve this effect, the sender incorporates his intent into a message and makes this message physically available to the potential audience. Although this message is usually thought of as an entity, it is useful to think of it as two sets of stimuli. The first set of stimuli are the "cues" of the content of the message, e.g., newspaper headlines. The second set of stimuli is the elaborated content of the message, e.g., the newspaper article.
Receiver response stages

A major concern of the model is with the responses which the potential audience (as defined by the sender) makes to the message. As discussed previously, this response is not a simple receive or fail to receive phenomenon. Rather, the receiver must perform several functions. These functions can be logically integrated into a flow of action, the stages of action representing a series of communication response stages. Three major stages are included in the model: attention, comprehension and acceptance. The attention stage is broken into four sub-stages: awareness, decision to attend, differential exposure and secondary contact (resulting from the two-step flow of information). The acceptance stage is broken into three sub-stages: cognitive acceptance, affective acceptance and overt action.

At any response stage, the receiver has two or more possible courses of action. If the alternatives are dichotomous (as in the initial attention stages) failure to pass through the stage means the receiver is eliminated from the communication situation until subjected to another set of stimuli (or resubjected to the initial stimuli set). If multiple alternatives are available at the response stage (as in the differential exposure, comprehension, cognitive and affective acceptance and overt action stages), then the receiver's response at one stage will mediate his response at subsequent stages.

One measure of the impact of a communication event is the degree to which the responses made by the potential audience correspond to the responses desired by the sender.

The three major receiver response stages and their several sub-stages are discussed in the following paragraphs.
Attention Through the process of selective attention the individual is able to sort out for special emphasis some stimuli from among all those available to him and thus is able to reduce what William James (39) calls "this blooming, buzzing confusion", which is our environment, into some sort of order meaningful to him.

The extreme selectivity humans exercise in choosing stimuli to focus upon cannot be over-emphasized. At any one time we do not perceive even a thousandth of those stimuli physically available to us. The capacity to select stimuli is biological. The manner in which the selection is implemented is social. As Davison (22) states it, "We don't often examine the pattern on the wallpaper, listen to the ticking of the clock or notice what color socks one of our colleagues is wearing...." We don't notice these things because we don't need the information.

Davison (22) noted that:

All the information we are exposed to through personal experience or the mass media can be divided into three categories according to our behavior toward it: some we seek out eagerly; some we attend to on the chance that it may prove useful; some we attempt to exclude because we have reason to believe that it would make satisfaction of our wants and needs more difficult.

While in basic agreement with Davison's classification, the author believes that some elaboration is in order. Exactly what constitutes our needs and wants is a broad topic. It may include information which is useful in achieving our personal economic ends. For example, a farmer may pursue information about an agricultural innovation because it is to his economic advantage to do so. Fulfilling our needs and wants may also include pursuing information which is socially useful to know. For example, Davison's own research (22) indicates that government foreign affairs
experts gave greater attention to (could provide greater recall of) newspaper headlines which would provide conversational material than those which were of direct professional interest. In other cases one may pursue information not because the information itself can serve one's needs and wants, but because it is a way to escape a less desirable alternative. (The charge of being an "escape" from reality is often leveled at television.)

While it is useful to examine the positive bases of the attention process—why people do attend—it should be remembered that exclusion is a phenomenon far more frequently encountered than attention. An individual may make a rational decision not to pursue a message because it is not relevant to his needs and his wants. Others he may exclude because the information would make the satisfaction of his needs and wants more difficult. In still other cases individuals exclude messages which could serve his needs and wants because of some competing stimuli or activity.

Humans exclude messages through several mechanisms. On a gross level, individuals exclude messages by failing to expose themselves to communications channels through which the messages may be conveyed. Some people read newspapers and do not watch television; others do the opposite. Some persons read magazines with a liberal viewpoint while avoiding those with a conservative viewpoint; others do the opposite. A farmer reads a farm magazine; a supermarket manager reads a grocery trade journal; neither is likely to expose himself to the media designed for the other. And since people tend to associate with persons who have interests similar to their own, there is a strong tendency for the subject matter of interpersonal communication to be quite limited in range.
Within a particular communication channel, individuals exclude specific messages through the mechanisms of 1) non-reception (one doesn't physically see every page of the newspaper or every article on a page); 2) non-perception (one physically sees a newspaper headline, but mentally it doesn't register); and 3) forgetting (the individual is aware of the cues of a message for a very short time, but soon forgets).

From the communication sender's point of view, the problem of gaining the attention of a potential audience is formidable. Consciously or unconsciously, individuals select from the numerous stimuli available only a few upon which they will focus. They make this selection on the basis of quite limited data—a key word or phrase, a meaningful symbol, the channel through which it is conveyed or his opinions about the sender.

The receiver's decision to attend to a message is not a one-step operation. Rather, the receiver must pass through a series of attention stages. Failure to pass any of these stages can mean that he will "drop out" of the communication event.

**Awareness stage** The first response stage standing between a sender's message and the members of the potential audience is that of awareness. The receiver must realize that a message is being offered. He becomes aware of the message on the basis of the "cues" the communication sender has provided. With the exception of overt communication seeking behavior, most screening of cues probably operates below the level of consciousness. Thus, there is the possibility that one will be unaware of a communication message even though he has been physically exposed to it.

Newspaper headlines, "blurbs" on the covers of magazines and preceding a television program are among the devices used by senders to provide cues
of content to receivers. Schramm (70) has suggested that a sender can enhance the possibility that his message will be attended to by providing cues that will be meaningful to the potential audience (i.e., those which will conform to their predispositions) and by using attention getting devices which contrast with other stimuli in the receiver's environment. Repetition--either in the same channel or through different channels--makes the message statistically more available and also seems to have the power of accumulating attention power.

Decision to attend stage Those who become aware that a message is being offered pass through another filter stage: they must decide whether or not to attend to the message. They must decide to read the newspaper article, listen to the radio announcement, etc. This is necessarily a cognitive decision-making process since the act of attending to a message will require the individual to knowingly expend time and energy. Of those aware of the existence of a message some will decide to attend; others, however, will likely decide not to attend. This latter group can be classified as aware, not attend.

Differential exposure stage Among those who attend to a message, there are likely to be differences in the degree of attention given to the message's content. Some persons will read only the first few paragraphs of a newspaper article, others will read the entire article. And there can be differences in the quality of attention given. Some persons may concentrate upon the message; others may be distracted by extraneous stimuli.

Secondary contact stage Research has shown that the impact of a given communication message does not necessarily end with those who
attend to the message conveyed by the original sender. Rather, some persons have secondary contact with the original message through the two-step flow of communications. These persons will not themselves have attended to the original message conveyed by the sender, but they will have discussed the content of the message with someone who did attend. These persons could initially have been excluded from the communication situation (unaware) at the awareness stage, or they could have been aware of the existence of the message, but have decided not to attend to it previous to their discussion with someone who did attend. Although limited to specific content and audiences, recent research indicates that about half as many people have secondary contact with a message as have primary contact (Klonglan, 47; Lingren, 54).

Comprehension Comprehension is the process by which an individual transforms sensory stimuli into meanings. In the introductory chapter, it was noted that the things which humans want to transmit to one another—information, ideas, emotions, skills—are psychic phenomena and of themselves are not transmittable. Rather, they must be transformed into representative symbols which can be transmitted and observed as sensory stimuli. However, the symbols man uses—words, pictures and gestures—are arbitrary. They have no intrinsic meaning. The individuals involved in the communicative act must give meaning to these symbols. Communication is effective (from a sender's point of view) only to the extent that the meanings the receiver attaches to the symbols approximates the meanings which the sender intended. In other words, the receiver should comprehend the meanings in much the same manner as the sender.

\[\text{Footnote: For a beginning discussion of this phenomenon, see: Katz (40, 41).}\]
Berlo (8) has summarized the meaning of meaning in a fashion quite consistent with its use in this thesis:

...Meaning is not something that we find in objects or things. Meaning is found in people. Your meanings for things consist of the ways that you respond to them, internally, and the predispositions which you have to respond to them, externally.

There are several implications of this definition of meaning:

1. Meanings are in people. They are the internal responses that people make to stimuli, and the internal stimulations that these responses elicit.
2. Meanings result from (a) factors in the individual, as related to (b) factors in the physical world around him.
3. People can have similar meanings only to the extent that they have had similar experiences, or can anticipate similar experiences.
4. Meanings are never fixed. As experience changes, meanings change.
5. No two people can ever have exactly the same meaning for anything. Many times people do not have even similar meanings. ... (Berlo [8], p. 184)

Fortunately, most men within a social system share enough meanings to make possible communication on a wide range of topics with at least a minimal degree of effectiveness. This sharing of meanings is due in part to the fact that in the course of being human at a particular place and during a particular time, men have confronted many of the same phenomena and have responded to these phenomena in the same way. The sharing of meanings is also intentionally promoted by the social system. A primary function of our educational system is to teach men common meanings for the common phenomena they confront.

However, the degree of agreement on meanings is always a matter of degree and men do often distort the intended meanings of the messages they receive. They do so for several reasons. One of the reasons is that the
receiver almost never gives equal attention to all parts of the message. Some details are given special emphasis—what Allport and Postman (1) refer to as the process of sharpening. Other details are negated—what Allport and Postman call the process of leveling. In both the sharpening and leveling processes, there is a tendency for the receiver to recast the message to fit the world as he knows it. As Walter Lippman (55) has stated, "The real environment is altogether too big, too complex and too fleeting for the direct acquaintance....And although we have to act in that environment, we have to reconstruct it on a simpler model before we can manage it".

Because individuals reconstruct the reality they experience, different individuals will comprehend the same message differently. The world "out there" is comprehended on the basis of the receiver's own needs, his own emotions and his own previously formed notions about the world.

Miller (60) has suggested, however, that our restructuring of the world may actually allow us to know more than if we attempted to experience reality "as it is". This may be possible, he suggests, because by reorganizing the stimulus inputs into several dimensions and successively into a sequence of "chunks", we are able to overcome the severe limitation on the amount of information we are able to receive, process and remember, which is imposed by the span of absolute judgment and the span of immediate memory.

Acceptance In most communication situations, the sender not only desires that receivers comprehend the meanings of the symbols, but he also desires that they accept the conclusions at which he arrives. There are at least three acceptance responses a receiver may make to a single message:
cognitive acceptance, affective acceptance and overt action. The sender's intent might include any one or any combination of these three acceptance responses. And, regardless of the sender's intent, the receiver may make any one, or any combination of these three responses, and may make them in any order. However, the principle of consistency (Brown, 16) would indicate that a change in one element would give rise to pressures to change other acceptance responses. Thus, one would expect the receiver's responses to all three acceptance stages to be highly interrelated.

**Cognitive acceptance** One measure of the degree to which an individual accepts a message may be found in the validity he assigns to the concepts being communicated, that is, the degree to which he cognitively accepts the meanings intended by the sender as being valid, factual, correct or true.

**Affective acceptance** At this stage, the receiver accepts the sender's conclusions as being desirable. In other words, he makes judgments of the message in terms of good-bad, desirable-undesirable. Although this stage would normally be preceded by cognitive acceptance, this is not a necessary condition. And, it is quite possible for cognitive and affective responses to conflict. For example, one might conclude that the sender's conclusions are valid, but that they are undesirable.

In the case of both cognitive and affective acceptance, indications are that reinforcement of previously held beliefs and sentiments is the most likely result of communication. If change does occur, it is likely to be in relatively small increments and in a manner consistent with the receiver's previous beliefs and sentiments. While the conversion phenomenon (radical change in position) is a fairly rare occurrence, it does
sometimes occur, and many communicators—from soap salesmen, to politicians— expend great effort in attempting to bring about such conversion.

Overt action Most communication senders desire not only that members of the potential audience attend to, comprehend and cognitively and affectively accept their message, they also desire that the receivers take some specified overt action.¹

Since the 1940's sociologists have carried out numerous studies in an attempt to discover the process by which adoption occurs. (Rogers [67], for example, has reviewed over 500 adoption studies.) From this research have emerged several major findings and generalizations relating directly to communication behavior which should be examined.

One of the most important implications adoption-diffusion research findings has for communication impact is that it demonstrates that man is a conserving animal. Although he can be changed, he is strongly resistant to change in the short run—some men more so than others. This resistance to change—resistance to communication impact—may be seen as a necessary psychological protective device. If the individual was changed by every communication to which he is exposed, his life would soon be chaos.

The findings of adoption-diffusion research also indicate that adoption behavior is the result of the interaction of communication behavior and decision-making over a period of time. Exposure to many messages, through

¹It is recognized that the processes of attending to the message, comprehending its content and cognitively and affectively accepting this content may be considered actions on the part of the receiver. A receiver's refusal to take positive action after receiving a message may also be considered a form of action. In this report, however, overt action refers to those positive behaviors taken by receivers which are beyond the attending, comprehension and cognitive and affective acceptance (or rejection) processes.
diverse channels, over a period of time, is usually needed to move the individual from awareness of the innovation to decision to adopt. Perhaps the most optimistic expectation for a single communication message would be to move the individual from one stage of the adoption process to another. For example, a single message might move the individuals from the information stage to the evaluation stage of the adoption process. Movement from the evaluation stage to the trial stage would probably require additional communication.

Finally, adoption-diffusion research indicates that to change the overt behavior of an individual normally requires changing elements of his cognitive and affective structure. Before an individual is willing to adopt an innovation of major consequence, he must comprehend the nature of the innovation, comprehend how the innovation is relevant to his constructed world of reality and he must be convinced that the innovation will better serve to fulfill his needs and wants than does some present behavior.

The bases of differential response: predispositions

The receiver response model is also concerned with the reasons which might account for the differential responses made by individuals at the various stages of the communication decoding process. Why do some individuals attend to a message while others do not? Why do some comprehend the message in essentially the same manner intended by the sender, while others comprehend quite different meanings? Why do some individuals form favorable attitudes as a result of attending to a message, while others fail to change and still others form negative attitudes? Why do some
individuals take, or move toward the action suggested by the sender, while others do not?

As has been suggested several times previously, it is believed that a major part of the answer to these questions is to be found in the predispositions of the receiver. Individuals are "predisposed"—through their previous experience, through what they perceive to be their "interest", through the habits and skills they have acquired—to react to a given message in a predictable manner.

In an earlier section two ways of classifying a receiver's predispositions were reviewed: the Hovland and Janis (35) formulation of predispositions toward what classes of stimuli and the categories based on the social and psychological nature of the predispositions. It was also suggested earlier that the social and psychological classes of predispositions—values, habits, skills and social situation—can be thought of as subclasses of Hovland and Janis's message (content and treatment), sender, channel and reception environment related predispositions.

The obvious conclusion to be drawn from this synthesis is that there exists a large number of possible predispositional sets. (If phenomena exist to fill all cells, there are at least 20 major kinds of predispositions—four social and psychological classes times five classes of communication stimuli.) Perhaps less obvious is the radically different origin and nature of many of these predispositions. For example, the receiver's attitude toward the sender is of a quite different order than is his attitude about the ideational content of the message, which in turn is different from the attitudes he holds about the "correct" stylistic treatment of a given ideational content which is of a quite different order than the
skills he possesses for decoding and symbolically manipulating the message as encoded. There may be, of course, some systematic interrelation among the various possible predispositional sets, but none has yet been elaborated. In this thesis, only the five predispositional sets indicated in Figure 6 will be developed. These five sets will be discussed briefly in the following paragraphs and will be elaborated in empirical terms in the methodology chapter.

**Attitudes about content** One set of predispositions are the attitudes an individual holds about the ideational content of the message, that is, the organized action tendencies, beliefs and pro or con evaluations which the receiver holds about the ideas being communicated. While the attitude may be simplex or multiplex, individuals generally have attitudes toward all phenomena of which they are aware. Extensive research has been conducted in this area and has generally found strong relationships between attitudes about content and receiver responses to communication.

**Relevance of content to receiver's role** Another set of predispositions is the relevance of the ideational content of the message to the role expectations of the social statuses the receiver occupies. People generally attend to, comprehend and accept those messages for which they have some potential use. This potential use is reflected in the expectations of the status-roles they occupy. A difficulty arises, however, in the fact that since an individual occupies several different status-roles he might have use for a quite diverse repertoire of information. Thus the information one needs in his role as a college professor is quite different from that he needs in his role as the "glad-hander" at the cocktail party. Although much has been written about status-roles, little is known about
### Classes of Predispositions

<table>
<thead>
<tr>
<th>Classes of Communication Stimuli</th>
<th>Values</th>
<th>Habits</th>
<th>Skills</th>
<th>Social Situation</th>
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<tr>
<td>Message Content</td>
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<td>Relevance of Content to Receiver's Role</td>
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<tr>
<td>Attitudes About Content</td>
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<td>Decoding Skills</td>
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<td></td>
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<td>Simplicity of Sender and Receiver Status-Roles</td>
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<tr>
<td>Sender</td>
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<td>Concurrent Actions</td>
</tr>
<tr>
<td>Channel</td>
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<tr>
<td>Reception Environment</td>
<td></td>
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</tr>
</tbody>
</table>

*Figure 6. Selected interrelationship of classes of predispositions and classes of communication stimuli*
what kind of informational needs and communication predispositions these roles generate.

**Decoding skills**  
A most obvious requirement for communication is that the receiver have knowledge of the code in which the message is presented. This is an absolute necessity in the process of comprehension and is also needed at the attention and acceptance stages. (Apparently we tend to ignore that which we do not understand and our acceptance responses to a message are necessarily based upon our subjective understanding of the message.) Also included in the notion of decoding skills is the ability of the receiver to symbolically manipulate the message and the meanings he has assigned to it. This ability to deal with abstractions varies with the intelligence parameter and the intellectual training of the individual.

**Similarity of sender and receiver status roles**  
Research indicates that within a society, most communication (both mass and interpersonal) takes place within the various strata of society. In other words, people with similar social attributes are the ones most likely to communicate. This phenomenon exists because it is in such situations that the requisites for communication are present. People within the same strata of society have had similar social experiences. They have acquired similar structures of needs and goals. They have acquired the same symbol manipulating skills --the same level of skill, the same vocabulary, the same methods of projection. They have acquired the same patterns of habitual behavior. There is also the likelihood that receivers will perceive as credible those senders whose social-status is similar to their own. Apparently we are more likely to trust those who are similar to ourselves.
Concurrent actions  As was noted earlier, individuals rarely receive messages in a situational surrounding which is completely neutral. Rather, the surroundings is socially organized, complete with other individuals who have roles relevant to the receiver, and the atmosphere is filled with extraneous stimuli—some pleasant, some noxious, some promoting, some retarding favorable reactions. Thus, if we want to know what response an individual will make to a given communication event, we must ask what else he is doing, what other things are expected of him, and also ask whether these are likely to promote or retard his reaction to our message.

Hypotheses

Although it has not been explicitly stated as such, the general proposition of this thesis should at this point be apparent: that an individual's values, habits, skills and social situation predispose the responses he will make to a communication event. Since the model holds that there are at least three general level responses an individual can make to any communication event, one may further specify the general proposition and formulate the following general hypotheses:

G.H. 1: An individual's values, habits, skills and social situation predispose the degree of attention he will give to a communication event.

G.H. 2: If an individual attends to a communication event, his values, habits, skills and social situation will predispose the manner in which he comprehends the message.

1 The abbreviation "G.H." is used for the term general hypothesis. Likewise, the abbreviation "S.H." stands for subordinate hypothesis and the abbreviation "E.H." stands for empirical hypothesis.
G.H. 3: If an individual attends to a communication event, his values, habits, skills and social situation will predispose the degree to which he accepts the message.

It has also been shown that an individual's values, habits, skills and social situation can be specified in terms of which set of stimuli within the communication event they are oriented toward. Only five of at least 20 possible predisposition-stimuli combinations are developed in this thesis, but each of these five types of predispositions is assumed to be applicable to each of the three major communication responses. Thus, subordinate hypotheses 1 thru 15, as stated in Figure 7, were formulated.

Subordinate hypotheses 1 thru 15 are statements of relationships expected between a single class of predispositions and communication responses, all other things being equal. However, it is expected that the several classes of an individual's predispositions will interact to produce these responses. It was on the basis of this expectation that subordinate hypotheses 16, 17 and 18 were formulated.
<table>
<thead>
<tr>
<th>PREDISPOSITIONS</th>
<th>Attention</th>
<th>Subordinate hypotheses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitudes about content</strong></td>
<td>The degree to which an individual attends to a communication event will be a function of...</td>
<td>S.H. 1: ...the attitudes he holds about the ideational content of the message.</td>
</tr>
<tr>
<td><strong>Relevance of content to receiver's role</strong></td>
<td></td>
<td>S.H. 2: ...the relevance of the message content to the role expectations of the social statuses he occupies.</td>
</tr>
<tr>
<td><strong>Decoding skills</strong></td>
<td></td>
<td>S.H. 3: ...the skills he possesses for &quot;decoding&quot; and symbolically manipulating the message.</td>
</tr>
<tr>
<td><strong>Similarity of sender and receiver status-roles</strong></td>
<td></td>
<td>S.H. 4: ...the similarity of his social status-roles to those of the sender.</td>
</tr>
<tr>
<td><strong>Concurrent actions</strong></td>
<td></td>
<td>S.H. 5: ...the concurrent actions he or members of his primary reference groups are taking.</td>
</tr>
<tr>
<td><strong>Multiple predispositions</strong></td>
<td></td>
<td>S.H. 16: ...a weighted combination of attitudes toward content, the relevance of content to receiver's role, decoding skills, similarity of sender and receiver status-roles and concurrent actions.</td>
</tr>
</tbody>
</table>

*Figure 7. Subordinate hypotheses*
**RESPONSES**

<table>
<thead>
<tr>
<th>Comprehension</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>The degree to which an individual comprehends a message as intended by the sender will be a function of ...</td>
<td>The degree to which an individual accepts a message as desired by the sender will be a function of ...</td>
</tr>
<tr>
<td>S.H. 6: ...the attitudes he holds about the ideational content of the message.</td>
<td>S.H. 11: ...the attitudes he holds about the ideational content of the message.</td>
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<tr>
<td>S.H. 7: ...the relevance of the message content to the role expectations of the social statuses he occupies.</td>
<td>S.H. 12: ...the relevance of the message content to the role expectations of the social statuses he occupies.</td>
</tr>
<tr>
<td>S.H. 8: ...the skills he possesses for decoding and symbolically manipulating the message.</td>
<td>S.H. 13: ...the skills he possesses for decoding and symbolically manipulating the message.</td>
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<tr>
<td>S.H. 9: ...the similarity of his social status-roles to those of the sender.</td>
<td>S.H. 14: ...the similarity of his social status-roles to those of the sender.</td>
</tr>
<tr>
<td>S.H. 10: ...the concurrent actions he or members of his primary reference groups are taking.</td>
<td>S.H. 15: ...the concurrent actions he or members of his primary reference groups are taking.</td>
</tr>
<tr>
<td>S.H. 17: ...a weighted combination of attitudes toward content, the relevance of content to receiver's role, decoding skills, similarity of sender and receiver status-roles and concurrent actions.</td>
<td>S.H. 18: ...a weighted combination of attitudes toward content, the relevance of content to receiver's role, decoding skills, similarity of sender and receiver status-roles and concurrent actions.</td>
</tr>
</tbody>
</table>
METHODOLOGY

Introduction

The concepts about communication process and receiver response and the relationships postulated to exist among these concepts were presented in a fairly general and abstract manner. This abstraction was necessary in order that the concepts might be applicable to a wide range of empirical communication situations. However, the fact that the concepts are abstract means they cannot be applied directly to solving empirical problems. First, theoretical concepts must be translated into observable phenomena. The major purpose in this chapter is to perform such a translation.

The Communication Event Studied

In the fall of 1961 a midwestern county-seat town (a population center of 5,000) was the locale of a county-wide civil defense educational program. The program, which became known as the Midwest County Civil Defense Exhibit\(^1\), culminated in a two-day exhibition in the local National Guard Armory. This exhibit displayed 23 features (21 booths, a film and a tour of the Area Civil Defense Depot), each representing a different aspect of civil defense. Approximately 450 people representing 41 different voluntary organizations and government agencies, from every town and township in the county, assisted in organizing and conducting the exhibit.\(^2\)

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\(^1\) Midwest County is a pseudonym. Throughout this thesis pseudonyms are used for place names.

\(^2\) The social action processes involved in initiating and organizing the exhibit are described in Beal et al. (6).
mately 2,600 people from more than 1,000 households attended.

According to the exhibit's organizers, the purpose of the program was to present in an educational framework as many facts about civil defense to as many Midwest County families as possible in order that these families might have a basis for making rational decisions about civil defense actions.

This civil defense exhibit is the communication event which is used to operationalize and test the theoretical concepts of the receiver response model. In terms of the concepts of this model the exhibit can be described as follows:

Message content: Nuclear war will present a threat to Midwest County (most likely in the form of radioactive fallout from distant explosions), but there are many civil defense actions we can take to prevent its effects from being devastating.

Message treatment: Rational, one-sided arguments; aural and visual symbols; demonstrations.\(^1\) Presented on two successive days during afternoon and evening hours.

Sender: Forty-one voluntary organizations and government agencies from every town and township in the county and approximately 450 individual members of these groups.

Channel: "County-fair" type exhibit incorporating 21 manned booths, a film and a tour of the Area Civil Defense Depot. Mass media (including 10 newspapers, two radio stations and two television stations) carried announcements that the exhibit would be held. The exhibit was also announced at numerous formal organizations. Extensive interpersonal communication about the exhibit is known to have occurred.

Intended receivers: All husbands and wives (family decision makers) residing in the county.

\(^1\) An analysis of the aural and visual content of each of the exhibit features is given in the Appendix.
The exhibit is considered to be a form of "mass" communication; however as the above description indicates it differs considerably from such other mass communication events as a newspaper article, a radio or television program, a magazine article or a book. It is different, first, because quantitatively it is a large communication input. Not one, but several messages were aimed at the potential audience. Second, the messages were presented through a combination of media. Written, spoken and graphic symbols were utilized. Finally, it is different from the norm of mass communication in the fact that for a great number of the attenders the message senders were members of their primary reference groups--family members, relatives and friends.

Study Design and Sampling

An "ideal" study design

To adequately study responses to a communication event such as the Midwest County Civil Defense Exhibit the research design should be such that it allows "before" and "after" treatment observations of the individual's position on relevant variables. An "ideal" study design should also include adequate control samples to measure the effect of extraneous stimuli and the effect of the interviewer's questionnaire. The object of such a study design is to measure the extent and kinds of change induced by communication stimuli.

The study design implemented

Such an "ideal" study design was not used in the present study. It was not used because research funds were not available until after the exhibit.
Fortunately, some of the characteristics of an "ideal" study design can be approximated through the use of special questioning techniques when only an "after" treatment observation is made. For example, questions on knowledge and attitude in the general subject area not specifically covered in the communication stimulus can give general indications of the respondent's "before" position. Also, the respondent can be asked to recall past experiences and attitudes. (When did he first take a given action? What attitude did he have toward a given phenomenon at Time X?) Third, an individual's social statuses—his age, education, sex, income, occupation, etc.—often predispose his communication behavior, yet these are unaffected by the communication stimulus.

In the present study, many attempts were made to arrive at a respondent's "before" position through use of only the "after" interview. To a large extent the author believes he has been successful in this attempt. Because of this, "predispositional" variables are operationalized and discussed as if a complete "before and after" study design had been implemented. That the measurement is not completely of predispositional traits is recognized and is a limitation upon the interpretation of the findings.

**Random sample**

The locale within which the random sample study was conducted was the Prairie City community, a county-seat town of approximately 5,000 population and the contiguous rural areas.¹

¹A complete sociological description of the Prairie City community and of Midwest County may be found in Beal et al. (6).
Interviews were obtained in 163 households where husbands and wives were living together. Wives were interviewed in approximately one-half of the households and husbands in the other one-half. Whether a husband or a wife was interviewed within a given household was systematically predetermined. The interviews were obtained in January, 1963 by professional interviewers in a personal interview situation.

Second sample of attenders

The author was aware that the number of exhibit attenders likely to be found in the random sample would be too few to allow the intensive analysis of impact planned. Only 32 attenders were identified in the random sample (almost exactly the number expected). A second sample of 43 attenders was randomly drawn from the registration lists which had been maintained during the exhibit. The drawing was made in such a manner that the combined samples of attenders would be proportional to the number of households represented at the exhibit from within the Prairie City community (approximately 57 percent) and outside the Prairie City community (approximately 43 percent).

Subsequent statistical analysis showed that the two samples of attenders differed significantly on only one variable: those in the second sample had slightly higher incomes. Because of their general similarity it was concluded that the samples could be validly combined for some analyses.

Operationalizing Predispositional Concepts

In this section specific empirical measures are developed for the predispositional concepts which may account for the differential attention, comprehension and acceptance responses made by individuals to the exhibit.
These predispositional concepts are the independent or theoretically causal variables of the generalized receiver response model. The dependent variables (i.e., measures of the response of the potential audience in terms of attention, comprehension and acceptance) will be developed in the following section. A final section of this chapter will outline the empirical hypotheses (the relationships between independent and dependent variables) which will be tested in this thesis.

As was noted in the theory chapter, no attempt will be made in this thesis to operationalize all the possible predispositional sets which can be incorporated into the generalized receiver response model. The predispositional concepts for which measures will be developed were delineated in the theory chapter as 1) attitudes about content, 2) relevance of content to the receiver's role, 3) decoding skills, 4) similarity of sender and receiver status-roles and 5) concurrent actions of the receiver or members of his primary reference groups.

While these concepts are operationalized for the purpose of testing relationships involved in a specific communication situation—the Midwest County Civil Defense Exhibit—most of the measures developed are general enough that they may be applied in many other civil defense communication attempts. They should be especially applicable to those communication attempts where the object is to convey semi-technical information to a general audience and where efforts are made to establish positive civil defense attitudes and to promote the adoption of family civil defense protective measures. Indeed, many of the same attitudinal and knowledge
questions have been included in several other studies.¹

**Attitudes about content**

One set of predispositions are the attitudes an individual holds about the content of the communication, that is, the organized action tendencies, beliefs and pro or con evaluations which the receiver holds about the ideas being communicated.

The main idea which senders attempted to communicate in the Midwest County Civil Defense Exhibit was that nuclear war presents a threat to the lives of Midwest Countians, but that civil defense counter-measures can offer a degree of protection from this threat.

Since mid-1961, a rather extensive civil defense dialogue has been carried on in the United States. Proponents of civil defense have offered numerous ideas and arguments to support various types of civil defense programs. On the other hand, opponents of civil defense have offered numerous ideas and arguments as to why civil defense programs should not be implemented. Other writers have debated both the pros and cons of civil defense under different sets of assumptions such as type of war and size of weapons used. Research has shown that people generally have quite fully formulated (although generally non-salient) attitudes about the subject of civil defense and also that for most populations there is a wide distribution of dispositions toward civil defense.

In this section a number of the ideas and arguments that have been introduced into the civil defense dialogue are presented and the respon-

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¹For example see: Klonglan et al. (49); Nehnevajsa (61).
dent's attitude position on the idea or argument is related to his expected
communication behavior. Three sub-dimensions of civil defense attitudes
toward content are operationalized: 1) perceived threat, 2) perceived
possibility of protection and 3) perceived need for civil defense programs.

Variable $X_1$: perceived threat One dimension of an individual's
attitude toward civil defense is his perception of the threat or danger to
his well-being presented by the prospect of a nuclear war.

The relationship between perceived threat and response to the civil
defense exhibit is expected to be fairly complex. If an individual feels
little threat he may also feel little need for civil defense protection and
is not likely to attend to messages about civil defense. On the other
hand, an individual who feels his well-being is threatened by a possible
war may feel a need for civil defense protection and may have an interest
in receiving messages about the means of protection. However, a very high
perception of threat could have the reverse effect. The individual could
perceive such an extremely threatening situation that he feels it is hopeless.
He might not want to hear more about the unpleasant prospect of
nuclear war and destruction and may avoid--consciously or unconsciously--
messages on the subject. Thus, it is hypothesized that there will be a
lo-high-lo curvilinear relationship between level of perceived threat and
responses made to the exhibit. The most favorable responses will be made
by persons who perceive a medium level of threat.

In order to measure perceived threat, each respondent was asked to
evaluate his position on a series of six Likert-type attitudinal statements.
Responses to each statement were scored on a 7-point scale (0 to 6) with
the highest score indicating the greatest perception of threat. The six
statements, with possible responses and scores assigned to each, are as follows:

S. 1. How likely do you think it is that we're in for another big world war?

Possible responses and scores: very unlikely, 0; unlikely, 2; don't know or even chances, 3; likely, 4; very likely, 6.

S. 2. If a world war does come, do you think it is most likely in the next six months, the next year or two, or when?

Possible responses and scores: never, 0; 21 or more years, 1; 6 to 20 years, 2; don't know or 3 to 5 years, 3; 1 to 2 years, 4; under 1 year, 6.

S. 3. If we do get into some small local war in one country, how likely do you think it is that things might get out of hand and lead to a big world war?

Possible responses and scores: very unlikely, 0; unlikely, 2; don't know or even chances, 3; likely, 4; very likely, 6.

S. 4. How likely do you think it is that this community would be in danger from nuclear fallout if this country were attacked?

Possible responses and scores: very unlikely, 0; unlikely, 2; don't know or even chances, 3; likely, 4; very likely, 6.

S. 5. At the present time, how concerned are you about protection from nuclear war?

Possible responses and scores: have almost no concern whatever, 0; have a little concern, 2; have a strong concern, 4; have a very strong concern, 6.

S. 6. At the present time, how serious do you consider the Cuban situation to be?

Possible responses and scores: of no particular seriousness at all, 0; only slightly serious, 2; serious, 4; extremely serious, 6.

The respondent's total perceived threat score is a summation of his score on each of the above six items. Possible total scores ranged from 0 to 36. Actual scores ranged from 2 to 33. Item-total score scale
analysis indicated that each of the six items contributed more than chance variation to the total score. The calculated coefficient of reliability (based upon inter-item correlations) was \( R_{TT} = .61 \) and indicated that all six items contributed more true than error measurement to the total score.

Variables \( X_2 \) and \( X_{2a} \): perceived possibility of protection

Before an individual will be willing to take civil defense actions he must be convinced the actions will offer at least a possibility of accomplishing what they are supposed to accomplish: to protect one from the harmful effects of nuclear war. Obviously, an individual will not take actions he perceives are futile. However, if he is convinced (or can be convinced) that civil defense measures offer a possibility of protection, he should be more attentive and receptive to messages about civil defense.

Two measures of perceived possibility of protection are used in this study. The first, variable \( X_2 \), is the respondent's position before the exhibit and is available for only those who attended the exhibit. The second measure, variable \( X_{2a} \), is the respondent's perception at the time of the interview (after the exhibit). Data on variable \( X_{2a} \) are available for all respondents, but this variable is used only in the analysis of attention responses.

Variable \( X_2 \): perceived possibility of protection (before)

To determine the respondent's perception of the possibility of protection before attending the exhibit the following procedure was used. First, each

\[\text{If all items correlated perfectly, the coefficient of reliability would be 1.0. A general discussion of the techniques of scale analysis similar to those used in this thesis are found in Wolins (81), Wolins et al. (82), Wolins and MacKinney (83) and Warland (77).}\]
attender was asked to choose from a list of five statements (Thurstone-type scale) the one which best described the way he felt at the present time (time of interview). Next he was asked if he felt the same way before attending the exhibit. Two-thirds responded "yes", indicating the exhibit had not affected their position. The remaining one-third, those responding "no", were asked to choose from the list of five statements previously used the one which best described the way they felt about the possibility of protection from nuclear attack before attending the exhibit.

The statements included in the scale, with scores assigned to each, are as follows:

0 points = It is not possible for the people of this community to protect themselves from the effects of nuclear attack.

2 points = It may be possible for the people of this community to protect themselves from the effects of nuclear attack for a while, but things will be so bad when they come out of their shelters that life won't be worth living.

3 points = Have not given any thought to civil defense.

4 points = It may be possible for the people of this community to protect themselves from the effects of nuclear attack.

6 points = It is possible for the people of this community to protect themselves from the effects of nuclear attack.

Variable $X_{2a}$: perceived possibility of protection (after)

This variable is the respondent's perceived position on the above statements at the time of the interview. It is used as an independent variable only for the analysis of attention responses.

Variable $X_{3}$: perceived need for civil defense programs

Attempts to establish an operational civil defense system in the United States have generated a continuing—often heated—debate about the desirability and efficacy of such a system. A large part of this debate has focused on the
concept of fallout shelters. The debate has also ranged beyond the question of shelters to the entire concept of civil defense. There have been suggestions that the civil defense program be abolished entirely "since it is nothing but a waste of time and money," that "the money spent on civil defense should be spent working for peace," that "civil defense activities should be handled by the military," that "civil defense measures will make people feel secure, and thus more willing to wage nuclear war".

Since much of this debate has been carried on in the popular press, it is likely that most persons are at least partially familiar with the arguments and have formed some position of their own in regard to the arguments.

It is expected that individuals whose positions on the civil defense debate most nearly conform to the position taken by the civil defense organization will be most likely to attend, to comprehend and to accept other messages which are basically in accord with this position. Thus, they are expected to be more likely to attend the Midwest County Civil Defense Exhibit and to comprehend and accept the messages presented.

In order to determine the respondent's perceived need for civil defense programs, each was asked to express his opinion on seven Likert-type attitudinal items. The seven statements, with responses and scores assigned to each, are as follows:

S. 1. Citizens should try to influence their Congressmen to support civil defense legislation.

Possible responses and scores: strongly disagree, 0; disagree, 2; don't know, 3; agree, 4; strongly agree, 6.

S. 2. Civil defense programs in the United States have been too neglected.
Possible responses and scores: strongly disagree, 0; disagree, 2; don't know, 3; agree, 4; strongly agree, 6.

S. 3. Civil defense activities are nothing but a waste of money and human energy that could be better spent on working toward peace.

Possible responses and scores: strongly agree, 0; agree, 2; don't know, 3; disagree, 4; strongly disagree, 6.

S. 4. Fallout shelters are like insurance in that you don't know if you'll ever need them, but if you do they sure are good to have around.

Possible responses and scores: strongly disagree, 0; disagree, 2; don't know, 3; agree, 4; strongly agree, 6.

S. 5. Any fallout shelter measures we take today will soon be obsolete and cannot be effective long enough to justify their cost.

Possible responses and scores: strongly agree, 0; agree, 2; don't know, 3; disagree, 4; strongly disagree, 6.

S. 6 A fallout shelter program should be abandoned because even if civil defense measures were effective in saving some lives, a thermonuclear war would make living on earth impossible for the survivors.

Possible responses and scores: strongly agree, 0; agree, 2; don't know, 3; disagree, 4; strongly disagree, 6.

S. 7 What a national shelter program will cost the taxpayer is very little in comparison to the amount of protection it will provide.

Possible responses and scores: strongly disagree, 0; disagree, 2; don't know, 3; agree, 4; strongly agree, 6.

The respondent's total score is a summation of the number of points he received on the above seven items. Possible total scores ranged from 0 to 42. Actual scores ranged from 4 to 40. Item-total and inter-item scale analysis indicated that each of the seven items contribute more reliable than chance measurement to the total score. The calculated coefficient of reliability was $R_{TT} = .80$ which, compared with other attitudinal scales, is quite powerful.
Relevance of content to receiver's role

One set of factors which is expected to be related to the responses an individual makes to a message is the relevance of the message content to the role expectations of the social statuses he occupies. Thus, a farmer reads a farm magazine; a supermarket manager reads a grocery trade journal; neither is likely to expose himself to the media designed for the other; and if such exposure does occur, the manner in which the farmer and supermarket manager comprehend and accept the message would likely be quite different. In short, people attend to, comprehend and accept those messages for which they have some potential use. This potential use is reflected in the expectations of the status-roles they occupy.

Every individual occupies several status-roles. One is a father, a husband, an employee, a president of an organization, a member of an organization, a member of the community. The behavior expected of one, and consequently one's information needs, vary according to the particular role one is attempting to perform at the moment.

Messages about civil defense would appear to have special relevance to the roles an individual performs within the family. A primary function of the family as a social institution is to provide for the safety and well-being of its members. However, this concern for safety has differential application to the roles within the family, and the expectations of these roles change with the "life cycle" of the family.

As stated in the section on sampling, only households where the husband and wife were living together were sampled in this study. Thus, one variable related to family role is held constant—all respondents were married. However, three other variables which provide information about
roles within the family are considered in this study: 1) sex of the respondent, 2) the respondent's age and 3) whether or not there are children in the household.

**Variable $X_4$: family role: sex** Some have hypothesized that because of her dominant role in child-rearing the wife may be more interested in making civil defense preparations than is the husband. If this is true, then wives should be more likely to attend the exhibit than husbands. Wives should also have a greater predisposition to comprehend and to accept the messages presented than would husbands. Thus, females were given a score of 1 and males were given a score of 0.

**Variables $X_5$ and $X_6$: family role: stage of life cycle** Another aspect of roles within the family is the stage of family life cycle in which the respondent is found. As a family matures as a social unit, the role expectations of the various statuses—e.g., father; mother—change.

Other studies have found that respondents under 50 years of age were more aware of and more concerned about civil defense than were those over 50 years of age (Garrett, 28). Since persons under 50 are more likely to have children living in their home, this finding may indicate that the persons with child-rearing responsibilities are more concerned about civil defense measures than are those without such responsibilities.

Two indices of family life cycle are used in this study: the respondent's age and whether or not he has children under 15 years of age living in the household. If child-rearing responsibilities are related to awareness and interest in civil defense, then it would be expected that respondents who are younger and have children would be most likely to attend, to comprehend and to accept the messages presented at the exhibit.
Age is measured directly as the number of years of age the respondent stated he was on his last birthday. Responses ranged from 19 to 84 years.

Whether or not there were children living in the household under 15 years of age was obtained from a household census completed from the respondent's answers. Respondents with children received a score of 1; those who did not have children received a score of 0.

**Decoding skills**

Decoding skills have special relevance when one is attempting to communicate relatively abstract scientific information of the type included in the Midwest County Civil Defense Exhibit. The concepts included in the messages of the exhibit—nuclear war, fallout, radiation, shielding—are by nature complicated. They are by nature abstract. The notion that one can be killed by invisible rays from relatively minute particles that have been brought by winds from an explosion hundreds of miles away is a complicated one. So is the notion complicated that one may protect oneself from the harmful effects of these rays by placing a considerable thickness of dense material between oneself and the particles emitting the lethal rays and waiting for a length of time during which the radiation energy of the particle will dissipate.

To be willing to attend to messages about phenomena related to civil defense, to be able to adequately comprehend their implications and to be able to base rational decisions upon the meaning comprehended requires considerable technological competence on the part of the receiver. This technological competence is needed because communication can be attained only through units of personal experience. If the receiver does not at least
have a partial understanding of what the sender is talking about, he may reject the message before it has gained his attention, or if the message has gained his attention, he may not comprehend or accept it in the manner intended by the sender.

Three sub-dimensions of the general concept decoding skills were delineated as being relevant to the receiver's response to the Midwest County Civil Defense Exhibit. These are: 1) knowledge of technical aspects of civil defense, 2) use of technologically competent sources of civil defense information and 3) years of formal education. These sub-dimensions are operationalized in the following section.

Variable $X_7$: knowledge of technical aspects of civil defense

One indicator of an individual's decoding skills regarding civil defense messages is his understanding of technical phenomena related to civil defense—fallout, fallout protection, radiation, radiation decay, etc.

Technical knowledge of fairly complex concepts (of which fallout and fallout protection are examples) has been found to be related to understanding additional information about the concepts. As stated previously, communication is achieved through units of experience. A sender can convey more complex notion of a concept only if he and the receiver have a common frame of reference as a starting point. If the receiver has at least a partial understanding of the technical aspects of civil defense, a message attempting to convey a more complex notion (for example how fallout radiation, radiation protection, radiation shielding values and the concept of fallout shelters are related) would more likely be attended to, comprehended and, perhaps, accepted.
To determine the respondent's knowledge of the technical aspects of civil defense, he was asked nine specific technical questions about fallout and fallout protection. These nine statements were originally part of 14 public knowledge questions developed at Michigan State University in 1961. They were developed from material presented in the booklet *Fallout Protection* (62) published by the Office of Civil Defense.

Each respondent was asked if he "agreed" or "disagreed" with each of the nine statements. One point was given for each correct answer. Scale analysis indicated that one item of the original nine—"you cannot see fallout"—added more error than reliable measurement to the score, thus it was dropped. The final scale contained responses to eight items, with possible and actual scores ranging from 0 to 8. The reliability coefficient for the 8-item scale was $\rho_{TT} = .52$. The statements included in the final scale, with responses and scores assigned to each are as follows:

S. 1. If you get exposed to radiation at all, you are sure to die.
   Possible responses and scores: agree, 0; don't know, 0; disagree, 1.

S. 2. If someone has radiation sickness, you should avoid getting near him so you won't catch it yourself.
   Possible responses and scores: agree, 0; don't know, 0; disagree, 1.

S. 3. A plastic suit with filtering mask is plenty of protection against fallout.
   Possible responses and scores: agree, 0; don't know, 0; disagree, 1.

S. 4. After a nuclear attack, if you filter the dust out of the air, the air will be safe to breathe.
   Possible responses and scores: disagree, 0; don't know, 0; agree, 1.
S. 5. There is a new pill you can take that will protect you against radioactive fallout.

Possible responses and scores: agree, 0; don't know, 0; disagree, 1.

S. 6. A fallout shelter should have an airtight door to guard against radiation.

Possible responses and scores: agree, 0; don't know, 0; disagree, 1.

S. 7. Fallout from just one bomb may cover thousands of square miles.

Possible responses and scores: disagree, 0; don't know, 0; agree, 1.

S. 8. Most fallout rapidly loses its power to harm people.

Possible responses and scores: disagree, 0; don't know, 0; agree, 1.

Variable Xₘ: use of technologically competent sources of civil defense information

Another indicator of a respondent's decoding skill is the information sources he has used. Considerable differences can be found among information media in the competence level of messages they normally convey. For example, popular news media—newspaper, radio, TV, mass circulation magazines—deliberately downgrade and simplify involved concepts in order to gain a minimum level of understanding with the largest number of persons possible. Often the technical competence of the information presented suffers in this reduction process. On the other hand, journal articles, books and monographs written by one expert to be read by other experts in the same field normally have a high degree of technological competence, but cannot be readily understood without the aid of skills acquired through specialized training. Between these extremes are to be found many gradations of complexity and competence.
If the individual has used messages from technologically competent information sources in the past, he should be predisposed to attend to, to comprehend and to accept other messages of a similar nature. Such past behavior would indicate that the individual has developed the necessary frame of reference and vocabulary to allow the sender to effectively communicate relatively abstract concepts—such as explaining the reason fallout shelters are needed.

Other studies have found the concept, use of technologically competent information sources, to be an excellent predictor of other actions. For example, Klonglan (49) found a very strong relationship between use of competent civil defense information sources and adoption of public fallout shelters. Yarbrough (84) found a very strong relationship between the degree to which farmers had used technologically competent information sources in the past and their obtaining (self-selection as receivers), reading and understanding the information presented in a fairly abstract farmer's bulletin.

The first step in measuring the technological competence of civil defense information sources was to obtain an inventory of the sources used. Each respondent was asked to select from a list of 17 sources the ones from which he had obtained information about civil defense. He was also given an opportunity to add "other" information sources. Three additional sources were named.

Next, six technological competence levels were established in order to classify and rank the sources named by the respondents. These levels were based on the findings of past research, theory and logic. The sources of information included in each of these six competence levels are outlined
below. The assumptions used to differentiate among the levels are also stated. Level 1 is the least competent level, level 6 the most competent.

Competence level 1 (1 point for each source mentioned)

a. Communication with personal friends, relatives, neighbors
b. Salesmen or dealers of civil defense equipment such as fallout shelters

Assumptions: These sources are assumed to be informal person to person interactions. The probability is that they will not have a broad scope and depth of civil defense information.

Competence level 2 (2 points for each source mentioned)

a. TV news and special programs
b. Radio news and special programs
c. Daily or weekly newspapers
d. Popular news magazines such as U.S. News and World Report, Newsweek, Time
e. Popular general magazines such as Life, Look, Saturday Evening Post, Readers' Digest
f. Meetings conducted by organizations to which you belong
g. Church sermons or meetings
h. Occupation-related sources

Assumptions: These sources are primarily oriented to the general reading or listening public. The frequency and percentage of space and time devoted to civil defense is relatively small compared to sources listed in competence levels 3, 4, 5 and 6.

Competence level 3 (3 points for each source mentioned)

a. Specialized news magazines such as Commentary, The Nation, The Reporter, The New Republic
b. Professional journals
c. Books

Assumptions: It is assumed that these sources present various aspects of civil defense in greater detail and depth than do sources in competence levels 1 and 2.

Competence level 4 (4 points for each source mentioned)

a. Publications distributed by the County Extension Office

Assumptions: This source has defined civil defense responsibility; however civil defense is but one of the many functions it is expected to carry out.
Competence level 5 (5 points for each source mentioned)

a. Booklets and pamphlets put out by the Office of Civil Defense
b. Civil defense kits put out by the Office of Civil Defense

Assumptions: These sources have been originated by civil defense, but they are impersonal sources and the receiver cannot ask for clarification of ideas mentioned.

Competence level 6 (6 points for each source mentioned)

a. Meetings conducted by civil defense personnel
b. Visited a fallout shelter
c. Toured Civil Defense Depot
d. Fairs

Assumptions: These sources are personal sources of information that have been originated either by civil defense personnel or by personnel in government agencies who have civil defense responsibilities. In these particular media civil defense is the only topic of concern. Quantitatively there is a large input of civil defense information in these situations; and the individual receiver can personally ask questions about civil defense ideas and problems and receive personal replies.

For each information source the individual named, he received a number of points equal to the competence level assigned to that source. His total score is a summation of the points received on all sources he named. For example, if the respondent said he obtained civil defense information from the following sources: communication with personal friends, relatives and neighbors (level 1), radio news and special programs (level 2), daily or weekly newspapers (level 2), popular general magazines (level 2), booklets and pamphlets put out by OCD (level 5) and meetings conducted by civil defense personnel (level 6), his total score would be 18 points (1+2+2+2+5+6). If the respondent had obtained civil defense information from none of the sources he received a score of 0. The maximum possible score was 65 and could be obtained only if the respondent used all 20 sources to obtain civil defense information. Actual scores ranged from 0 to 41.
Variable $X_g$: education. Many studies have supported the generalization that the higher the educational level of a person, the more informed he is of developments in the world around him. Past studies, in general, have also found that the higher the educational level of a person, the more favorable he is to civil defense. For example, Klonglan et al. (49) found that persons with more years of formal education were more likely to be in the later stages of adoption of public fallout shelters than were persons with less education.

Hovland et al. (36) used years of formal schooling as an index of intellectual ability. From their study of the documentary film as a medium of persuasive communications they found that persons with high intelligence (formal education) are more likely to be influenced when exposed to persuasive communications which rely on logical arguments than those communications which rely on "unsupported generalities or false, illogical, irrelevant argumentation". Katz and Lazarsfeld (42) note that the interests and perspectives which are gained from higher education encourage women to participate more in political affairs. Yarbrough (84) found that years of formal schooling was related to farmers' selecting, reading and understanding a pamphlet on the scientific principles of corn growing.

From these and other research findings, and from theoretical considerations, has grown the generalization that formal education is positively related to an individual's ability to deal with abstract communication messages. Waples et al. (76) succinctly summarize the situation by suggesting that better educated persons select more mature messages because their wider intellectual experience is much the same as that of the author. The better educated individuals also acquire the reading skills and the
technical or precise vocabularies that are needed to receive more mature messages.

These generalizations have implications for studying the impact of the civil defense exhibit. Persons with more formal education are more likely to be aware that the exhibit was being held because they are generally more aware of the events in the world around them. Among those who attended the exhibit, those with more education are more likely to comprehend the material presented because of their greater ability to deal with abstractions. (Many of the exhibit messages, it should be noted, were of fairly abstract content.) Persons with greater education are also more likely to accept the messages presented. As noted previously, the exhibit relied on logical argument rather than unsupported generalities as a means of convincing attenders. Persons with more education are more likely to be convinced by such logical arguments than are those with less education.

The respondent's education was measured directly as the number of years of formal schooling completed. Actual number of years ranged from 7 to 20.

**Similarity of sender and receiver status roles**

In the theory chapter it was stated that most communication (both mass and interpersonal) within a society takes place within the various strata of society. In other words, people with similar attributes are the ones most likely to communicate. This phenomenon exists because it is in such situations that the requisites for communication are present. People within the same strata of society have had similar social experiences. They have acquired similar structures of needs, wants and goals. They have acquired the same symbol manipulating skills--the same level of skill, the
same vocabulary, the same methods of projection. They have acquired the
same patterns of habitual behavior. There is also the likelihood that
receivers will perceive as credible those senders whose social status is
similar to their own. Apparently we are more likely to trust those who
are similar to ourselves.

The communication senders in the Midwest County Civil Defense Exhibit
were community voluntary organizations and the members of these organiza­
tions. One characteristic of the members of such organizations is their
relatively high socio-economic status. They are likely to have greater
incomes, higher occupational status and possess other manifestations of
wealth than are non-members (Rose, 68; Scott, 72). It is expected that
persons who attended, comprehended and accepted the exhibit will have
similar statuses.

Variable X₁₀: socio-economic stratification: family income Data
on the respondent's family income was collected by asking the respondent
to select the one of 18 categories which best estimated his family's total
income (before taxes) for the past three years (1960-1962). The categories
and the scores assigned to each were as follows:

1 point = $1-999
2 points = 1,000-1,999
3 points = 2,000-2,999
4 points = 3,000-3,999
5 points = 4,000-4,999
6 points = 5,000-5,999
7 points = 6,000-6,999
8 points = 7,000-7,999
9 points = 8,000-8,999
10 points = 9,000-9,999
11 points = 10,000-11,999
12 points = 12,000-13,999
13 points = 14,000-15,999
14 points = 16,000-20,999
15 points = 21,000-25,999  
16 points = 26,000-30,999  
17 points = 31,000-35,999  
18 points = 36,000 and over

Responses ranged from less than $1,000 to more than $36,000.

Variable $X_{11}$: socio-economic stratification: North-Hatt occupational status scores  
The social status value of the husband's occupation is given in terms of interpolated North-Hatt occupational status scores (2). This scale has been tested extensively (Miller, 59; Hodge, 34) and has been used in many past research studies. The possible values on this scale range from 33 (shoeshiner) to 99 (score for justice of the United States Supreme Court). Each respondent in the present study was asked two questions: "What is your (your husband's) occupation?" and "What kind of business is this? What do they do or make?" From responses to these questions it was possible to classify respondents on the North-Hatt scale. If the husband was unemployed or retired, the last job he held was used as a basis for assigning scores. Actual occupational status scores assigned to respondents ranged from 44 to 90.

Variable $X_{12}$: socio-economic stratification: home ownership  
Home ownership was measured directly from the response of the individual to the question: "Do you own your own home?" Those responding "yes" (owners) received 1 point, those responding "no" (renters) received 0 points.

Concurrent actions

As noted in the theory chapter, individuals rarely receive messages in a situational surrounding which is completely neutral. Rather, the surroundings are socially organized, complete with other individuals who have social roles relevant to the receiver, and the atmosphere is filled
with extraneous stimuli—some pleasant, some noxious; some promoting, some retarding favorable reactions.

The reception environment variables which might have relevance to the attention, comprehension and acceptance stages of the decoding process are almost without end. One type of reception environment variable is investigated in this study—the concurrent actions of the receiver and/or of members of his primary reference groups. More specifically the variables investigated are: 1) the involvement of the respondent or a family member in the exhibit, 2) his response to prior stages of the decoding process (attention and comprehension) and 3) his concurrent acceptance responses.

Variable $X_{13}$: self and/or family member help put on exhibit. The wide involvement of individuals in presenting the exhibit was purposeful. (Over 450 persons representing 41 organizations helped.) People were needed to help carry out the functions of the exhibit, but obviously 450 were not needed. The exhibit organizers knew they were not. However, the organizers perceived the participants to be a primary educational audience as well as being helpers. A rather extensive body of research knowledge supports their perception. The active participation of a receiver in a communication event has been found to predispose his acceptance of the message (Hovland et al., 36). For example, a debater who is forced to defend a position he personally opposed before the debate is quite likely to change his beliefs to conform to the arguments he is forced to make.

The organizers also perceived that the families of participants would be important targets for communication impact. Experience had shown them that additional family members are very likely to attend if one or more members are actively participating in a program. In this study the effects
of either the respondent or a member of his family actively participating in the exhibit are assumed to be equal. The participation of both is assumed to be additive.

To measure this variable, each respondent was asked the following questions:

Q. 1. Did you do anything at all to help initiate, promote or carry out the Civil Defense Exhibit?

Q. 2. (If yes to Q. 1) What organization or organizations did you work with?

Q. 3. (If yes to Q. 1) What did you do?

Q. 4. Did anyone in your immediate family--that is, son, daughter, wife, husband, etc.--do anything to help initiate, promote or carry out this exhibit?

The individual's responses to the above questions were scored as follows:

0 points = Neither the respondent or a member of his family helped put on the exhibit.

1 point = Either the respondent or a member of his family helped put on the exhibit.

2 points = Both the respondent and a member of his family helped put on the exhibit.

Variables $X_{14} (Y_2)$ and $X_{15} (Y_3)$: response to prior decoding stages

The major decoding stages of the receiver response model are assumed to be linear. Attention is assumed to occur before comprehension of content. Comprehension is assumed to occur before the various acceptance responses. Responses to the attention, comprehension and acceptance stages are also assumed to be cumulative. Thus, it is hypothesized that the greater the degree of attention one gives to the exhibit the more likely is he to 1) comprehend and 2) accept the message in the manner desired by the sender.
Likewise, it is hypothesized that the more nearly one comprehends a mes-
sage as intended by the receiver, the more likely is he to accept the
message as desired by the sender.

Although the differential attention and comprehension responses are
used as independent (predictor) variables in the above hypotheses, their
primary function in this study is as dependent (predicted) variables. The
operationalization of dependent variables is found in the next section.

Variables $X_{16} (Y_4)$ and $X_{17} (Y_5)$: concurrent acceptance responses
Although the major decoding stages are assumed to be in linear order, no
such assumption is made about the sub-stages of acceptance. Rather it is
assumed that cognitive acceptance, evaluative acceptance and overt action
can occur in any order. However, when any form of acceptance does occur
it either reinforces a previously held predisposition or creates a new
predisposition. In this process there will be a tendency for the receiver
to seek a state of cognitive balance. The receiver may change other
aspects of his cognitive world—beliefs, sentiments or overt actions—in
order to achieve a balanced state. Thus, we would expect to find strong
relationships between the various acceptance responses which we observe.

The operationalization of variables $X_{16} (Y_4)$, cognitive acceptance,
and $X_{17} (Y_5)$, overt action, is found in the next section.

Operationalizing Response Variables

The dependent variables of this thesis are the attention, comprehe-
sion and acceptance responses which members of the potential audience made
to the Midwest County Civil Defense Exhibit. One may examine these
responses within two frames of reference. In one sense, attention,
comprehension and acceptance responses are explanations of the effectiveness of the exhibit. They describe what communication impact was achieved. However, in this thesis we also are concerned with why some persons attended while others did not. We are concerned with why some persons comprehended and accepted the exhibit in much the manner intended by the senders, while others made quite different responses. Within the "why" frame of reference, responses are not explanations but are phenomena to be explained.

In this section, we will deal with both aspects of the responses. An attempt will be made to describe in specific, empirical terms the nature of the responses made—in short, to assess the impact of the exhibit. Also in this section will be developed the specific empirical measures of response which may be used as empirical dependent variables. Such measures are developed for all stages of the receiver response model except one—affective acceptance. These empirical measures developed will be used in the next section, along with the empirical measures of predispositions developed earlier, to formulate specific, testable hypotheses. These empirical hypotheses may be used to support or reject the more general notions about the relationships between predispositions and responses to communications which were developed in the theory chapter.

**Dependent variables $Y_1$, $Y_{1a}$ and $Y_2$: attention**

A rather obvious but essential first step in achieving effective communication is to obtain the attention of the defined potential audience. Members of this potential audience must become aware that a message is being offered and must spend sufficient time and energy to physically receive the message.
In the case of the Midwest County Civil Defense Exhibit, the communication senders defined the potential audience as all husbands and wives in Midwest County. The senders obviously desired for all members of this potential audience to have maximum exposure to the exhibit, that is, to attend and to spend enough time to view and comprehend all features presented. However, it is very unlikely that all members of the potential audience received this maximum exposure. Rather, a potential receiver must pass through several attention stages before maximum exposure is achieved. In the process, many members of the potential audience "drop out" of the communication situation.

**Measurement of attention** An attempt to measure an individual's attention response should account for his action at the attention stages. In the theory chapter, four attention stages were identified. These stages were operationalized as described in the following paragraphs.

**Awareness stage** The first attention stage is that of awareness. Many message inputs were prepared by the senders to inform the potential audience about the exhibit. Ten newspapers, two radio stations and two television stations carried announcements that the exhibit would be held. In addition, the exhibit was announced and discussed at meetings of numerous voluntary organizations and extensive interpersonal communication is known to have occurred. Despite this rather extensive publicity campaign, it is unlikely that all members of the potential audience became aware of the existence of the exhibit, or at least that the message was salient enough that they could recall hearing about it. To determine the respondent's awareness, the following question was asked:
Q. 1. Are you familiar with, or have you ever heard or read anything about the Civil Defense Exhibit which was held in the Prairie City Armory about a year ago? (Probe)

If, following probing, the respondent answered "no", he was classified as being unaware of the exhibit. If the respondent answered "yes", he was considered to be aware of the exhibit and was asked further questions (below) about the degree of his attention to the exhibit.

Attend decision stage Those who became aware of the exhibit confronted another attention stage: they must decide whether or not to attend. This is necessarily a cognitive decision-making process since the act of attending requires the individual to knowingly expend time and energy. Of those who become aware, some decide to attend; others decide not to attend. To determine this classification, respondents were asked:

Q. 2. Did you attend the Civil Defense Exhibit?

If the respondent answered "yes", he was classified as an attender and additional questions about his attention to the exhibit, including questions regarding differential exposure, were asked. If the respondent answered "no", he was classified as aware, not attend and was asked question 3 (below).

Secondary contact stage The impact of a communication event such as the Midwest County Civil Defense Exhibit is not expected to end with those who attend. Rather, some persons are expected to have secondary contact through the two-step flow of communications. These persons would not have attended themselves, but would have discussed the content of the exhibit with someone who did attend. These persons could have initially been excluded from the communication situation at the awareness stage, or they could have been aware of the existence of the exhibit but would have
decided not to attend previous to their discussion of its content with someone who did attend. To determine whether or not a respondent had secondary contact with the exhibit, the following question was asked:

Q. 3. You have told us that you did not attend the Midwest County Civil Defense Exhibit. But perhaps you have learned something of the exhibit from another person. Have you at any time discussed anything pertaining to the exhibit—perhaps an idea from the exhibit or what the exhibit was all about—with anyone who did attend or you think might have attended? This "anyone" might be a friend, a relative, one of your children or your husband (wife).

If the respondent answered "yes", he was asked to name the person with whom he talked and to recall portions of this discussion to indicate that he had talked about the content of the exhibit, not merely the fact it existed. If he responded meaningfully to these probe questions, he was classified as having secondary contact with the exhibit. However, if the respondent answered "yes" but was not able to specify the person or content, or he answered "no", he was classified as being aware, but having no contact.

**Differential exposure stage** Among those who attended, there are likely to be differences in the degree of exposure to the exhibit's content. Some will have spent more time viewing the exhibit than others. Some will have viewed all the exhibit features; others will have viewed only a part. This differential exposure can be classified in many ways. In this thesis, it is measured in terms of an index combining categories of time spent viewing and number of exhibit features viewed.

The time attenders spent viewing the exhibit was determined by asking the following question of those who answered "yes" to question 2.

Q. 4. Approximately how much time did you spend viewing the exhibit?
Responses to question 4 were scored as follows:

1 point = less than 30 minutes
2 points = 30 minutes
3 points = 1 hour
4 points = 1 1/2 hours
5 points = 2 hours
6 points = more than 2 hours

The number of exhibit features an individual viewed was determined by setting a framework and asking a series of questions as follows:

We would now like to talk with you about your visit to the Civil Defense Exhibit. Here is a floor plan (Card) of the National Guard Armory showing the location of the various booths. Each booth is designated as to its sponsor and topic.

You will notice that there are 21 numbered "booths" in the Armory. In addition a film called "Fallout on the Farm" was shown at the Armory. Also there was the possibility of taking a guided tour of the Area Civil Defense Depot on the south side of town.

Q. 5. Which of the booths do you recall visiting?

Q. 6. Did you see the film "Fallout on the Farm"?

Q. 7. Did you tour the Area Civil Defense Depot at the time of the exhibit?

Responses to question 5 were scored as follows:

1 point = viewed 1 to 5 booths
2 points = viewed 6 to 10 booths
3 points = viewed 11 to 15 booths
4 points = viewed 16 or more booths

Responses to questions 6 and 7 were scored as follows:

0 points = visited neither
1 point = visited one, not the other
2 points = visited both

The respondent's total differential exposure score was obtained by adding the number of points he received on each of the preceding three parts--time spent viewing, number of exhibit booths visited and number of
special features viewed. Possible and actual total scores ranged from 2 to 12.

Dependent variable $Y_1$: attention index. Variable $Y_1$ measures the potential audience's response to the first three attention stages as an equal interval scale. Those unaware of the exhibit received the lowest score (1 point); those aware, but having no contact received 2 points; those with secondary contact received 3 points; those who attended received 4 points. The distribution of respondents in the base random sample ($N = 163$) on variable $Y_1$ is given in Table 1.

Table 1. Distribution of respondents on attention index (variable $Y_1$), base random sample

<table>
<thead>
<tr>
<th>Score</th>
<th>Attention Index Category</th>
<th>Number</th>
<th>Percent of 163</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unaware</td>
<td>92</td>
<td>56.5</td>
</tr>
<tr>
<td>2</td>
<td>Aware, no contact</td>
<td>24</td>
<td>14.7</td>
</tr>
<tr>
<td>3</td>
<td>Secondary contact</td>
<td>15</td>
<td>9.2</td>
</tr>
<tr>
<td>4</td>
<td>Attend</td>
<td>32</td>
<td>19.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>163</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Dependent variable $Y_{1a}$: orthogonal comparison categories. The first dependent variable, $Y_1$, may also be used in slightly modified form to test the differences between individuals who passed or failed to pass each of the first three attention stages: awareness, attend and secondary exposure. The statistical method of analysis used is orthogonal comparison.
As described by Snedecor (74), orthogonal comparison is a method of partitioning the total variance between the means of subclasses within a sample so that independent analysis can be made of the treatment effects.

In the case of the exhibit, the treatments are independent or predispositional variables: the effects are the individual's attention responses, i.e., his passing or failing to pass each of the first three attention stages. Thus, the first comparison is between the scores of the individuals who were unaware of the exhibit (Group 1) and those who were aware (pooled Groups 2, 3 and 4). The second comparison further partitions the variance within the aware group and compares those who passed the decision to attend stage, the attenders (Group 4), with those who failed to pass this stage, the members of the sample who were aware of the exhibit but did not attend (pooled Groups 2 and 3). The third comparison is a further division of the aware, not attend group. In this comparison those who passed the secondary contact stage, that is, the group which had secondary contact with the exhibit by talking to an attender about its content (Group 3), are compared with the residual group of those who were aware of the exhibit but had no contact (either primary or secondary) with its content (Group 2). These comparisons are summarized diagrammatically in Figure 8.

Dependent variable \( Y_2 \): differential exposure Variable \( Y_1 \) does not account for the differential exposure which attenders had with the exhibit. The time which individuals spent viewing the exhibit features ranged from less than 1 hour to more than 2 hours and the number of exhibit features viewed ranged from 5 to all 23. The differential exposure
Figure 8. Orthogonal comparison categories (Variable $Y_{1o}$)
index accounts for this variation in length of exposure of attenders. The methodology used to determine differential exposure was described earlier. The distribution of differential exposure scores as well as the number of respondents receiving each score are given in Table 2. This table shows

Table 2. Distribution of respondents on differential exposure index (variable $Y_2$), base random sample and second sample of attenders

<table>
<thead>
<tr>
<th>Differential Exposure Score</th>
<th>Random Sample</th>
<th>Second Sample of Attenders</th>
<th>Combined Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent No. of 32</td>
<td>Percent No. of 43</td>
<td>Percent No. of 75</td>
</tr>
<tr>
<td>Two</td>
<td>1 3.1</td>
<td>-- --</td>
<td>1 1.3</td>
</tr>
<tr>
<td>Three</td>
<td>-- --</td>
<td>-- --</td>
<td>-- --</td>
</tr>
<tr>
<td>Four</td>
<td>1 3.1</td>
<td>1 2.3</td>
<td>2 2.7</td>
</tr>
<tr>
<td>Five</td>
<td>-- --</td>
<td>1 2.3</td>
<td>1 1.3</td>
</tr>
<tr>
<td>Six</td>
<td>4 12.5</td>
<td>3 7.0</td>
<td>7 9.3</td>
</tr>
<tr>
<td>Seven</td>
<td>6 18.8</td>
<td>4 9.3</td>
<td>10 13.3</td>
</tr>
<tr>
<td>Eight</td>
<td>4 12.5</td>
<td>7 16.3</td>
<td>11 14.7</td>
</tr>
<tr>
<td>Nine</td>
<td>5 15.6</td>
<td>8 18.6</td>
<td>13 17.3</td>
</tr>
<tr>
<td>Ten</td>
<td>9 28.1</td>
<td>10 23.3</td>
<td>19 25.3</td>
</tr>
<tr>
<td>Eleven</td>
<td>2 6.3</td>
<td>3 7.0</td>
<td>5 6.7</td>
</tr>
<tr>
<td>Twelve</td>
<td>-- --</td>
<td>6 14.0</td>
<td>6 8.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32 100.0</td>
<td>43 100.1</td>
<td>75 99.9</td>
</tr>
</tbody>
</table>
that the second sample of attenders was combined with the attenders in the base random sample to provide data for this analysis. These samples were drawn in such a manner that they can be validly combined. Thus, 75 cases were analyzed using variable $Y_2$ as a dependent variable.

**Impact in terms of attention** One way of analyzing the impact of the Midwest County Civil Defense Exhibit is in terms of the degree of attention which the potential audience actually gave to it. Such data are included in variables $Y_1$ and $Y_2$. On the basis of these data, the author has concluded that the exhibit had extensive impact when viewed as the amount of attention members of the potential audience gave to it.\(^1\) It is recognized that the attendance figure may be interpreted as "only" 20 percent attending. However, in light of the findings of studies of other communication events, gaining the overt attention of as much as 20 percent of the generalized audience—for time periods ranging from 30 minutes to more than two hours—is indeed an impressive impact.

**Dependent variable $Y_3$: comprehension**

Communication research indicates that among those who attend to a message there are likely to be differences in how the message is comprehended. Some are likely to gain approximately the same meaning intended by the sender; others are likely to make quite different interpretations.

---

\(^1\) Colleagues who examined the findings of this study have been surprised to learn that more than half the potential audience was unaware of the exhibit despite the fact that multiple messages concerning the exhibit were issued through numerous mass media and interpersonal communication channels. The answer seems to be that these multiple messages tended to impact the same select audience time and time again, and continued to miss others.
Measurement of comprehension  To measure the degree to which attenders "correctly" interpreted the content of the civil defense exhibit, each respondent was asked to recall, in general terms, the message conveyed by four exhibit booths (of the total of 23 booths). The only cues the respondent was given about the booths were a diagram of the floor plan of the Armory showing the location of each booth, its title and the name of the sponsoring organization.

Judgments on the "correctness" of the receiver response to these questions were made by the researcher. A response was scored as essentially correct or incorrect when compared to a copy of the speech given by persons "manning" the booths and photographs of the visual displays (see the Appendix). For each booth the respondent correctly recalled he was given 1 point. Thus, possible total scores ranged from 0 to 4.

Impact in terms of comprehension  Table 3 gives the distribution of correct responses for each of the exhibit booths. The percentage of persons correctly recalling the message conveyed by a single booth ranged from 80 percent for the booth, "Fallout on Crops and Soils", to 0 percent for the booths, "Requirements of Home Shelters" and "Organization of Midwest County Civil Defense". Overall, exactly 50 percent of the responses were judged to be essentially correct.

---

Each of the four booths which a given respondent was asked to recall had been selected by the researchers in a completely random manner prior to the interview session. This random selection technique resulted in very few of the respondents being asked to respond to the same combination of booths. It also resulted in an unequal number of persons being asked to recall each of the booths.
Table 3. Recall of message content of specific booths

<table>
<thead>
<tr>
<th>Booth</th>
<th>Number Questioned</th>
<th>Number Answered Correctly</th>
<th>Answered Correctly Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fallout on crops and soils</td>
<td>15</td>
<td>12</td>
<td>80.0</td>
</tr>
<tr>
<td>Food for the shelter</td>
<td>17</td>
<td>13</td>
<td>76.5</td>
</tr>
<tr>
<td>Tour: Area Civil Defense Depot</td>
<td>17</td>
<td>11</td>
<td>64.7</td>
</tr>
<tr>
<td>Protection of farm animals</td>
<td>16</td>
<td>10</td>
<td>62.6</td>
</tr>
<tr>
<td>Emergency equipment (National Guard)</td>
<td>21</td>
<td>13</td>
<td>61.9</td>
</tr>
<tr>
<td>Water supplies</td>
<td>13</td>
<td>8</td>
<td>61.6</td>
</tr>
<tr>
<td>First aid</td>
<td>18</td>
<td>11</td>
<td>61.1</td>
</tr>
<tr>
<td>Fallout on garden fruits and vegetables</td>
<td>12</td>
<td>7</td>
<td>58.3</td>
</tr>
<tr>
<td>Heat, light and ventilation in shelter</td>
<td>19</td>
<td>11</td>
<td>57.9</td>
</tr>
<tr>
<td>Home nursing techniques</td>
<td>14</td>
<td>8</td>
<td>57.1</td>
</tr>
<tr>
<td>Film: Fallout and Agriculture</td>
<td>15</td>
<td>8</td>
<td>53.4</td>
</tr>
<tr>
<td>Emergency communication systems</td>
<td>10</td>
<td>5</td>
<td>50.0</td>
</tr>
<tr>
<td>Recreation in the shelter</td>
<td>18</td>
<td>8</td>
<td>44.4</td>
</tr>
<tr>
<td>Radiological monitoring</td>
<td>18</td>
<td>8</td>
<td>44.4</td>
</tr>
<tr>
<td>What happens in a nuclear explosion</td>
<td>16</td>
<td>6</td>
<td>37.6</td>
</tr>
<tr>
<td>Shelter sanitation</td>
<td>8</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>Decay of fallout</td>
<td>15</td>
<td>4</td>
<td>26.7</td>
</tr>
<tr>
<td>Radiation shielding values</td>
<td>17</td>
<td>4</td>
<td>23.6</td>
</tr>
<tr>
<td>Requirements of home shelters&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Organization of Midwest County civil defense</td>
<td>12</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

<sup>a</sup>Cues probably miscommunicated—especially the title of the booth. Several booths dealt with "requirements of home shelters".
Table 4 gives the distribution of total scores on variable \( Y^3 \). In the analysis which follows, the base random sample of attenders was combined with the second sample of attenders giving a total of 75 persons analyzed.

Table 4. Comprehension of exhibit content: number of booths recalled correctly (variable \( Y^3 \)), base random sample and second sample of attenders

<table>
<thead>
<tr>
<th>Number of booths correctly recalled (score)</th>
<th>Random Sample Attenders</th>
<th>Second Sample of Attenders</th>
<th>Total Attenders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of 32</td>
<td>No. of 43</td>
<td>No. of 75</td>
</tr>
<tr>
<td>None</td>
<td>4 12.5</td>
<td>3 7.0</td>
<td>7 9.3</td>
</tr>
<tr>
<td>One</td>
<td>9 28.1</td>
<td>10 23.3</td>
<td>19 25.3</td>
</tr>
<tr>
<td>Two</td>
<td>8 25.0</td>
<td>14 32.6</td>
<td>22 29.3</td>
</tr>
<tr>
<td>Three</td>
<td>10 31.3</td>
<td>11 25.6</td>
<td>21 28.0</td>
</tr>
<tr>
<td>Four</td>
<td>1 3.1</td>
<td>5 11.6</td>
<td>6 8.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>32 100.0</td>
<td>43 100.1</td>
<td>75 99.9</td>
</tr>
</tbody>
</table>

Dependent variables \( Y_4 \) and \( Y_5 \): acceptance

From a sender's viewpoint, the receiver's attention and comprehension responses may be seen as means to achieving the more ultimate goal of having his message accepted. In the theory chapter three kinds of acceptance responses were outlined: cognitive acceptance, affective acceptance
and overt action. Affective acceptance is not operationalized in this thesis. The operationalization of the other two acceptance responses is given in the next few pages.

**Dependent variable Y**: cognitive acceptance

One measure of the degree to which an individual accepts a communication message may be found in the validity he assigns to the concepts being communicated; that is, the degree to which the receiver cognitively accepts the meanings intended by the sender as being valid, factual, correct or true. There are likely to be differences in the degree to which exhibit attenders cognitively accepted the ideational content of the messages being sent.

**Measurement of cognitive acceptance**

One measure was developed as an indice of cognitive acceptance—the degree to which the respondent perceived that civil defense measures offer a possibility of protection in the event of nuclear attack. This measure is believed to capture the essence of the messages presented in the Midwest County Civil Defense Exhibit. The central theme of this exhibit was "nuclear war will present a threat to Midwest County (most likely in the form of radioactive fallout from distant explosions), but there are many things we can do to prevent its effects from being devastating". Each booth in the exhibit was a variation of this general theme and there was a continuity and build up of the theme from the first booth to the final (see the Appendix).

---

1As noted in the theory chapter, the measurement of cognitive acceptance could be based upon the degree to which a receiver accepts as valid the meanings he comprehends. While this approach has validity for some analyses (notably the analysis of the operation of the principle of consistency), it only complicates the measurement of communication effectiveness since effectiveness is judged from the sender's viewpoint.
A 5-point Thurstone-type scale was used to measure the attender's position on perceived possibility of protection \( (Y_4) \). From the items on the scale, the respondent was asked to choose the one which best described the way he felt about the possibility of protection at the time of the interview (after the exhibit). The distribution of responses on this attitudinal dimension is given in Table 5. In the analysis which follows, the base random sample of attenders was combined with the second sample of attenders giving a total of 75 persons analyzed.

**Impact of the exhibit on perceived possibility of protection**

In an attempt to measure the impact which attending the exhibit had upon the possibility of protection perceived, respondents were also asked which of the items on the scale best described their perception before they attended the exhibit \( (X_2) \). Two-thirds indicated that they had not changed. Of those who did change, all changed in a positive direction (pro-civil defense). Most moved only one position on the scale. About half of those changing changed from a position that "protection may be possible (but had a few reservations)" to a position that "protection is definitely possible". The distribution of positions before and after the exhibit, as well as changes made, are shown in Figure 9.

**Dependent variable \( Y_5 \): overt action**

While nearly all communication senders desire for their receivers to accept their intended meanings and to form favorable attitudes toward the concepts being communicated, most want the receivers to move one step further and to take some form of overt action. Usually, the action desired is specific in the message.

According to the organizers of the Midwest County Civil Defense Exhibit, the purpose of the exhibit was not to "sell" civil defense.
**Figure 9.** Percentage of respondents changing their perception of possibility of protection from nuclear attack as a result of attending the civil defense exhibit, combined base random sample and second sample of attenders (figures in boxes indicate no change)
Table 5. Attitudinal acceptance: perceived possibility of protection from effects of nuclear attack after attending exhibit (variable Y₄), base random sample and second sample of attenders

<table>
<thead>
<tr>
<th>Score</th>
<th>Possibility of Protection</th>
<th>Random Sample Attenders</th>
<th>Second Sample of Attenders</th>
<th>Total Attenders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of 32</td>
<td>No. of 43</td>
<td>No. of 75</td>
</tr>
<tr>
<td>0</td>
<td>It is not possible for the people of this community to protect themselves from the effects of nuclear attack</td>
<td>5 15.6</td>
<td>2 4.7</td>
<td>7 9.3</td>
</tr>
<tr>
<td>2</td>
<td>It may be possible for the people of this community to protect themselves from the effects of nuclear attack for a while, but things will be so bad when they come out of their shelters that life won't be worth living</td>
<td>5 15.6</td>
<td>3 7.0</td>
<td>8 10.7</td>
</tr>
<tr>
<td>3</td>
<td>I have not given any thought to civil defense</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>4</td>
<td>It may be possible for the people of this community to protect themselves from the effects of nuclear attack</td>
<td>6 18.8</td>
<td>18 41.9</td>
<td>24 32.0</td>
</tr>
<tr>
<td>6</td>
<td>It is possible for people of this community to protect themselves from the effects of nuclear attack</td>
<td>16 50.0</td>
<td>20 46.5</td>
<td>36 48.0</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>32 100.0</td>
<td>43 100.1</td>
<td>75 100.0</td>
</tr>
</tbody>
</table>
Rather, the aim was to present in an educational framework as much information about civil defense to as many Midwest County families as possible, in order that these families might have a basis for making rational decisions about civil defense actions. In one respect this is an accurate assessment of the message content the exhibit actually communicated; however it is not complete. All messages were oriented toward a pro-civil defense position. Numerous civil defense actions which families could take were demonstrated. In short, an analysis of the exhibit's content indicates that the senders desired for the attenders to take pro-civil defense actions.

**Measurement of overt action**

One action which an individual could take in civil defense is to adopt (or reject) protective measures for himself and his family. The individual has a wide range of alternatives. He may consider and reject civil defense actions—perhaps even becoming active in counter-civil defense activities. He may be unaware of what specific actions may be taken; he may be in the early stages of the civil defense adoption process—awareness, information gathering or evaluation—but not have adopted any specific measures. On the other hand, the individual may have actually adopted some form of protective action to be used in case of nuclear attack. This action could range from formulating a mental plan of what to do in case of nuclear attack through the process of making actual preparations, e.g., locating and designating a fallout-

---

1 The notion of decision-making stages in the adoption process was discussed briefly in the theory chapter. A more complete discussion of the notion of adoption stages and related concepts as they apply to civil defense and fallout shelter innovations can be found in Klonglan et al. (49).
safe location for use as a shelter, building a shelter and stockpiling emergency supplies.

An 8-point adoption index was developed to measure the degree to which a respondent accepted exhibit messages by continuing civil defense actions previously taken or by taking new actions. It is a measure of the level of adoption the respondent had attained at the time of the interview. To determine a respondent's position on this index, each was asked 1) to indicate which in a series of statements described the civil defense plans and actions he and his family were taking at the time of the interview (after the exhibit) and 2) if the family was taking any civil defense actions, to describe these actions in detail.

Scores on the adoption index ranged from 0 to 7. A score of 0 was given if the respondent indicated that he had rejected civil defense actions by agreeing with the statement "I have thought about the need for protection, but am definitely against taking any action or making any plans".

A score of 1 was given if the respondent indicated he was unaware or aware but uninterested in adopting civil defense measures by agreeing with the statement "I have never seriously considered the need for protection".

A score of 2 was given if the respondent indicated that he was in the interest or evaluation stage of the adoption process by agreeing with the statement "I have seriously considered the need for protection but have made no definite plans".

Scores 3 thru 7 were given if the respondent had adopted some form of civil defense action. The more adequate the family's preparations were adjudged to be, the higher the score assigned to the respondent.
A respondent adopting any form of civil defense preparations received a number of points for the preparations he and his family had made in two areas: 1) shelter preparations and 2) stockpiling emergency supplies. The breakdown of points the respondent could receive for his family's action in shelter preparations is as follows:

- 0 points = no shelter provision
- 1 point = designated some specific area or place to be used for fallout protection if war should occur (basement, storm cellar, certain building location)
- 2 points = built a family fallout shelter

The breakdown of points the respondent could receive for his family's action in stockpiling emergency supplies is as follows:

- 0 points = no stocking
- 1 point = minimum stocking (had stocked food or miscellaneous supplies [such as radio, extra dry cells, etc.])
- 2 points = partially adequate stocking (had stocked food and water)
- 3 points = fairly adequate to adequate stocking (had stocked food, water and at least one of the following: sanitation, first aid and miscellaneous supplies)

Obviously, there are several combinations of points a respondent could receive for his family's preparations in these areas. The lowest score assigned for any form of adoption was 3 points which was given if the family had made a mental plan of what to do in case of nuclear attack, but had made no other preparations. The maximum adoption score (score 7) was given if the family had made a mental plan of what to do, had built a family fallout shelter and had stockpiled adequate emergency supplies.

Table 6 gives the number and percentage of individuals by level of adoption they had achieved at the time of the interview.

**Impact of the exhibit on changing adoption behavior**

An attempt was made to establish each respondent's level of adoption before occurrence of the exhibit as well as at the time of the interview (after
Table 6. Overt action: family adoption of civil defense measures at time of interview (variable $Y_q$), base random sample and second sample of attenders

<table>
<thead>
<tr>
<th>Score</th>
<th>Adoption level</th>
<th>Random Sample Attenders</th>
<th>Second Sample of Attenders</th>
<th>Total Attenders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of 32</td>
<td>Percent of 32</td>
<td>No. of 43</td>
</tr>
<tr>
<td>0</td>
<td>Rejection</td>
<td>3</td>
<td>9.4</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>Unaware or Aware, but uninterested</td>
<td>6</td>
<td>18.8</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Information gathering</td>
<td>5</td>
<td>15.6</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Adoption, adequacy level 1</td>
<td>9</td>
<td>28.1</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Adoption, adequacy level 2</td>
<td>4</td>
<td>12.5</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>Adoption, adequacy level 3</td>
<td>2</td>
<td>6.3</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>Adoption, adequacy level 4</td>
<td>3</td>
<td>9.4</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Adoption, adequacy level 5</td>
<td>--</td>
<td>--</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>32</td>
<td>100.1</td>
<td>43</td>
</tr>
</tbody>
</table>

the exhibit). However, mistakes in interviewer instructions and the difficulty respondents experienced in recalling exactly when they had first taken specific civil defense actions, largely invalidated the time of adoption dimension. Of the data available, indications are that the exhibit had a positive impact upon civil defense actions, but those attending the exhibit had taken a greater number of actions before attending than had the general population. There were no instances where individuals had discontinued civil defense actions as a result of attending the exhibit.
Of those rejecting civil actions, all had rejected them before attending the exhibit and did not change their action pattern as a result of attending.

A comparison of attenders and non-attenders on adoption over time of one specific civil defense action—designating some specific area or place to be used for fallout protection—is presented graphically in Figure 10. Fairly complete data are available for time classification of this aspect of adoption. Attenders were classified as to their adoption of this civil defense practice 1) before the Berlin Crisis began (August 1961); 2) before the occurrence of the civil defense exhibit (November 1961); 3) before the Cuban Crisis (October 1962); and 4) at the time of the interview (January 1963).

The diagram indicates that 1) more attenders had taken this civil defense action before the exhibit than had non-attenders; 2) their rate of adoption was greater between the time of the exhibit and the Cuban Crisis than was that of non-attenders; and 3) the increased adoption of non-attenders following the Cuban Crisis was somewhat similar to that made by the attenders between the inception of the Berlin Crisis and the exhibit.

Empirical Hypotheses

In the preceding section it was concluded that the exhibit generally had a positive impact upon the potential audience. It should also be stressed that individuals in the potential audience made different responses to the exhibit. Not all were impacted in the same manner or to the same degree. We are concerned with accounting for the why of these differences.
Figure 10. Cumulative percentage of exhibit attenders and non-attenders who designated some specific area or place to be used for fallout protection if nuclear war were to occur at four time periods.
In the theory chapter a series of general and subordinate hypotheses were developed from the general proposition that the differential responses which an individual makes to a message are partly a result of the predispositions he holds. The specific, empirical hypotheses related to each of these general and subordinate-hypotheses are outlined in Figure 11. The cells of this table are short-hand expressions of the relationships which are expected to exist between the independent (predispositional) and dependent (response) variables for which empirical measures have been developed. Listed for each empirical dependent-independent variable relationship is the direction and type of expected relationship and the specific statistical technique which will be employed to test the expected relationship. Because Figure 11 is somewhat complicated, additional explanation is in order.

**Zero-order correlation**

More than half the hypotheses (67 of 116) are similar to the cell between "perceived need for civil defense programs" (X₃) and "attention index" (Y₁) which is expressed as follows:

<table>
<thead>
<tr>
<th>3</th>
<th>Positive</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear</td>
<td>r</td>
<td></td>
</tr>
</tbody>
</table>

This statement indicates that this is empirical hypothesis 3 and that a positive and linear correlation is expected between scores on X₃ and Y₁; that is, the greater one's perceived need for civil defense programs, the greater the degree of attention one will give to the exhibit. To measure the degree of actual linear relationship, a Pearsonian zero-order correlation

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1The number of the subordinate hypotheses under which each empirical hypothesis is subsumed is listed to allow cross-reference with the theory chapter.
Figure 11. Empirical hypotheses
INDEPENDENT VARIABLES -- PREDISPOSITIONS

<table>
<thead>
<tr>
<th>Attitudes About Content</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(X_1) Perceived threat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(X_2) Perceived possibility of protection (before)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(X_{2a}) Perceived possibility of protection (after)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(X_3) Perceived need for civil defense programs</td>
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</tr>
<tr>
<td>Relevance of Content to Receiver's Role</td>
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<tr>
<td>(X_4) Family role: sex</td>
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<tr>
<td>(X_5) Family role: stage of life cycle, age</td>
<td></td>
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<tr>
<td>(X_6) Family role: stage of life cycle, children under 15 years</td>
<td></td>
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<tr>
<td>Decoding Skills</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(X_7) Knowledge of technical aspects of civil defense</td>
<td></td>
<td></td>
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<tr>
<td>(X_8) Use of technologically competent sources of civil defense</td>
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<td>(X_9) Years formal education</td>
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<tr>
<th></th>
<th>(Y_1)</th>
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<th>(Y_2) Orthogonal Comparisons --- Attention</th>
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<tr>
<td></td>
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<td>E.H. Direction Relation Test</td>
</tr>
<tr>
<td>(N=163)</td>
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<td>(E.H. Direction Relation Test)</td>
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<table>
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<th>COMPARISON 1</th>
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<tr>
<td>Unaware (G-1) vs. Aware (G-2)</td>
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<td>Aware, Not Attend (G-1) vs. Attend (G-2)</td>
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<td>Aware, No vs. Secondo</td>
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<tr>
<td>14</td>
<td>Lo-Hi-Lo</td>
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<td>27</td>
<td>Lo-Hi-Lo</td>
<td>Quadratic R</td>
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<thead>
<tr>
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<th>(X_{2a})</th>
<th>(X_3)</th>
<th>(X_4)</th>
<th>(X_5)</th>
<th>(X_6)</th>
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<td>Perceived threat</td>
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<td>Perceived need for civil defense programs</td>
<td>Family role: sex</td>
<td>Family role: stage of life cycle, age</td>
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<th>(X_7)</th>
<th>(X_8)</th>
<th>(X_9)</th>
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</thead>
<tbody>
<tr>
<td>Knowledge of technical aspects of civil defense</td>
<td>Use of technologically competent sources of civil defense</td>
<td>Years formal education</td>
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<table>
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### DEPENDENT VARIABLES—RESPONSES

#### Differential Attention

<table>
<thead>
<tr>
<th>Group 1: Aware, Not Attend (G-1)</th>
<th>Group 2: Aware, No Contact (G-2)</th>
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<tr>
<td>E.H. Direction Test</td>
<td>E.H. Direction Test</td>
<td>E.H. Direction Test</td>
</tr>
<tr>
<td>Quadratic R</td>
<td>Quadratic R</td>
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<tr>
<td>Linear r</td>
<td>Linear r</td>
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#### Comprehension

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<tbody>
<tr>
<td>E.H. Direction Test</td>
<td>E.H. Direction Test</td>
<td>E.H. Direction Test</td>
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<tr>
<td>Quadratic R</td>
<td>Quadratic R</td>
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#### Cognitive Acceptance

<table>
<thead>
<tr>
<th>Group 1: Aware, Not Attend (G-1)</th>
<th>Group 2: Aware, No Contact (G-2)</th>
<th>Group 3: Attenders (N=75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E.H. Direction Test</td>
<td>E.H. Direction Test</td>
<td>E.H. Direction Test</td>
</tr>
<tr>
<td>Quadratic R</td>
<td>Quadratic R</td>
<td>Quadratic R</td>
</tr>
<tr>
<td>Linear r</td>
<td>Linear r</td>
<td>Linear r</td>
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<tr>
<td>Positive</td>
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#### Overt Action

<table>
<thead>
<tr>
<th>Group 1: Aware, Not Attend (G-1)</th>
<th>Group 2: Aware, No Contact (G-2)</th>
<th>Group 3: Attenders (N=75)</th>
</tr>
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<tbody>
<tr>
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<td>E.H. Direction Test</td>
<td>E.H. Direction Test</td>
</tr>
<tr>
<td>Quadratic R</td>
<td>Quadratic R</td>
<td>Quadratic R</td>
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<tr>
<td>Linear r</td>
<td>Linear r</td>
<td>Linear r</td>
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<tr>
<td>Positive</td>
<td>Positive</td>
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</tbody>
</table>
### INDEPENDENT VARIABLES—PREDISPOSITIONS

#### Similarity of Sender and Receiver Status—Roles

<table>
<thead>
<tr>
<th>X10</th>
<th>Socio-economic status: family income</th>
<th>10</th>
<th>Positive Linear r</th>
<th>23</th>
<th>$R_1 &lt; R_2$</th>
<th>36</th>
<th>$R_1 &lt; R_2$</th>
<th>Orthogonal F</th>
<th>Orthogonal F</th>
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</thead>
<tbody>
<tr>
<td>X11</td>
<td>Socio-economic status: North-Hatt occupational status</td>
<td>11</td>
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<td>24</td>
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<td>37</td>
<td>$R_1 &lt; R_2$</td>
<td>Orthogonal F</td>
<td>Orthogonal F</td>
</tr>
<tr>
<td>X12</td>
<td>Socio-economic status: home ownership</td>
<td>12</td>
<td>Pos., Owners Linear r</td>
<td>25</td>
<td>$p_1$ Owners &lt; $p_2$ Owners $\chi^2$</td>
<td>38</td>
<td>$p_1$ Owners &lt; $p_2$ Owners $\chi^2$</td>
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#### Concurrent Actions

<table>
<thead>
<tr>
<th>X13</th>
<th>Self and/or family member help put on exhibit</th>
<th>13</th>
<th>Positive Linear r</th>
<th>26</th>
<th>$R_1 &lt; R_2$</th>
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<th>$R_1 &lt; R_2$</th>
<th>Orthogonal F</th>
<th>Orthogonal F</th>
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<tbody>
<tr>
<td>X14</td>
<td>($Y_2$) Differential exposure</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>X15</td>
<td>($Y_3$) Comprehension</td>
<td>--</td>
<td>--</td>
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<td>--</td>
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</tr>
<tr>
<td>X16</td>
<td>($Y_4$) Cognative acceptance</td>
<td>--</td>
<td>--</td>
<td>--</td>
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<td>--</td>
<td>--</td>
<td>--</td>
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</tr>
<tr>
<td>X17</td>
<td>($Y_5$) Overt action</td>
<td>--</td>
<td>--</td>
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<td>--</td>
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</tr>
</tbody>
</table>

#### Multiple Correlation Analysis

<p>| S.H. 16 | $Y_1 = \alpha + b_1X_1 + b_2X_2 + \ldots + b_{13}X_{13}$ | 112 | Pos., Linear | -- | -- | -- | -- | -- | -- |</p>
<table>
<thead>
<tr>
<th>DEPENDENT VARIABLES—RESPONSES</th>
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</thead>
<tbody>
<tr>
<td><strong>Comparisons—Attention</strong></td>
</tr>
<tr>
<td><strong>ARISON 2</strong></td>
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<tr>
<td>Aware, No Contact (G-1) vs. Secondary Contact (G-2)</td>
</tr>
<tr>
<td><strong>COMPARISON 3</strong></td>
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<tr>
<td>Aware, No Contact (G-1) vs. Secondary Contact (G-2)</td>
</tr>
<tr>
<td><strong>Direction</strong></td>
</tr>
<tr>
<td>E.H. Direction Test</td>
</tr>
<tr>
<td>E.H. Direction Relation Test</td>
</tr>
<tr>
<td>E.H. Direction Comprehension</td>
</tr>
<tr>
<td>E.H. Direction Cognitive Acceptance</td>
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<tr>
<td>E.H. Direction Overt Action</td>
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</tbody>
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<table>
<thead>
<tr>
<th><strong>Y2</strong></th>
<th><strong>Y3</strong></th>
<th><strong>Y4</strong></th>
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<th><strong>S.H. 9</strong></th>
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<tr>
<td>R1 &lt; R2</td>
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<tr>
<td>Linear</td>
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<tr>
<td>Positive</td>
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<tr>
<td>S.H. 14</td>
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<tr>
<td>R1 &lt; R2</td>
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<tr>
<td>Orthogonal F</td>
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<tr>
<td>Linear</td>
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<td>S.H. 15</td>
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<td>R1 &lt; R2</td>
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<tr>
<td>Orthogonal F</td>
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<td>Linear</td>
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<tr>
<td>Positive</td>
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<table>
<thead>
<tr>
<th><strong>S.H. 16</strong></th>
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</thead>
<tbody>
<tr>
<td>Y2 = α + b1X1 + b2X2 + ... + b13X13</td>
</tr>
<tr>
<td>Y3 = α + b1X1 + b2X2 + ... + b14X14</td>
</tr>
<tr>
<td>Y4 = α + (b1X1 + b2X1) + ... + b15X15</td>
</tr>
<tr>
<td>Y5 = α + (b1X1 + b2X1) + ... + b16X16</td>
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<table>
<thead>
<tr>
<th><strong>S.H. 17</strong></th>
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</thead>
<tbody>
<tr>
<td>Y2 = α + b1X1 + b2X2 + ... + b13X13</td>
</tr>
<tr>
<td>Y3 = α + b1X1 + b2X2 + ... + b14X14</td>
</tr>
<tr>
<td>Y4 = α + (b1X1 + b2X1) + ... + b15X15</td>
</tr>
<tr>
<td>Y5 = α + (b1X1 + b2X1) + ... + b16X16</td>
</tr>
</tbody>
</table>
Coefficient \( r \) will be calculated and the level of significance (the probability that the relationship found to exist in the sample occurred due to sampling error alone) will be tested.

A slightly different form of the same general type hypothesis is found in E.H. 5 where a negative relationship is expected. In this case, the hypothesis is that the older the individual, the less the degree of attention he will give to the exhibit. Another variation is found in E.H. 4 where the expected direction of relationship is expressed as "Positive, Females". In this case a dichotomous independent variable is being tested\(^2\) and it is hypothesized that females will give a greater degree of attention to the exhibit than will males.

**Curvilinear relationships** A different type of relationship is expected between perceived threat \( X_1 \) and receiver responses. Consequently a different statistical technique is used in the analysis. In this case, a curvilinear low-high-low relationship is expected. The most favorable responses to the exhibit are expected to be made by persons who perceive a medium level of threat. Persons holding extreme positions on perceived threat are expected to make unfavorable responses to the exhibit.

\(^1\)A discussion of the assumptions, limitations, calculation procedures and meaning of zero-order correlation coefficients is given in Blalock (10).

\(^2\)It is recognized that using dichotomous variables violates one assumption of the Pearsonian zero-order correlation statistic. However, experience has shown that for practical purposes this is not a serious violation, and that the degree of relationship found to exist using Pearsonian correlation techniques will not differ greatly from those found using a more appropriate technique such as bi-serial correlation. Dichotomous measures are used for sex \( X_4 \), have children under 15 years of age \( X_6 \) and home ownership \( X_{12} \).
The lo-hi-lo curvilinear relationship is also known as a quadratic relationship, has the shape of a parabola and can be expressed as a second order polynomial with the equation
\[ Y = \alpha + b_1X + b_2X^2. \]

If the final term is treated as a second independent variable, it is possible to use multiple regression techniques to measure the goodness of fit of observed data to a parabola. The multiple regression techniques for curvilinear analysis used in this thesis are described in Blalock (10). With the regression techniques used it is possible 1) to determine the degree of linear relationship between \( X \) and \( Y \), 2) to determine the degree of quadratic relationship between \( X \) and \( Y \), and 3) to determine if the quadratic term adds significant additional explanation of variation over that explained by the linear term.

Orthogonal comparisons The statistical method of analysis used to test the relationships between predispositions and variable \( Y_{1a} \) is orthogonal comparison. As described by Snedecor (74), orthogonal comparison is a method of partitioning the total variance between means of subclasses within a sample so that independent analysis can be made of the treatment effects. It is an analysis of variance technique and normally the F-test statistic is used to determine the probability that the differences in means between groups which have been observed occur by chance. In this thesis the F-test is used to test the differences on nine of the independent variables. Three independent variables, however, are dichotomous scales and thus cannot be analyzed with the F-test. In these cases the chi-square test will be used to determine the differences in proportions among the orthogonally classified treatment groups.
In the present analysis, the orthogonal comparison technique is used to test the hypothesis that persons who have favorable predispositions are more likely to pass through (make favorable responses to) each of the attention stages. Thus, E.H. 16 (for example) indicates that those who are aware of the exhibit will have a higher mean perceived need for civil defense programs score than will those who are unaware.

**Multiple regression**  Empirical hypotheses 112 through 116 state that a weighted combination of all independent variables can be used to predict individual's scores on each response variable. Multiple correlation coefficients will be calculated and the significance of the explained variation will be analyzed and tested using the F-test statistic.

The primary purpose of this analysis is to obtain the maximum prediction possible of the dependent variable using the independent variables operationalized in this study. It is recognized that many other criteria for arriving at a multiple regression equation could be posited; however these are beyond the scope of this thesis.
FINDINGS

Introduction

Figure 12 summarizes the findings of relationships found between empirical measures of predispositions and communication response. In general, the data supported the proposition that an individual's values, habits, mental abilities and social situation predispose the responses he will make to a communication event. The stronger an individual's predispositions toward civil defense and other specifiable characteristics of the Midwest County Civil Defense Exhibit, the more likely was he to attend to, comprehend and accept—cognitively and in terms of overt action—the content of the exhibit.

While this conclusion has validity, it is perhaps an over-generalization. As can be seen in the summary of support for subordinate hypotheses (Figure 13), some predispositional concepts were related strongly at one response stage but had no significant relationship at other stages. Differences were also observed in the ability to predict, from the basis of predispositions, the responses which individuals would make to the several decoding stages. These findings need elaboration. The purpose of the remainder of this chapter is to provide it. The support (or non-support) for general, subordinate and empirical hypotheses will be discussed.

A note on statistical significance

In Figure 12, the statistical significance of computed t, F, chi-square and correlation values are expressed as the chance that the difference or relationship found to exist in the sample occurred due to sampling
Figure 12. Findings for empirical hypotheses
### INDEPENDENT VARIABLES—PREDISPOSITIONS

<table>
<thead>
<tr>
<th>Y₁</th>
<th>Y₁a: Orthogonal Comparisons—Attention Index</th>
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<tbody>
<tr>
<td><img src="image-url" alt="Image" /></td>
<td><img src="image-url" alt="Image" /></td>
</tr>
</tbody>
</table>

#### Attitudes About Content

- **X₁**: Perceived threat
  - Linear: r = 0.06, n.s.
  - Quadratic: r = 0.10, n.s.
  - Quadratic: r = 0.12, n.s.

- **X₂**: Perceived possibility of protection (before)
  - Linear: r = 0.07, n.s.
  - Quadratic: r = 0.12, n.s.

- **X₃**: Perceived possibility of protection (after)
  - Linear: r = 0.10, n.s.
  - Quadratic: r = 0.12, n.s.

#### Relevance of Content to Receiver's Role

- **X₄**: Family role: sex
  - Linear: r = 0.03, n.s.

- **X₅**: Family role: stage of life cycle, age
  - Linear: r = 0.02, n.s.

- **X₆**: Family role: stage of life cycle, children under 15 years
  - Linear: r = 0.04, n.s.

#### Decoding Skills

- **X₇**: Knowledge of technical aspects of civil defense
  - Linear: r = 0.11, n.s.

---

*a dash (—) indicates that the independent variable does not apply to the dependent variable being tested.

*bN means that a negative relationship between the dependent and independent variables was found. Negative variable X₁ and for the correlation value on variable X₃.

cDifference or relationship is significant, but is opposite hypothesized direction, thus the data do not s
<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Responses</th>
<th>Comparisons</th>
<th>Attention</th>
<th>Awareness</th>
<th>No Contact (G-1)</th>
<th>Second Contact (G-2)</th>
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<tr>
<td>Attention</td>
<td>(Attenders: N=75)</td>
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<td>Test Value</td>
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<td>Cognitive Acceptance</td>
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Data do not support the hypothesis.
Figure 12 (Continued)
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<th>( Y_1^0 )</th>
<th>( Y_1^0 )</th>
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</thead>
<tbody>
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<td>( Test )</td>
<td>( Value )</td>
<td>( Signi. )</td>
<td>( E.H. )</td>
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<tr>
<td>( X_8 ) Use of technologically competent sources of information</td>
<td>3</td>
<td>r .36</td>
<td>.01</td>
<td>21</td>
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<td>( X_9 ) Years of formal education</td>
<td>3</td>
<td>r .23</td>
<td>.01</td>
<td>22</td>
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<td><strong>Similarity of Sender and Receiver Status—Roles</strong></td>
<td>( S.H. ) 4</td>
<td>( X_{10} ) Socio-economic status: family income</td>
<td>10</td>
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<td>.01</td>
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<td>( X_{11} ) Socio-economic status: North-Hatt occupational status</td>
<td>11</td>
<td>r .26</td>
<td>.01</td>
<td>24</td>
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<td>( X_{12} ) Socio-economic status: home ownership</td>
<td>12</td>
<td>r .23</td>
<td>.01</td>
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<td><strong>Concurrent Actions</strong></td>
<td>( S.H. ) 5</td>
<td>( X_{13} ) Self and/or family member help put on exhibit</td>
<td>13</td>
<td>r .47</td>
<td>.01</td>
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<tr>
<td>( X_{14} ) (( Y_2 )) Differential exposure</td>
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<tr>
<td>( X_{15} ) (( Y_3 )) Comprehension</td>
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<tr>
<td>( X_{16} ) (( Y_4 )) Cognate acceptance</td>
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<tr>
<td>( X_{17} ) (( Y_5 )) Acceptance: adoption</td>
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**Multiple Correlation Analysis**

\( S.H. \) 16

| \( R \) | .60 |
| \( R^2 \) | .36 |
| F | 6.43 | .01 |
## DEPENDENT VARIABLES—RESPONSES

### Comparisons—Attention

<table>
<thead>
<tr>
<th>RISON 2</th>
<th>COMPARISON 3</th>
<th>Differential Attention</th>
<th>Comprehension</th>
<th>Cognitive Acceptance</th>
<th>Overt Action</th>
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### Attention (Attendrs: N=75)

- \( E.H. \)
- \( r \) = 0.86, n.s.

### Comprehension (Attendrs: N=75)

- \( E.H. \)
- \( r \) = 0.00, n.s.

### Cognitive Acceptance (Attendrs: N=75)

- \( E.H. \)
- \( r \) = 0.00, n.s.

### Overt Action (Attendrs: N=75)

- \( E.H. \)
- \( r \) = 0.00, n.s.

---

### Additional Information

- \( S.H. \) 9
- \( S.H. \) 10
- \( S.H. \) 14
- \( S.H. \) 15
- \( S.H. \) 16
- \( S.H. \) 17
- \( S.H. \) 18

- \( F \) = 1.28, n.s.
- \( F \) = 3.03, .01
- \( F \) = 14.38, n.s.
- \( F \) = 6.46, .01
error alone; that is, the chance that the difference or relationship found to exist in the sample does not exist in the total population sampled.

Anytime one uses random sampling techniques to draw conclusions about a population, there is a chance that the sample will not be representative of the total population. From the differences detected among the individuals in the sample, knowledge of the number of observations made and knowledge of the laws of probability, the chances that the sample is not representative of the total population can be determined. Since there is always a chance that the sample will not be representative, one must set an arbitrary standard as to which probability level will be accepted as significant. The level selected depends on the risk one is willing to assume for drawing an erroneous conclusion.

The criterion used in this thesis for concluding that a relationship found to exist is statistically significant (i.e., supports the hypothesis) is that the chance of the difference or relationship occurring by sampling error alone is less than 1 to 10 (using directional tests). Three probability levels are cited. These levels and their interpretation are as follows:

.01 The difference in means (proportion) or the relationship could occur by sampling error only 1 percent of the time or less. Accepted as significant.

.05 The difference in means (proportion) or the relationship could occur by sampling error no more than 5 percent of the time, but would be expected more often than 1 percent of the time. Accepted as significant.

.10 The difference in means (proportion) or the relationship could occur by sampling error no more than 10 percent of the time, but would be expected more often than 5 percent of the time. Accepted as significant.
In the discussion of the findings a relationship will be said to exist only if the hypothesis was supported—i.e., the probability of chance occurrence is no greater than .10 and was in the direction predicted. In a few instances, test values were calculated which were opposite the direction hypothesized and had a probability of chance occurrence of less than .10. These exceptions will be noted, but since the data do not support the hypothesis, a relationship will not be said to exist.

Distributions and other parameters

The cross-distributions of dependent and independent variables are not included in this thesis. However these distributions have been inspected by the author. The few cases where this inspection revealed a relationship not apparent in the calculated test statistic—e.g., a curvilinear rather than a linear relationship was found—will be discussed.

Several other parameters of the sample are included in Figure 12. The mean scores (or proportions) for each orthogonal comparison group is given. Also, the calculated correlation coefficient is a parameter of the degree of association between dependent and independent variables. In the case of linear correlations a perfect correlation of 1.0 would indicate that as one variable increases the other increases proportionally. A coefficient of 0.0 indicates that there is no linear relationship between the two variables.

\[^1\]Cross-distributions for most of the relationships tested in this thesis can be found in Beal et al. (5).
Predispositions and Attention

One way of analyzing the response of a potential audience to a communication event is in terms of the attention they give to it. In the case of the Midwest County Civil Defense Exhibit, it was found that 46 percent of a sample of the potential audience were aware of the exhibit (54 percent were unaware). Nearly 20 percent of the sample attended the exhibit and spent varying lengths of time viewing the exhibit features. An additional 9 percent had secondary contact with the exhibit's content by talking with someone who attended.

These observed differences in attention are thought to be, in part, a function of the receiver's predispositions. Or, as hypothesized in the theory chapter:

G.H. 1: An individual's values, habits, skills and social situation predispose the degree of attention he will give to a communication event.

The data from the Midwest County Civil Defense Exhibit study gave mixed support to general hypothesis 1. Three measures of attention were tested for their relationship with predispositions. From the results of these tests, it is apparent that the effect of predispositions varies from one attention stage to another.

The attention index was used to determine the degree of linear relationship between predispositions and responses to the first three stages of the attention process: awareness, decision to attend and secondary contact. It was found that measures of decoding skills, similarity of sender and receiver status-roles and concurrent actions were related to scores on the attention index. It was found that attitudes about content
and relevance of content to receiver's role were not related to the attention index.

The orthogonal comparison test was used to determine what, if any, differences in predispositions existed between the groups of persons who passed or failed to pass each of the first three attention stages. Those unaware of the exhibit were compared with those aware (Comparison 1). The aware group was then further divided, and those attending the exhibit were compared with those aware but not attending (Comparison 2). The aware, not attend group was then further divided, and those who had secondary contact with the exhibit (talked about the exhibit's content with someone who attended) were compared with those who were aware of the exhibit but had no contact (either primary or secondary) with its content (Comparison 3).

Measures of attitudes about content and relevance of content to receiver's role generally were not related to responses made at any of the attention stages. Decoding skills, similarity of sender and receiver status-roles and concurrent actions were related to responses at the awareness stage. Measures of similarity of sender and receiver status-roles and concurrent actions, but not decoding skills, were found to be related to responses made at the decision to attend stage. None of the predispositions were related to responses made at the secondary contact stage.

A quite different pattern of relationship was found in the case of the differential exposure which attenders had with the exhibit. It was found that attitudes about content and decoding skills were related to differential exposure; however relevance of content to receiver's role, similarity of sender and receiver status-roles and concurrent actions were not related to differential exposure.
The five subordinate hypotheses investigated in regard to attention and the specific empirical findings related to each are discussed in detail in the following paragraphs.

Attention and attitudes about content

S.H. 1: The degree to which an individual attends to a communication event will be a function of the attitudes he holds about the ideational content of the message.

The findings regarding subordinate hypothesis 1 were mixed.

Attention index Of the three empirical measures of attitude toward civil defense—perceived threat, perceived possibility of protection and perceived need for civil defense programs—none were found to be positively related to the 4-point attention index (E.H. 1, 2 and 3). A weak negative relationship was found between perceived need for civil defense programs and responses on the 4-point attention index (E.H. 3); however this is opposite the direction hypothesized and thus does not support the hypothesis.

Orthogonal comparisons Analysis of the orthogonal comparison categories also indicates little support for subordinate hypothesis 1. In general, persons who passed through each of the attention stages did not have more favorable attitudes toward civil defense than did those who failed to pass. As hypothesized, a lo-hi-lo curvilinear relationship was found between perceived threat and response to the awareness stage (E.H. 14). Although this relationship was quite weak, it does indicate there was a tendency for persons with extreme perceptions of threat (either
high or low) to be unaware of the exhibit. It was also found that persons who attended the exhibit perceived less need for civil defense programs than did those who were aware but did not attend (Comparison 2); however this is opposite the hypothesized direction and thus does not support the hypothesis (E.H. 29).

**Differential exposure of attenders** The data did tend to support subordinate hypothesis 1 in the case of differential exposure. Although the hypothesized curvilinear relationship between perceived threat and differential exposure was not found (E.H. 53), the expected linear relationships were found between differential exposure and perceived possibility of protection (E.H. 54) and perceived need for civil defense programs (E.H. 55).

**Attention and relevance of content to receiver's role**

S.H. 2: The degree to which an individual attends to a communication event will be a function of the relevance of the message content to the role expectations of the social statuses he occupies.

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1As noted in the methodology chapter, there are several ways of evaluating the results of the second-order polynomial multiple regression analysis used in the case of perceived threat ($X_1$). From this analysis it is possible to determine if there is a significant linear relationship between $X$ and $Y$ (linear $r$); however a significant linear relationship does not mean that a curvilinear relationship does not exist. The degree of curvilinear relationship is indicated by the correlation coefficient for the quadratic equation; however a significant quadratic correlation coefficient does not mean necessarily that the quadratic equation best fits the data. One method of determining whether a linear or curvilinear formulas best fit the data is to test the significance of the beta weight of the second term of the polynomial equation. A significant beta weight would indicate that the quadratic formula adds more explanation of the variation between $X$ and $Y$ than would be expected by chance alone. If this were the case, it would be concluded that the quadratic formula best fit the data.
None of the 15 empirical hypotheses tested supported subordinate hypothesis 2. Apparently an individual's family role had little, if any, relationship to the attention given to the exhibit (E.H. 4, 5, 6, 17, 18, 19, 30, 31, 32, 43, 44, 45, 56, 57 and 58).

Attention and decoding skills

S.H. 3: The degree to which an individual attends to a communication event will be a function of the skills he possesses for decoding and symbolically manipulating the message.

Subordinate hypothesis 3 was generally supported.

Attention index Although the respondent's technical knowledge (E.H. 7) was not significantly related to responses on the 4-point attention index, the other two measures of decoding skills were related—use of technologically competent sources of information (E.H. 8) and years of education (E.H. 9).

Orthogonal comparisons Analysis of the orthogonal comparison categories also tended to support subordinate hypothesis 3. Persons who became aware of the exhibit had higher scores on all three empirical measures of decoding skills (E.H. 20, 21 and 22) than did those who were unaware (Comparison 1). Persons who attended the exhibit had used more technologically competent information sources (E.H. 34), although they did not have greater technical knowledge (E.H. 33) or more formal education (E.H. 35) than did those who were aware but did not attend (Comparison 2). No significant differences were found for any of the three measures of decoding skills between those who passed or failed to pass the third attention stage (Comparison 3, E.H. 46, 47 and 48).
Differential exposure of attenders  The data also supported subordinate hypothesis 3 in the case of differential exposure among attenders. Positive linear relationships were found between all three empirical measures of decoding skills (E.H. 59, 60 and 61) and differential exposure scores.

Attention and similarity of sender and receiver status-roles

S.H. 4: The degree to which an individual attends to a communication event will be a function of the similarity of his social status-roles to those of the sender.

Support for subordinate hypothesis 4 was mixed. Strong support was found for the hypothesis on the first three attention stages; however it was not generally supported in the case of differential exposure among exhibit attenders.

Attention index  Fairly strong positive linear relationships were found between scores on the attention index and the respondents' income (E.H. 10), occupational status (E.H. 11) and home ownership (E.H. 12).

Orthogonal comparisons  Analysis of the orthogonal comparison categories also indicated strong support for this hypothesis. The persons who passed through the first two attention stages—those aware of the exhibit and those who attended—were more nearly like the communication senders (had high socio-economic status) than were those who failed to pass (E.H. 23, 24, 25, 36, 37 and 38). Those who passed the secondary contact stage were more likely to be homeowners (E.H. 51), but were not more likely to have higher incomes (E.H. 49) or higher occupational status (E.H. 50) than those who did not pass this stage.
Differential exposure of attenders The data tended not to support subordinate hypothesis 4 in the case of differential exposure among attenders. There was a weak, but significant, linear relationship between income (E.H. 62) and differential exposure. There was no relationship—linear or otherwise—between occupational status (E.H. 63) or home ownership (E.H. 64) and differential exposure.

Attention and concurrent actions

S.H. 5: The degree to which an individual attends to a communication event will be a function of the concurrent actions he or members of his primary reference groups are taking.

Support for subordinate hypothesis 5 was mixed.

Attention index There was a very strong positive linear relationship between the respondent or a member of his primary reference groups helping put on the exhibit and responses on the 4-point attention index (E.H. 13).

Orthogonal comparisons Analysis of the orthogonal comparison categories indicated that those who passed the first two attention stages—those aware of the exhibit and those who attended—were more likely to have helped or had a member of their family help put on the exhibit (E.H. 26 and 39). No significant difference was found between those who passed or failed to pass the secondary contact stage (E.H. 52).

Differential exposure of attenders There was no relationship between the measure of concurrent action and the differential exposure of attenders to the exhibit's content (E.H. 65).
Predispositions and Comprehension

From the senders' viewpoint, some attenders comprehended very accurately the content of the Midwest County Civil Defense Exhibit. Predictably, the comprehension of other attenders appeared to be very inaccurate. When asked to recall the content of four exhibit features (which had been selected at random by the researcher from a total of 23 exhibit features), nearly 91 percent of the respondents demonstrated adequate knowledge of at least one of the four features; 65 percent had adequate knowledge of at least two of the four features; 36 percent had adequate knowledge of at least three of the four features; and 8 percent demonstrated adequate knowledge of all four of the exhibit features they were asked to recall.

These observed differences in level of comprehension are thought to be, in part, a function of the receiver's predispositions. Or, as hypothesized in the theory chapter:

G.H. 2: If an individual attends to a communication event, his values, habits, skills and social situation will predispose the manner in which he comprehends the message.

The data from the Midwest County Civil Defense Exhibit give partial support to general hypothesis 2. Five subordinate level predispositions were developed in this thesis. Comprehension was found to be related to three of these subordinate level predispositions: the respondent's attitudes about the content, the decoding skills he possessed and the concurrent actions he or members of his primary reference groups were taking. Comprehension was not found to be related to the relevance of the message content to the receiver's roles or to the similarity of the sender and receiver status-roles. The five subordinate hypotheses investigated in
regard to comprehension and the specific empirical findings related to each are discussed in detail below.

**Comprehension and attitudes about content**

S.H. 6: The degree to which an individual comprehends a message as intended by the sender will be a function of the attitudes he holds about the ideational content of that message.

Subordinate hypothesis 6 was generally supported by the three empirical hypotheses tested. Although the hypothesized curvilinear relationship between perceived threat (E.H. 66) and comprehension was not found, a significant linear relationship did exist. The expected linear relationships were found between comprehension and perceived possibility of protection (E.H. 67) and perceived need for civil defense programs (E.H. 68).

**Comprehension and relevance of message to receiver's role**

S.H. 7: The degree to which an individual comprehends a message as intended by the sender will be a function of the relevance of the message content to the role expectations of the social statuses he occupies.

No empirical support was found for subordinate hypothesis 7. There was no relationship—linear or otherwise—between comprehension and sex (E.H. 69) or between comprehension and having children in the household under 15 years of age (E.H. 71). The hypothesized negative linear relationship between comprehension and age (E.H. 70) was not found; however inspection of the cross-distribution of observations indicated a definite lo-hi-lo curvilinear relationship. Persons under 35 or over 65 years of age had considerably less accurate comprehension of the messages presented than did those in the middle ages.
**Comprehension and decoding skills**

S.H. 8: The degree to which an individual comprehends a message as intended by the sender will be a function of the skills he possesses for decoding and symbolically manipulating the message.

Subordinate hypothesis 8 was supported by the three empirical hypotheses tested. Persons with greater knowledge of the technical aspects of civil defense (E.H. 72), who had previously used technologically competent sources of civil defense information (E.H. 73) and who had more formal education (E.H. 74) were more likely to comprehend the messages of the Midwest County Civil Defense Exhibit.

**Comprehension and similarity of sender and receiver status-roles**

S.H. 9: The degree to which an individual comprehends a message as intended by the sender will be a function of the similarity of his social status-roles to those of the sender.

No empirical support was found for subordinate hypothesis 9. There was no linear relationship between income (E.H. 75) or occupational status (E.H. 76) and comprehension of the exhibit. A negative relationship was found between home ownership (E.H. 77) and comprehension; however this relationship was opposite that hypothesized and thus does not support the hypothesis.

**Comprehension and concurrent actions**

S.H. 10: The degree to which an individual comprehends a message as intended by the sender will be a function of the concurrent actions he or members of his primary reference groups are taking.

Both empirical hypotheses tested supported subordinate hypothesis 10. There was a weak linear relationship between the respondent and/or a member of his family helping put on the exhibit (E.H. 78) and comprehension.
There was a strong linear relationship between differential exposure (E.H. 79) and comprehension of the message.

Predispositions and Acceptance

As predicted, differences were observed in the degree to which individual attenders accepted the Midwest County Civil Defense Exhibit. Two of the three theoretical stages of acceptance were operationalized in this thesis: cognitive acceptance and overt action.

Cognitive acceptance

One measure of acceptance is the degree to which the receiver cognitively accepts the meanings intended by the sender as being valid, factual, correct or true. It was found that after attending the exhibit approximately 20 percent of the respondents rejected the major conclusion of the exhibit that civil defense measures offer a possibility of protection from the effects of nuclear war. Nearly 30 percent of the respondents indicated a partial acceptance of the senders' conclusions by indicating that protection may be possible. Half of the respondents indicated that they accepted almost completely the conclusion that protection is definitely possible.

Overt action

Another measure of message acceptance is overt action. An 8-point adoption index was developed to measure the degree to which attenders accepted exhibit messages by continuing civil defense actions previously taken or by taking new actions. A wide and generally normal distribution of responses was found.¹

¹See Table 6, page 108.
The observed differences in cognitive acceptance and overt action are thought to be, in part, a function of the receiver's predispositions. Or, as hypothesized in the theory chapter:

G.H. 3: If an individual attends to a communication event, his values, habits, skills and social situation will predispose the degree to which he accepts the message.

The data from the Midwest County Civil Defense Exhibit give partial support to general hypothesis 3. Five subordinate level predispositions were developed in this thesis. Cognitive acceptance was found to be strongly related to four of these: attitudes about content, relevance of content to receiver's role, decoding skills and concurrent actions. Cognitive acceptance was not related to similarity of sender and receiver status-roles.

Overt action was found to be related to three of the five subordinate level predispositions: attitudes about content, decoding skills and concurrent actions. Overt action was not related to relevance of content to receiver's role or to the similarity of sender and receiver status-roles.

The five subordinate hypotheses investigated in regard to acceptance and the specific empirical findings related to each are discussed in detail in the following paragraphs.

Acceptance and attitudes about content

S.H. 11: The degree to which an individual accepts a message as desired by the sender will be a function of the attitudes he holds about the ideational content of the message.

Subordinate hypothesis 11 was supported by all six empirical hypotheses tested. Cognitive acceptance and overt action were found to be related in a strong linear fashion to the respondent's perceived possibility
of protection before attending the exhibit (E.H. 81 and 97) and to the
degree to which he perceived a need for civil defense programs (E.H. 82 and
98). Also, the hypothesized lo-hi-lo curvilinear relationship was found
between perceived threat and the two measures of acceptance (E.H. 80 and
96) as is indicated by the significant multiple correlation coefficient
for the quadratic model and by the significant t-value of the beta weight
of the quadratic model's second term. There was also a significant linear
correlation between perceived threat and cognitive acceptance; however the
quadratic model better fits the data.

Acceptance and relevance of content to receiver's role

S.H. 12: The degree to which an individual accepts a message as
desired by the sender will be a function of the relevance of
the message content to the role expectations of the social
statuses he occupies.

The findings regarding subordinate hypothesis 12 were mixed. All
three measures of family role--sex, age and children--were found to be
linearly related to cognitive acceptance of the exhibit's message (E.H. 83,
84 and 85). However, none of these empirical measures of family role were
linearly related to overt actions taken (E.H. 99, 100 and 101). Although
the hypothesized negative relationship between age and overt action
(E.H. 100) was not found, inspection of the cross-distribution of observa-
tions indicated a definite lo-hi-lo curvilinear relationship. Persons
under 35 or over 65 years of age had taken considerably less civil defense
action than had persons in the middle ages.
Acceptance and decoding skills

S.H. 13: The degree to which an individual accepts a message as desired by the sender will be a function of the skills he possesses for decoding and symbolically manipulating the message.

Subordinate hypothesis 13 was supported by all six empirical hypotheses tested. Persons with greater knowledge of the technical aspects of civil defense (E.H. 86 and 102), persons who had previously used more technologically competent civil defense information sources (E.H. 87 and 103) and persons who had more formal education (E.H. 88 and 104) were more likely to cognitively accept the message content and take or continue overt civil defense actions after attending the exhibit.

Acceptance and similarity of sender and receiver status-roles

S.H. 14: The degree to which an individual accepts a message as desired by the sender will be a function of the similarity of his social status-roles to those of the sender.

Subordinate hypothesis 14 was generally not supported. There was a weak, but significant, linear relationship between income and overt action (E.H. 105). Income was not related to cognitive acceptance of the message (E.H. 89). A negative, rather than the hypothesized positive linear relationship was found between occupational status and acceptance (E.H. 90). Since this relationship was opposite that predicted it does not support the hypothesis. There was no linear relationship—positive or negative—between home ownership and the two measures of acceptance (E.H. 91 and 107).

Acceptance and concurrent action

S.H. 15: The degree to which an individual accepts a message as desired by the sender will be a function of the concurrent actions he or members of his primary reference groups are taking.
Subordinate hypothesis 15 was supported by all empirical hypotheses tested. Cognitive acceptance and overt action were found to be strongly interrelated (E.H. 95 and 111) and each was also strongly related to his helping or having a member of his family help put on the exhibit (E.H. 92 and 108), to the extent of exposure he had to the content (E.H. 93 and 109) and to the degree to which he comprehended the message content (E.H. 94 and 110).

Multiple Correlation Analysis

Thus far the analysis has focused upon the zero-order relationships between predispositions and communication responses; that is, the analysis has focused on the extent to which each of the independent variables was related to and predicted the several measures of communication response, ignoring all other independent variables.

However, it is expected that the various predispositions of an individual will interact to influence the responses he makes to a communication event. Thus, if one is attempting to predict most accurately the response which an individual will make at any stage of the receiver response model, it will be necessary to consider simultaneously the various factors which will influence this response. The statistical technique of multiple correlation (Blalock, 10) can be used for this purpose.

Prediction of attention responses

The first general hypothesis was stated broadly enough to include multi-variate analysis of attention responses. However, on a more specific level the expected relationship may be stated as follows:
S.H. 16: The degree to which an individual attends to a communication event will be a function of a weighted combination of attitudes toward content, the relevance of content to receiver's role, decoding skills, similarity of sender and receiver status-roles and concurrent actions.

Two empirical hypotheses related to subordinate hypothesis 16 were tested. Empirical hypothesis 112 tested the significance of the predication obtained for responses on the attention index using the model:

$$ Y_1 = \alpha + b_1 X_1 + b_2 X_2 + \ldots + b_{13} X_{13}. $$

It was found that this model yielded significant prediction of attention responses. A multiple correlation coefficient of .60 was obtained, which accounted for 36 percent of the variation between observed and predicted values. Although this is not a very strong prediction, it is a significant improvement over the best zero-order prediction of attention response ($X_{13}$, $r=.47$), which explained only 22 percent of the total variation.

Empirical hypothesis 113 tested the significance of the predication obtained for the differential exposure among attenders using the model:

$$ Y_2 = \alpha + b_1 X_1 + b_2 X_2 + \ldots + b_{13} X_{13}. $$

It was found that this model did not yield significant prediction of degrees of differential exposure. A multiple correlation coefficient of .46 was obtained, which accounted for 21 percent of the variation between observed and predicted attention responses. The best zero-order prediction of differential exposure ($X_7$, $r=.24$) explained only 5 percent of the total variation.
Prediction of comprehension

The expectations of relationships between predispositions and comprehension outlined in general hypothesis 2 may be further specified for multi-variate analysis as follows:

S.H. 17: The degree to which an individual comprehends a message as intended by the sender will be a function of a weighted combination of attitudes toward content, the relevance of content to the receiver's role, decoding skills, similarity of sender and receiver status-roles and concurrent actions.

Empirical hypothesis 114 tested the significance of the prediction obtained for degree of comprehension using the model:

\[ Y_3 = \alpha + b_1X_1 + b_2X_2 + \ldots + b_{14}X_{14}. \]

It was found that this model yielded significant prediction of degree of comprehension. A multiple correlation coefficient of .64 was obtained, which accounted for 41 percent of the variation between observed and predicted comprehension responses. The best zero-order prediction of comprehension \((X_{14}, r=.47)\) explained only 22 percent of the total variation.

Prediction of acceptance responses

The expected relationships between predispositions and message acceptance outlined in general hypothesis 3 may be further specified for multi-variate analysis as follows:

S.H. 18: The degree to which an individual accepts a message as desired by the sender will be a function of a weighted combination of attitudes toward content, the relevance of content to the receiver's role, decoding skills, similarity of sender and receiver status-roles and concurrent actions.
Two empirical hypotheses related to subordinate hypothesis 18 were tested. Empirical hypothesis 115 tested the significance of the prediction obtained for cognitive acceptance responses using the model:

\[ Y_4 = \alpha + (b_1X_1 + b_{1a}X_1^2) + b_2X_2 + \ldots + b_{15}X_{15} + b_{17}X_{17}. \]

It was found that this model yielded a significant prediction of the degree of cognitive acceptance. A multiple correlation coefficient of .91 was obtained, which accounted for 81 percent of the variation between observed and predicted cognitive acceptance responses. This is a very strong prediction and is a significant improvement over the best zero-order prediction of cognitive acceptance \((X_2, r=.78)\), which explained 61 percent of the total variation.

Empirical hypothesis 116 tested the significance of the prediction obtained for overt action responses using the model:

\[ Y_5 = \alpha + (b_1X_1 + b_{1a}X_1^2) + b_2X_2 + \ldots + b_{16}X_{16}. \]

It was found that this model yielded a significant prediction of overt action taken. A multiple correlation coefficient of .80 was obtained, which accounted for 64 percent of the variation between observed and predicted civil defense adoption scores. This is a fairly strong prediction and is a significant improvement over the best zero-order prediction of overt action \((X_{16}, r=.60)\), which explained 36 percent of the total variation.

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1 The term \((b_1X_1 + b_{1a}X_1^2)\) is the second order polynomial which accounts for the curvilinear relationship found between perceived threat and acceptance responses.
SUMMARY AND CONCLUSIONS

This study has developed and tested a generalized model of the process by which individuals respond to communications. Drawing extensively upon existing theories, the model developed takes as given the sender, the message and the channel in a communication event. It examines the responses which the total potential audience of receivers makes to the message and attempts to account for why receivers respond the way they do. One basic notion included is that in responding to a message the receiver must perform several functions. These functions can be integrated into a flow of action involving three major stages: attention, comprehension and acceptance. The attention stage is broken into four sub-stages: awareness, decision to attend, differential exposure of attenders and secondary contact (resulting from the two-step flow of information). The acceptance stage is broken into three sub-stages: cognitive acceptance, affective acceptance and overt action.

Another basic notion included is that a receiver's response at any stage is largely a result of his predispositions. On the basis of previous experience and what he perceives to be his interest he responds to a message in a predictable manner. A typology of predispositions was developed based upon objects of orientation and the social and psychological nature of the disposition.

The model was operationalized and tested using data from a study of a county-wide civil defense exhibit program. This exhibit incorporated 21 "county-fair" type booths, was sponsored through the cooperative efforts of 41 voluntary organizations and government agencies, and was visited by
over 2,600 persons (80 percent adults) during the two days it was open to the public.

To determine receiver responses to the exhibit and the role of predispositions in differential response, a random sample of 163 adults was interviewed. A supplementary sample of 43 persons who had attended the exhibit was also interviewed. Seventeen independent variables operationalizing five major conceptual types of predispositions were tested for their association with five dependent response variables.

Any discussion of the findings regarding the receiver response model must be tempered by the reality of the test which has been made in this thesis. This test has been limited. At best, the test can be described as having been conducted at one time, in one place and under the specific conditions of one communication event. All possible elements of the model were not tested. Only five of the 20 possible sets of predispositions were operationalized, and of the five, certainly not all, and probably not the best possible measures were developed. The test is also limited by the fact that the study design was such that measures of "predispositions" were collected after the occurrence of the communication event. Although this procedure should not have affected such measures as age, sex or education, there is a serious methodological problem when one asks respondents to recall the attitudes and beliefs they held earlier. An additional limitation of the test is that analysis of data has not been exhaustive. The investigation has focused primarily upon the zero-order relationships between predispositions and responses. Analysis of first and second-order interactions might uncover some unsuspected relationships.
However, the author takes the position that the limited test which has been made of the model is better than no test at all. And the data from this test quite clearly support most of the theoretical propositions about how and why receivers respond to communication the way they do. Perhaps of equal importance is the fact that when hypotheses were not supported, the patterns were clear enough (see Figure 13) to suggest some possible conceptual modifications. In short, the test of empirical data indicates that the model has what any model should have--utility.

The utility of the receiver response model for the sender of communications is that it provides a means whereby he can understand and analyze the "what" and the "why" of responses made to his communications. On the basis of such understanding he may be able to modify elements of his future communication attempts. For the scientist, the utility of the receiver response model is that it provides a testable and modifiable explanation of one aspect of the communication process.

Figure 13 gives a concise summary of the support for the subordinate level hypotheses. In general, these data support the general level proposition that receiver predispositions are related to responses made to a communication event. The stronger (more favorable) an individual's predisposition toward specifiable aspects of the exhibit, the more likely was he to make the responses desired of him by the sender. However, another major finding indicated in Figure 13 is that different predispositional sets are associated with the responses at different decoding stages. Thus, the receiver's attitudes about the content of the message and the relevance of this content to his roles was not related to the responses made at the
first three attention stages: awareness, decision to attend and secondary contact. Rather, these attention responses appeared to be a function of the similarity of sender and receiver status-roles, the concurrent actions of the receiver, and to some extent, his decoding skills. Similarity of sender and receiver status-roles were not related to further responses made by attenders.

For attenders, the generalized pattern was that attitudes about content, decoding skills and concurrent actions were strongly related to responses made to the exhibit, while relevance of content to role and similarity of sender and receiver status-roles were not generally related to attender responses.

These findings suggest the need to reexamine the imputed relationships between predispositions and responses. In retrospect, the author can see that there is considerable logical basis for expecting different predispositions to be related to different response stages. However, there is a need to develop this logic more fully and also to tie the logical derivations in with empirical observations. Such inductive techniques of statistical analysis as "path analysis" and "causal model analysis" address themselves to this problem.

The model had the least utility in predicting who would attend to the message and the degree of attention they would give once they had decided to attend. In retrospect, such a finding should not be surprising—although current communication literature does not give this indication.

As may be noted in Figure 13, the supported relationship between cognitive acceptance and relevance of content to role and the rejected hypothesis of a relationship between differential exposure and concurrent actions are exceptions to this generalization.
One explanation might be that predispositions generally predispose attention. That is, they dictate the general interests of an individual, and they dictate an interest broader than the individual has time or energy to pursue. Thus, out of his interests, an individual must assign priority to those things of most interest. He must do this on a long-term basis, and more importantly, he must assign priorities on a day-to-day, hour-to-hour basis. Things that are of general interest to an individual, may be of no interest to him at a particular moment because he is preoccupied with some other task. For example, an avid newspaper reader may go for several days without looking at a newspaper because of a "crisis" at the office.

Conversely, one may attend to a communication message for reasons beyond his interest in the subject matter. For example, data in this study indicate that some people came to the civil defense exhibit, not because they were interested in or concerned about civil defense, per se, but because the exhibit was sponsored by community organizations. Likely, they would have attended if this event had been on some other subject.

Factors such as the short-term assignment of interest and coincidental attendance are difficult, perhaps impossible to predict. At this stage in the development of the science of predicting communication response, we may best consider these factors to be "chance" variables. However, future research should seek a more adequate explanation. A part of this explanation might be found by developing conceptually and empirically the numerous predispositional sets not developed in this study. Another part of this explanation might be found by incorporating into the receiver response model such other conceptual schemes as consistency theory and the theory of the role of social relationships in communication process.

1See Figure 6, page 54.
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<tr>
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<tr>
<td>SUPPORT</td>
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<td>3</td>
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| **Relevance of Content to Receiver's Role** |
| S.H. 2               |
| REJECT               |
| 12                   |
| 0%                   |
| S.H. 2a              |
| REJECT               |
| 3                    |
| 0%                   |
| S.H. 7               |
| REJECT               |
| 3                    |
| 0%                   |
| S.H. 12              |
| SUPPORT              |
| 3                    |
| 100%                 |
| S.H. 12a             |
| REJECT               |
| 3                    |
| 0%                   |

| **Decoding Skills** |
| S.H. 3              |
| SUPPORT             |
| 12                   |
| 83%                 |
| S.H. 3a             |
| SUPPORT             |
| 3                    |
| 100%                |
| S.H. 8              |
| SUPPORT             |
| 3                    |
| 100%                |
| S.H. 13             |
| SUPPORT             |
| 3                    |
| 100%                |
| S.H. 13a            |
| REJECT              |
| 3                    |
| 0%                  |

| **Similarity of Sender and Receiver Status—Roles** |
| S.H. 4              |
| SUPPORT             |
| 12                   |
| 83%                 |
| S.H. 4a             |
| REJECT              |
| 3                    |
| 33%                 |
| S.H. 9              |
| REJECT              |
| 3                    |
| 0%                  |
| S.H. 14             |
| SUPPORT             |
| 3                    |
| 100%                |
| S.H. 14a            |
| REJECT              |
| 3                    |
| 33%                 |

| **Concurrent Actions** |
| S.H. 5              |
| SUPPORT             |
| 4                    |
| 75%                 |
| S.H. 5a             |
| REJECT              |
| 1                    |
| 0%                  |
| S.H. 10             |
| SUPPORT             |
| 2                    |
| 100%                |
| S.H. 15             |
| SUPPORT             |
| 4                    |
| 100%                |
| S.H. 15a            |
| SUPPORT             |
| 4                    |
| 100%                |

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<tr>
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<td>.80 (.64)</td>
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<tr>
<td>Moderate</td>
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<td>Strong</td>
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<td>Strong</td>
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*Figure 13. Support for subordinate hypotheses*
REFERENCES CITED


46. ________. The effects of mass communication. Glencoe, Ill., The Free Press. 1940.


85. ________, George M. Beal and Joe M. Bohlen. Achieving communication impact. In Yarbrough, Paul, ed. Teaching materials: seminar on application of social science research to civil defense problems. Iowa State University of Science and Technology Department of Sociology and Anthropology Rural Sociology Report 66, Volume 1, Section 1. 1967.
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Appreciation is also extended to Dr. K. Robert Kern and Dr. Ross B. Talbot for their comments on the manuscript.
APPENDIX

The Exhibit's Content

The goal of the Midwest County Civil Defense Exhibit was communication. This goal was to be accomplished through the medium of visual and verbal symbols presented in manned booths. This Appendix attempts to abstract the content of each of the 21 booths and two special features which comprised the exhibit. This is done 1) through an analysis of how each adhered to the central theme of the exhibit and what link each formed in the continuity of presenting this overall theme, 2) through an analysis of the message presented by the individual booth, 3) through an analysis of the display and 4) through an analysis of the speech given by those persons who manned each booth. These four concepts—continuity, message, display and speech—are explicated below. Following this explication, an analysis of the individual booths will be presented.

Continuity of idea

The booths which comprised the exhibit all focused on a central theme: nuclear war will present a threat to Midwest County (most likely in the form of radioactive fallout from distant explosions), but there are many things we can do to prevent its effects from being devastating. Each booth was a variation of this theme, but in general there was a continuity and build up of the theme from the first booth to the final. (The original plan was to conduct small groups from one booth to another in order that this continuity might be preserved. The number of persons who came to view the exhibit was so large, however, that this plan had to be discarded and the visitors viewed the booths in the order they pleased.) Booths
Booths 4, 5, 7, 8, 9, 10, 12, 13, 16 and 18 focused on what measures families could take to protect themselves from the dangers associated with nuclear fallout. Booths 15 and 17 and the film, "Fallout in Agriculture", focused on the measures which could be taken to protect farm animals and crops from radiation danger. Booths 3, 6, 12, 13, 20 and 21 showed actions being taken in the local community in regard to civil defense. Booths 19 and 20 summarized the exhibit by suggesting actions individuals could take in relation to their family and the community. (Booths 3, 13 and 20 had dual purposes.)

**Message**

As used in this analysis, "message" is an abstraction of the central idea which the booth attempted to convey. It is a summation of the visual and verbal symbols presented.

**Display**

"Display" is a description of the visual devices used in the booth.

**Speech**

"Speech" is a descriptive summary of the talk which was presented by the persons "manning" the booth to the persons viewing. Each booth sponsor had to write out his talk and submit it to the extension staff before the opening of the exhibit.

**Booth 1: What Happens in a Nuclear Explosion**

Starting point of idea: This booth is the starting point for the exhibit and injects the idea which is central to this exhibit: nuclear war will present a threat to Midwest County (most likely in the form of radioactive fallout from distant explosions), but there are things we can do to prevent its effects from being devastating.
Message: Atomic explosions release enormous amounts of energy and endanger us in two main ways: physical destruction and radiation. The physical effects will endanger only those areas near ground zero. This community is very unlikely to be a target, but we will likely be endangered by radioactive fallout from explosions at other potential targets which surround us (primarily Omaha). Shelters can protect us from this radioactive fallout.

Display: Visual display (the work complete and orderly) of charts presenting facts and figures related to the consequences of an atomic explosion in Omaha, Nebraska, on the local community.

Speech: Concise statement of the technical aspects of a nuclear explosion--what happens, what causes the danger, how radiation destroys living organism.

Sponsored by Prairie City High School Science Club.

Booth 2: Decay of Fallout

Continuity of idea: Fallout is dangerous, but the danger decreases with time.

Message: The danger from fallout radiation decreases with time. The most critical time for radiation hazard is during the first 48 hours after a nuclear explosion.

Display: Charts showing 1) the danger of various levels of radiation, 2) the decay of radiation with time and 3) the number of hours one can safely be outside the shelter at various times following a nuclear explosion. (The charts were poorly lettered and tacked on bare background.)

Speech: Clarifies effects of fallout and tells of the difference in fallout decay according to time; also introduces the concept of need for radiation shielding (temporary, improvised shelters) during peak radiation periods.

Sponsored by Stranton Wednesday Study Club.

Booth 3: Radiological Monitoring

Continuity of idea: How radiation is measured.
Message: Radiation can be detected and its danger point determined through the use of precise instruments. Local people have been trained to measure radiation and will do so in case of attack.

Display: Interesting display of radiation counters. Background decorated in patriotic red, white and blue.

Speech: Demonstration showing use of the instruments, explanation of how they work.

Sponsored by Area Civil Defense Depot, Soil Conservation Service and Prairie City Business and Professional Women.

Booth 4: Radiation Shielding Values of Different Materials

Continuity of Effectiveness of several protective materials.

Idea:

Message: Provide the materials for your basement shelter which will give you adequate radiation shielding.

Display: Impressive poster with caption, "Shelter for Survival", lettered on background of atomic mushroom cloud; plus a miniature house and clear display of degree of protection against fallout given when different materials are used in construction.

Speech: Different building materials have different shielding values. Density of the material, not merely its thickness, is the most important consideration.

Sponsored by Oakland Woman's Club.

Booth 5: Requirements for a Home Fallout Shelter

Continuity of It is not difficult to construct your own family
idea: shelter.

Message: You almost certainly will need a shelter: have a good one.

Display: Map of the United States showing possible distribution of fallout following an enemy attack; also a miniature shelter and a clear list of five conditions for a good shelter.
Speech: Very complete and detailed guide to the construction of a basement shelter.

Sponsored by Murray 4-H Club.

Booth 6: Emergency Communications Systems

Continuity of Idea: (An interruption of the continuity of the idea.) How to communicate in case of an atomic attack.

Message: We need communication to assure survival.

Display: Perhaps one of the most interesting visual displays: amateur radio equipment in operation. Also had a United States map showing emergency radio nets.

Speech: Talk on the role of amateur radio operators in providing emergency communications. Demonstrated their communication capability by using their equipment to contact other operators around the nation.

Sponsored by Upper State Radio Amateurs Association.

Booth 7: Emergency Sanitation at Home

Continuity of Idea: Shelter sanitation may not be a pleasant subject to talk about, but it is a very important item.

Message: We need this in a shelter: sanitation and waste disposal.

Display: No wall display except booth sign, but other visual display showed drug products of everyday sanitary life: toilet paper, disinfectants, garbage cans, etc. In general, the visual aspects of this booth were poor.

Speech: In our daily lives many sanitary items are part of public services and are taken for granted; this won't be the situation in shelter-life; be careful and provide the necessities.

Sponsored by Ladora Tri-S Club.

Booth 8: Food for the Shelter

Continuity of Idea: Most important to continuing life is subsistence on a basic diet.
Message: Store all these food items, at least, if you plan to be safe in case of nuclear attack.

Display: Display of one family's diet for an eventual week of shelter living.

Speech: Very practical instruction on how to select and store the necessary food for at least two weeks of emergency.

Sponsored by Aurora Park Society and American Legion Auxiliary, Aurora.

Booth 9: Emergency Water Supplies

Continuity of idea: Related to subsistence and sanitation, purified water is an important consideration.

Message: We need pure water to survive.

Display: Visual display (very interesting and clear) of methods of purifying water.

Speech: Today pure water is cheap; in atomic war pure water will be priceless. But it is not difficult to have it if you provide now.

Sponsored by Prairie City Woman's Club and Richland 4-H Club.

Booth 10: Heat, Light and Ventilation in Shelter

Continuity of idea: After subsistence, a minimum of comfortable living within a hard environment is very important.

Message: Be practical and economical in selecting ventilation, heating and lighting devices for your shelter. All are essential, all can be obtained locally and adequate ones are also relatively cheap.

Display: Visual display of the interior of a shelter for the family showing ventilation, heating and lighting systems. Also display of four shelter models.

Speech: Perhaps the best speech of the exhibit. It was given by 4-H girls and concerned the types and expenses of four different shelters and heating, ventilation and lighting devices for these.

Sponsored by Homemakers 4-H Club.
Booth 11: Sign-up Table for Civil Defense Bulletins

Continuity of idea: (An interruption of the continuity of the idea.) Free printed civil defense information.

Message: We're sorry we don't have pamphlets to give everyone, but we were able to get only a few. If you are really interested in the information in any of these pamphlets just sign the roster and we'll mail the copies to you.

Display: Sign up here for free pamphlets of civil defense measures. Display of available pamphlets.

Speech: None

Sponsored by Family Living Committee.

Booth 12: Home Nursing Techniques

Booth 13: First Aid Techniques

Continuity of idea: Medical self-help will be very important in the event of nuclear attack.

Message: Red Cross will help in any disaster (in nuclear attack as well as in other disasters), but you must also be able to help yourself. You can do this by preparing and training now.

Display: Visual display of elementary nursing and first aid techniques.

Speech: The possibility of nuclear attack is the highest challenge for the full development of your capacities and responsibilities. Since normal medical facilities will likely be disrupted following a nuclear attack and elementary knowledge of nursing and first aid is almost compulsory, Red Cross provides you with effective booklets and courses. Also told the major characteristics of first aid and stressed that knowing these skills could prove valuable, even if nuclear attack does not occur.

Sponsored by Red Cross, First Aid and Home Nursing Divisions.
Booth 14: Fire Control

Continuity of idea: (An interruption of continuity of the idea.) The local fire department also has responsibilities in civil defense.

Message: The local fire department also has responsibilities in civil defense (though just what these responsibilities are was not explained).

Display: Emergency rescue equipment and fire extinguishers. (Very poor.)

Speech: None

Sponsored by Prairie City Fire Department.

Booth 15: Fallout on Crops and Soils

Continuity of idea: Not only men, but all living organisms are endangered by radiation from atomic fallout.

Message: Radioactive fallout definitely presents hazards to farm operations, but steps can be taken to reduce or eliminate its danger.

Display: Discrete wall display enumerating the different radioactive isotopes and the relative danger of each. Also displayed miniatures of outside farm items affected by fallout radiation: stored crops, growing crops and animals.

Speech: 1) Fallout can contaminate stored crops, but these can be protected by simply covering them. 2) Radioactivity will also be absorbed by growing crops, and through the biological chain can eventually affect man. We can reduce the amount of the radioactive elements in this chain by the natural screening of the biological system, by raising crops with a lower calcium requirement and by proper application of lime and potassium.

Sponsored by Ladora Future Farmers of America.

Booth 16: Fallout on Garden Vegetables and Fruits

Continuity of idea: Think also about the effect of radioactive fallout on the fruits and vegetables needed in our diet.
How to prevent contamination of fruits and vegetables and how to salvage those which have become contaminated. Growing fruits and vegetables will also be affected by fallout, but precautions can be taken.

Discrete display of a variety of fruits and vegetables showing which should be discarded and which can be salvaged after being contaminated by radioactive fallout. Also showed which methods (washing, peeling, etc.) can be used to salvage foods.

Detailed remarks about the effects of fallout on fruits and vegetables and the counter-measures which can be taken to assure that only safe food is consumed.

Sponsored by Prairie City Garden Club.

Booth 17: Protection of Farm Animals from Fallout

Think also about the livestock and the animals affected by atomic radiation and how they will be affected by radioactive fallout on the green products they consume.

Here are some elementary measures of protecting livestock in case of nuclear attack.

Visual display very clear and straightforward and with attractive miniature farmstead.

Protection for the livestock from fallout is a major concern on the farm. This isn't so difficult and you can learn some efficient ways of doing it. Gave examples of some protective measures to use.

Sponsored by Lester Woman's Club.

Booth 18: Recreation in the Shelter

One basic element in comfortable living is recreation.

You (all of us) need recreation and relief of tension: provide the best you can for a shelter life. Especially be sure to supply diversion for the children.

Good and abundant display of sedentary games and hobbies, plus six basic considerations for recreational activities in the shelter.
Speech: Recreation suggestions are only suggestions; but do not forget that the items we take for granted now may be extremely important and difficult to obtain in the event of atomic war.

Sponsored by Prairie City Catholic Women.

Booth 19: Sign up for Civil Defense Training Courses

Continuity of idea: (Partial summary of idea.) Training, an action in civil defense you can take.

Message: If you've been moved by this exhibit, one action you could take would be to enroll in a civil defense training course. Here are the application forms you will need.

Display: None

Speech: None

Sponsored by Marcus Willing Workers and Melcher Study Club.

Booth 20: Organization of Midwest County Civil Defense

Continuity of idea: (Partial summary of idea.) Preparation for civilian defense is possible only through efficient community organization.

Message: You and your family need:

(a) Civil Defense measures.
(b) To know about protection.
(c) To act on civil defense matters as a member of the community.

Display: Visual wall display diagram showing elements and lines of authority between 1) Midwest County Civil Defense Organization and 2) supporting organizations and agencies.

Sponsored by: Midwest County Civil Defense Organization.  
Farm-City Week Committee  
Midwest County Social Welfare Department.
Booth 21: Emergency Equipment

Continuity of idea: Interruption of the summarization.

Message: We are ready to help you in any event.

Display: Display of emergency equipment of the Army.

Speech: None

Sponsored by Prairie City National Guard.

Special Feature: Film—"Fallout in Agriculture"

Continuity of idea: Summarization of many of the exhibit topics.

Special Feature: Tour of Area Civil Defense Depot

Explanation of the different items stockpiled and conditions of storage. Explanation of operation and functions of the depot.