Social psychological factors related to adoption of public fallout shelters

Elmer William Schwieder Jr.

Iowa State University
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Elmer William Schwieder, Jr.

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Signature was redacted for privacy.

In Charge of Major Work

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Head of Major Department

Signature was redacted for privacy.

Dean of Graduate College

Iowa State University
Of Science and Technology
Ames, Iowa

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INTRODUCTION

John Dewey has stated, "Change is the primary social fact as surely as motion is the primary physical fact" (22).

Social change refers to a modification in established patterns of interhuman relationships and standards of conduct. Social and cultural change in some form is familiar to everyone, and as such is not unique or different to the current decade or generation.

Social change does, however, become a significant and important problem in the world today when it becomes necessary or desirable to understand, evaluate and interpret the impact and direction of this ongoing process.

General consensus would indicate that social change constantly occurs in every social system. It is also contended that while some social change may not be specifically initiated or directed by a single individual, or a group of individuals, a significant portion of the process of social change taking place in a society is the direct and specific result of the efforts of an individual, or a group of individuals who attempt to influence people to attain the end or goals of the change agent. From the many kinds and types of social change that might be examined, one particular type of social change results from the direct, deliberate, self-conscious and purposive attempts by individuals or groups to change, alter, or maintain social systems. It is a specific instance of
social change that is the result of purposive planned behavior change by individuals or groups of individuals that is the major concern of this dissertation.

Assuming that the objective of the change agent is to influence human behavior, from the point of view of the change agent, knowledge of the factors that interact to produce individual social change will enable the change agent to strengthen, modify, or alter his ongoing program, as these or other alternatives are perceived by the change agent to be in his own best interest.

Specifically, this dissertation is the study of the symbolic acceptance of an idea by individuals, and the relation of three variables to differential acceptance of the idea. The process is known in the literature of social science as adoption. The three major variables which are assumed to influence, and therefore related to individual behavior in the decision making process are: (1) social class, (2) attitude(s), and (3) knowledge.

One rationale for conducting such a study is generated from the problem introduced when there is a deliberate attempt by a change agent to influence individual decision making, or specifically, the difficulties encountered when an attempt is made to influence individuals to accept new means and ends, in their ongoing day to day activity. Studies have been conducted by other researchers to evaluate the impact of the change agent on individual decision making (1), (4), and (6). Other studies
have sought to delineate the factors assumed to influence individual decision making (2).

A further rationale for this study is to seek out additional findings which may add relevant data and truth claims to research now completed, and to present new findings which will add to the existing body of knowledge, and suggest additional areas of research.

The general objective of this dissertation is:

To study, analyze and interpret the relationship of social class, attitudes, and knowledge - as these three variables relate to the phenomenon of the adoption of an idea through the process of individual decision making.

The following specific objectives have been selected as the major focus of this dissertation:

(1) To describe one specific adoption process.

(2) To construct a rationale for the expected relationship between three variables assumed to influence the adoption process.

(3) To test the validity of the constructed rationale by analyzing the results of one specific instance of adoption, (or non-adoption) by individual decision makers.

(a) to determine the relationship of social class to the adoption process.

(b) to determine the relationship of attitudes to the adoption process.

(c) to determine the relationship of knowledge to the adoption process.

(4) To generate implications which will be of assistance in training change agents.
The theoretical concepts used in this dissertation are derived from the disciplines of: (1) Sociology, (2) Social Psychology, and (3) Psychology.

To accomplish the foregoing objectives, the following order of presentation will be followed: (1) A background of the study will be given to familiarize the reader with previous theoretical and empirical endeavors, (2) The conceptual framework used in this dissertation, whereby certain specific assumptions are given, and conceptualization of the major concepts is discussed, (3) The derivation of specific empirical hypotheses to be tested, and the operational measures to be used to relate the theoretical with the empirical concepts, (4) The analysis of data secured from the study, with specific, appropriate statistical interpretation of the findings, (5) Discussion of the findings, including additional data analysis and suggestions for additional research, and (6) A brief summary presenting the conceptualization of the study and the findings. The bibliography will suggest sources of data and information appropriate to the study, as well as provide a partial resource for additional research.
A review of literature is necessary and appropriate when conducting any kind of research. Some of the major contributions which may be made by a review of literature are:

1. A review of literature may indicate what work has been previously conducted in the major area of interest.

2. A review of literature may assist in delineating the problem area(s) in the major area of interest.

3. A review of literature may provide a portion of the theoretical framework for the major area of interest.

4. A review of literature may suggest potential measures for the major concepts used in the research.

5. A review of literature may suggest the need for additional analysis of previous studies; providing thereby a relationship between earlier studies and the present study.

The above contributions of a review of literature are related to several portions of this dissertation. Reference is made throughout this study to literature cited as relevant to this study. This literature is integrated into the body of this dissertation where it appears most logical and appropriate, and may therefore fulfill one or more of the criteria given above. It is assumed that the use of a review of literature in this manner will be more meaningful and useful for the reader. Therefore, no specific review of literature is presented as a basic portion of this dissertation, but applicable reference material is integrated into the body of the study.
BACKGROUND OF THE STUDY

From the trenches and the pits of conflicts long past, to the conventional bomb shelters throughout Europe during the second World War, protection of both military and civilian populations from the havoc wrought by armed conflict has been of prime concern to governmental leaders. As weaponry advances and changes, defense programs and policies must make appropriate alterations.

In the final phase of World War Two, after the war in Europe was over, the military might of the Allies was turned to the Pacific arena. The explosion over Hiroshima of the first operational atomic bomb ushered into the world a new concept in military tactics. After the initial explosion the whole world knew, "it can be done." From this point on, it was just a matter of time until the other world powers learned to develop nuclear weaponry. This advent of nuclear weaponry introduced the need for special considerations directed towards adequate plans and programs for protection from nuclear blast, heat, and the fallout of nuclear radio-active material. The major concern of this study is in the arena of nuclear blast protection for civilian, non-military personnel. The aspects of nuclear protection in relationship to the military defense posture will not be covered.

This development of thermonuclear power as a weapon of war presents the greatest threat to survival that man has ever
known. It also appears that the present international regulatory agencies provide little reason to hope that they have adequate support or power in their own right to control this new development. Until appropriate control is possible it would appear that certain interim innovations must be developed. One such innovation is the development of public fallout shelters, and a public fallout shelter program adequate for all American citizens.

Since the Federal Civil Defense Administration's establishment in 1951, shelters have been a major consideration in the agency's policy and programs. The shelter program envisioned in 1951 was essentially that of blast shelters, with some protection from direct radiation and the thermal effects of an atomic explosion. Following the initial atomic blast, the early phase of shelter protection dealt with warheads that would be exploded in the atmosphere. In 1954, information and awareness of the effects of ground contact explosions began to be disclosed. During the latter half of 1954 and most of 1955, civil defense assumed a different posture. Instead of a shelter program, evacuation of the civilian population was then emphasized. Key highways, city routes, and other public and private transportation facilities were marked and emphasized. In 1956 the development of intercontinental missiles and the knowledge that awareness time was now very short, (in fact evacuation time could now be counted in minutes rather than
days or hours), led to a serious reconsideration of fallout shelters as the best means of defense for the civilian population. The shelter program then developed plans and emphasized, (1) private shelter construction, and (2) the marking and stocking of public fallout shelters for use by the civilian population.

As the "cold war" continued to develop, the situation between the world powers became increasingly threatening by the construction of the Berlin Wall, and the Cuban confrontation concerning Russian built missiles. The threat of nuclear conflict has been constantly held before the attention of the Federal Government. Fallout shelters, specifically, public fallout shelters, assumed increasing importance as the most feasible plan for civilian protection.

In retrospect, intensive activity in the area of Civil Defense began in 1961. From the President, who presented a public speech concerning civil defense, and through various kinds of mass media which presented the topic of nuclear protection, the general public has been made aware of some of the desirable and undesirable features of possible alternative civil defense programs. In relationship to the fallout shelter programs proposed, some individuals and groups were opposed to all shelter programs. Other individuals and groups accepted the need for shelters, but disagreed as to whether the shelters should be public or private.
The major components of the intensive civil defense activity in 1961 were: (1) a national fallout shelter survey, with a marking and stocking program; (2) a shelter incentive program, (called the Shelter Development Program); (3) a program for building public fallout shelters in federal buildings; (4) a program for emergency medical operations; (5) a program for developing warning and detection devices; (6) an expanded program for providing financial assistance to states and localities for civil defense programs; (7) a greatly expanded research program for civil defense. While Congress appropriated increased funds for the rest of the program, no funds were appropriated for the proposed Shelter Development Program.

The primary concern of the shelter development program was to provide fallout shelters for the entire population as rapidly as possible and at the least possible cost. The projection made in 1962 was for spaces for 235 million Americans by 1967. They were to be developed as follows:

70 million spaces through the National Fallout Shelter Survey.

100 million spaces through the Shelter Incentive, (Development) program.

5 million spaces by incorporating shelters in federal buildings.

60 million spaces through private initiative by industry, institutions, home owners, and others not eligible for federal grants for shelter construction.

Since funds were not allocated for the Shelter Develop-
ment Program, and the changing emphasis moved from private shelter construction to public fallout shelters, the O.C.D. (Office of Civil Defense), has concentrated its main efforts in the implementation of the National Fallout Shelter Survey, Marking and Stocking Program. The basic objective of this program was to locate, mark, and stock suitable fallout shelters for the nation's population as quickly and economically as possible. These shelters were to be used as public fallout shelters. As a major part of the program, the O.C.D. was also determined to make people aware of these public fallout shelter spaces and to encourage the population to make plans to utilize these public fallout shelter spaces in the event of a nuclear attack.

One very important aspect that needs to be evaluated in this respect is the degree to which the general population has accepted and adopted the ideas (symbolic) and actions (behavior) desired by the Office of Civil Defense in relationship to the use of public fallout shelters. The program desired by the O.C.D. will be only as effective as the number of individuals who have seriously considered using a public fallout shelter, and have reached a decision to use a public fallout shelter in the event of a nuclear attack.

O.C.D. desires to have some ideas and behaviors adopted by all individuals. For example, one O.C.D. goal is to have all individuals adopt a favorable attitude towards the concept
of Civil Defense itself. Another goal is to have all individuals adopt the idea of using fallout shelters in the event of a nuclear attack. O.C.D., knowing that some individuals have access to private, or family, shelters is interested in having the rest of the population adopt the idea of using a public fallout shelter. In other cases O.C.D. has sought to have only a portion of the general public adopt such ideas and programs as:

1. Attend medical self-help training courses.
2. Attend Civil Defense Adult Education Courses.
3. Become trained as Radiological Monitors.
4. Train for Fire-fighting.
5. Mark and stock their place of business as a fallout shelter.
6. And so on, through the many specialized civil defense programs.

In determining the degree of adoption by individuals of the various O.C.D. proposals, it is important to make clear that adoption may be evaluated on two different levels. One must make clear what these two levels involve before meaningful interpretations can be made. These two levels are:

1. The adoption of an idea, which may be conceptualized as symbolic adoption and from which inferences may be made about future behavior.

2. The adoption of a behavior, in which case the O.C.D. desires involvement by the acting individual citizen at the present point in time.

O.C.D. is at the present time marking and stocking public
fallout shelters at selected locations across the country. Current licensing contracts state that the shelter space in the buildings is not to be used unless there is a nuclear attack. O.C.D. desires that the general public make the symbolic adoption of using a public fallout shelter even though at the present time the citizen cannot go to a public fallout shelter to "try it out." O.C.D. recognizes that changes in symbolic adoption take place over time. Questions arise as to the degree of involvement of various individuals, and the length of time this symbolic adoption will require to meet the level of intensity desired by the O.C.D. There is need for periodic assessment of the state of individual adoption trends and patterns. This symbolic adoption may be conceptualized into specific conceptual phases or stages for the purpose of analysis.

In the preceding material O.C.D. is presented as a change agent. O.C.D. as a change agent is interested in understanding and predicting how individual citizens adopt new civil defense ideas. This requires understanding and knowledge of the factors related to the acceptance or rejection of the new ideas the change agent presents. O.C.D. also desires to determine the various factors that influence individual decision making. O.C.D. can use such knowledge, insights and information about these factors in planning, implementing, and evaluating the future of adoption of the civil defense program. The O.C.D.
can also use such data to evaluate the past program(s), and determine the current status of the program. Insights into the current adoption rate and the factors affecting it will be helpful to O.C.D. policy makers and operators. Policy makers can use the information in setting goals and allocating resources. Operators can use information to help analyze methods used in the past and to help plan programs for the future.

The project of designing a research study to obtain data to evaluate individual decision making in reference to public fallout shelters was undertaken by the research staff of the Sociology Department of Iowa State University. This project was one of a series under the auspices of O.C.D.

The city of Des Moines, Iowa, an urban center of 266,315 people (1960 census), was selected as a community in which to measure the public's symbolic adoption of the concept of using a public fallout shelter if there were a nuclear attack. Des Moines, Iowa, was selected for two reasons:

1. Because the study was of a pilot nature, (it was the first time adoption concepts were being applied to a civil defense innovation) it was thought it would be better to do the study in one community before doing a regional or national study. The pilot study should provide data which would make it possible to evaluate and improve conceptualization of questions and
methodology before doing a national study.

2. Des Moines was one of the leading cities in stocking public fallout shelters at the time of the research study. Based on O.C.D. data as of July 25, 1963, Des Moines had stocked 74,827 shelter spaces, capable of sheltering over 28 percent of its population. As of that date only 18 of the 215 Standard Metropolitan Areas in the United States had stocked spaces for more than 20 percent of their 1960 population. And only three Standard Metropolitan Areas had stocked spaces for more than 28 percent of their 1960 population. Des Moines, Iowa, was one of these three.
CONCEPTUAL FRAMEWORK

In this chapter a logic or rationale will be constructed that will be utilized to establish the basic premises, and theoretical orientation of this dissertation. This logic or rationale will be based upon past empirical research, generalizations, and conceptual models. The rationale to be developed will be treated as a hypothetical construct to be tested. The hypotheses will be tested by using data obtained from the civil defense study previously described. In addition to the derivation of the hypothetical construct, an attempt will also be made to generate a logically interrelated set of expected relationships between the social and psychological factors studied, and conceptualized as variables.

The variables conceptualized in this dissertation are:

(1) social class
(2) attitude(s)
(3) knowledge
(4) adoption

The variables, social class, attitude(s) and knowledge will be considered as independent variables in this dissertation and the variable adoption will be considered as the dependent variable. It is assumed that conceptual differences in one or more of the independent variables will be reflected in empirical differences in the dependent variable.

Differences in the independent variables will be at the
conceptual level, i.e., by providing conceptual categories for different levels or stages for the independent variables. The major dependent variable, adoption, is represented by the acceptance of a symbolic idea by individual decision makers, and empirically demonstrated at the operational level.

This research is not intended to be a complete, or totally comprehensive investigation of the adoption process. However, the development of general level, and conceptual level hypotheses involve the examination, evaluation and consideration of certain perspectives, concepts, and research hypotheses and assumptions of various academic disciplines. Implicit in this dissertation is the assumption that no one discipline provides all of the concepts and theoretical generalizations that adequately account for the complex behavior involved in the adoption process.

The overall developmental sequence of this chapter will be to first examine a general frame of reference for (1) adoption, and (2) human behavior or action. Within the boundaries of this frame of reference the identity and development of selected social-psychological and situational variables that are expected to be related to differential adoption by individual human actors will be presented. The development of general hypotheses will be followed by the derivation of specific hypotheses. All of the hypotheses to be tested in this dissertation will be derived in the next chapter.
Adoption

In the material presented in the subsequent development of this chapter, attention will be directed towards generalization concerning human behavior and action, as well as generalizations and empirical measures used to operationalize the concepts used and introduced as independent variables. These variables are assumed to influence individual behavior or action as reflected in the individual decisions reported in the civil defense research project which provides the background for this dissertation.

Before moving to this level of discussion however, it is necessary to discuss the definition and scope of the dependent variable, (adoption) represented by individual acceptance of a new idea, practice or product.

Many sociologists, social psychologists and psychologists have studied the process of communicating a new idea, practice or product. Most of this research has been conducted under the rubric of adoption-diffusion research. In general, adoption is a micro concept referring to acceptance of an idea, practice or product by an individual, while diffusion has been conceptualized as a macro concept, (borrowed largely from anthropology) referring to the spread or dissemination of an idea, practice or product through the whole of a potential audience or social system. A major part of adoption research has been to better understand the process and manner by which individuals
accept new ideas, practices or products. The bulk of this re-
search has been conducted largely from the frame of reference
of individuals, or groups of individuals seeking to introduce
new ideas, products, or practices to various categories, groups
or totalities of peoples considered by these change agents as
potential target audiences. Researchers have attempted to
ascertain the role of selected personal factors, such as age,
education, attitudes and values in individual adoption. Cer-
tain selected social factors such as the family, formal and
informal group association(s), status, social cliques and
other reference groups have also been examined. Certain
situational factors such as income, race, mobility, occupation
and the like have been the focus of other adoption research
(12, 11, 15, 28, 51, 65).

A considerable portion of adoption-diffusion research
has centered on the adoption of new farm practices by farmers,
largely conceptualized as individual decision making (3, 46).
The process of becoming aware of, seeking information, and
reaching ultimate decisions about using, or not using these new
farm practices has been referred to as the adoption process
(5, 7, 13). This particular research has generated a concep-
tual framework which assumes that individuals go through a
sequence of steps or stages in this decision making process.
These decision-making stages have been presented as the aware-
ness stage, the information stage, the evaluation stage, the
trial stage, and the adoption stage. This conceptual model has been empirically validated (7).

Subsequent material in this chapter concerning human behavior will attempt to establish some of the generalizations relative to individual acceptance of a new idea, practice or product. Pertinent to this discussion is the importance of communication in the development of the adoption-diffusion model. Within the frame of reference of communication models, research has been conducted to determine typologies of communication which are pertinent at the various stages of the adoption process in individual decision-making. Studies of this nature have been conducted by Beal and Rogers, (5), Rogers and Beal (50, 51), Beal and Bohlen (2), Lionberger (41), Warren (64), Klonglan (36), and Warland (61).

For the purpose of this research, adoption is defined as the acceptance by an individual of a new idea, practice or product. It is assumed and implied in this dissertation that adoption does not have to be represented by an idea, practice or product, the acceptance of which may be measured by a comparison of "has purchased, has not purchased", "does use, does not use" or any similar dichotomy. In this dissertation, adoption will be assumed to have taken place when evidence is presented to indicate that the individual has, through the process of decision-making reached a posture of either deciding to use, or deciding not to use, the innovation advocated by the
change agent. All individuals who are "undecided" or respond "don't know", will be categorized in the non-adopter classification.

The Social System

Human individuals, as they develop within any society demonstrate many different kinds or types of needs. While each of these needs at first glance may seem to be specific and particular for each individual, a closer examination discloses that nearly all individual needs reflect their influences in the social environment of the individual. The needs of the individual are structured by his social environment. The social environment provides guide lines and determines the limits of appropriate alternatives among which the individual may choose to fulfill his individual needs.

From this position one may take the posture that society may be considered as being the individual's social environment. However, to examine the concept society it is necessary to separate this larger concept into smaller distinct units for investigation. These smaller units may then be examined from a systems frame of reference. In other words, while in one context the whole social environment of the individual may be considered as a social system, it is also possible to use the smaller units that impinge upon human behavior or action from a social systems frame of reference. From this posture it follows that an individual is a member of many different social
systems, and his behavior or action may be influenced partially by each of these social systems. Gross states:

"That human behavior is in part a function of the actions and reactions of other members of the multiple social systems in which the individual lives and behaves, and that it is influenced by normative or evaluative standards are basic notions of sociology and anthropology." (25, p. 32)

Gross, et al., expands this position by pointing out that influential psychologists have indicated the importance of interpersonal as well as cultural influences in examining individual personality and behavior.

In this relationship of individual interaction with various social systems there is a reciprocal phenomenon that may be noted. In the interaction between the individual and his social system, he both "gives" and also "receives". In this research the major focus will center upon what the individual secures from the social systems with which he interacts. In this context it is assumed that the individual accepts certain norms, values, ends, and the means of achieving these ends. It is also assumed that the social system exercises various sanctions to reward the individual for appropriate behavior, and to punish the individual for behavior seen by the social system to be inappropriate or deviant. In the consideration of the social system ends and means, the social system desires that individual ends and means be synonymous with those of the social system. Individual acceptance of social system goals and means may be measured by various methods of enumerating
the percentage of individuals who have adopted the new idea, practice, or product. The social system recognizes that individual human behavior or action cannot be exactly prescribed along rigid, specific lines without conflict. Therefore, the establishment of toleration limits allows for individual deviation, while still maintaining the ultimate goals and means of the social system.

This material on the influence of social system(s) on human behavior has been presented previous to the introduction of the basic assumptions concerning human behavior because the development of the theoretical generalizations are dependent upon the assumption that different factors influence human behavior and action. It is further recognized that many different social systems influence the behavior and actions of individuals. Only certain selected social systems and situational variables will be examined in this dissertation.

Human behavior

In the development of the conceptual setting to analyze the effect of various social systems as demonstrated by individual acceptance of a symbolic idea, practice, or product, it is recognized that certain biological differences separate man from the lower forms of life. Through evaluation of these biological characteristics, it is found that these differences are relatively slight. However, it is important to note that these relatively small biological differences have led to major
behavioral distinctions. Bohlen and Beal state (12):

"Because of the unique nature of his intelligence, man is inclined to place all the phenomena which he perceives into patterns of meaningful interrelationships." (p. 292)

For an understanding of human behavior, both the individual acting person and the social situation must be considered. Human behavior does not take place in a vacuum, but in a world of perceived reality. In this world the relevant aspects of the physical and social world are combined in a slightly differential manner by each individual. It becomes necessary to determine some of the characteristics by which individuals interpret their physical and social world. Steiner states (9):

"How people come to know and interpret their world is fundamental to the understanding of human behavior, since behavior as distinct from sheer motion, is action that takes environment into account." (p. 87)

Rose states (52):

"...culture, directly or indirectly, makes possible an individual's experience and gives form to an individual's reactions. And, to a certain extent, the individual's personality consists of his past experiences and his recurrent reactions to stimuli, (that is his consistent behavior)." (p. 147)

Sorokin states (58):

"...each of us has as many conscious sociocultural egos as there are organized groups with which we are in contact. The totality of these egos occupy almost the whole field of our conscious mentality, and the totality of these roles and activities fill a major portion of our time, activities and lives." (p. 418)

Man accomplishes the task of placing the phenomena which he perceives into patterns of meaningful interrelationships by
the development, use, and extension of the process of symbolization, abstract for the most part, and most graphically demonstrated by extensive communicative symbolization in both the written and spoken languages. This process allows man to develop his intellect by using abstractions. The significance of this facet of man's unique ability is pointed out by Bohlen and Beal, who state (12):

"Because man is able to go through the process of perceiving interrelationships, because man has the ability to deal with abstractions and communicate via exchange of symbols with meanings, he has therefore another uniqueness. Man is the only form of life which is faced with the necessity of making a distinction between those things which are real and those which are possible. All of the life forms below him must have sensory experience with 'real' things in order to respond to them. There is no intellectually perceived future for any life form which cannot use symbols in its mental operation. Possibilities are always in the frame of reference of the future." (p. 292)

The concept used in the literature of social science to describe this process is called cognition or cognitive mapping. Krech, Crutchfield and Ballachey deal with the process rather extensively, and some of their most cogent observations are reflected in the following statements. Krech, et al., state (38):

"Every man, through cognitive work, attempts to construct for himself his own meaningful world, and he classifies and orders within it a multitude of objects, among which the most significant are other people." (p. 17)

"...there are many common features in the cognitive worlds of all people. This is true because all people have similar nervous systems, share common wants, and cope with common problems." (p. 67)
"Cognitive worlds of individuals can be viewed as the product of four determinants: (1) the physical and social environment, (2) the physiological structure, (3) his wants and goals, and (4) his past experience." (p. 17-18)

In developing the recognition that the cognitive worlds of individuals who interact in a given social system develop concomitantly, Krech, Crutchfield and Ballachey state (38):

(Similarities develop)

"...because of greater similarities in their wants and goals, in the physical and social environments to which they are exposed, and in their learning experiences." (p. 18)

Attention has been directed toward the minimal degree of human behavior that is the result of biological and physiological similarities, with the inference posited that while such influences do exist, the major portion of human action is not innate but directed by the social environment. Berelson and Steiner (9) present the following information relative to their definition(s) of differences between adaptive and instinctive behavior. These authors state (9):

Instinctive behavior is:

"innate tendencies to respond in particular, usually adaptive ways to a particular internal and/or external condition." (p. 38)

"Human behavior is more dependent upon learning, and less regulated by instinct or other innate behavioral predispositions than the behavior of lower animals." (p. 39)

Adaptive behavior is:

"Broadly, the ways in which an organism acts to satisfy its own need and to meet the demands of the environment." (p. 40)
"...it also includes the fulfillment of subjective desires, (e.g. pleasure, personal satisfaction) that are not always directly related to physical demands." (p. 41)

It would follow then that most of man's behavior is adaptive behavior, largely structured by his attempts to develop within a given social environment. Of great significance in this respect is man's ability to recall mental images of his previous experiences, and project himself into the future. Man's responses to current stimuli from his environment are therefore based largely upon his interpretations of what the "meaning" of the stimuli he is receiving represents to him. Bohlen and Beal state (12):

"Man never responds to a stimulus per se. Whenever a human being is faced with a stimulus or problem, he responds not to it, but to the interpretations which he places upon it. He deals not only with the realities of the situation, but with the possibilities of it. Since he can deal in symbols, he can project himself into the future and mentally create alternative courses of action which he can evaluate and then make choices from this evaluation." (p. 293)

These adaptive actions of man depend upon previously acquired knowledge and the individual's interpretation of this information/knowledge. While some action may be due to physiological determinants present in the structure of man, the action forms which are distinctly human are learned, and not instinctive. Man's ability to react to stimuli in a reflective and projective manner is reflected in the assumptions and generalizations given in several disciplines. For example:
Berelson and Steiner state:

"...learning refers to the effects of experience, either direct or symbolic, on subsequent behavior." (9, p. 39)

Hartley and Hartley state:

"It is obvious (from the foregoing discussion) that we hold almost all behavior of the mature individual to be socially derived, socially induced, or socially patterned. When we speak of the close connection between the socialization process and the process of personality formation, we are implying that personality is learned, just as social behavior is learned. Growing up in a group means learning to be a member of a group. It means perceiving what is considered to be correct and essential in a group, accepting these precepts as right, good and necessary, and learning to behave in congruence with them. This process includes ways of thinking and feeling as well as attitudes and behavior towards other people. Slowly and inexorably, objective evidence from several disciplines has driven us to this conclusion." (27, pp. 205-206)

Berelson and Steiner state:

"Beyond its biological base, human behavior is learned behavior, learned, principally from others, since the newborn infant has no instinctive knowledge or ability that would enable it to survive in isolation." (9, p. 65)

From the concepts and evaluations presented certain basic assumptions and generalizations about human behavior are relevant. The basic assumptions of this dissertation relative to human behavior are: (1) man is telic, that is he demonstrates goal directed behavior, (2) man is an organizing being, that is he creates his own world of reality, which exists for him, regardless of whether his perceived world may be scientifically verified or not, and (3) man is a product of
his past experience, including those of his culture, his social class, other social systems, as well as experiences that are unique to him as an individual. These assumptions imply that human behavior is not simple random behavior.

The unit act

It has been posited that man possesses and uses his ability to project himself into the future. Stimuli received in the present, are evaluated in reference to past experience, and man projects the consequences of alternative behaviors into the future. This process allows man to evaluate his past stimuli, his past behavior, and to determine whether he was rewarded in a manner believed appropriate by him for his actions. It is implied that man can select in a meaningful way his desired future. In other words, man has some desired end state of affairs that motivates his behavior, and can from among the alternatives that he perceives open to him, select the goals and the means believed appropriate for their attainment. The goal need not be in the immediate present, but may assume the dimensions of a future relationship which the individual desires to establish for himself in relationship to selected phenomena in his social or psychological world. Courses of action which are perceived by the individual as open to him in reaching this desired future state of affairs are considered as means.
Bohlen and Beal state (12):

"Since all life forms except man respond directly to stimuli, their behavior is much more easily predicted than that of man. They respond in what is called the simple reflex arc, (stimulus—response). Man never responds to a stimulus per se. Whenever a human being is faced with a stimulus or problem he responds not to it, but to the interpretation which he places upon it. He deals not only with the realities of the situation but to the possibilities of it. Since he can deal in symbols he can project himself into the future and mentally create alternative courses of action which he can in turn evaluate and make choices re: this evaluation." (p. 294)

In presenting a conceptual frame of reference for operationalizing the foregoing more distinctly, Bohlen and Beal distinguish the unit act. The unit act is posited as the lowest operational denominator of human behavior. The unit act from the frame of reference of individual human behavior consists of (1) the receipt of a stimulus, (2) the interpretation of the stimulus, including the circumstances under which it was received, and (3) a response or an action. In contrast to the simple reflex arc, (stimulus—response), man thinks in terms of (stimulus—interpretation—response), the unit act. The intrahuman aspects of the unit act are elucidated by Bohlen and Beal as they state (12):

"Before man responds to any stimulus toward which he has not developed a habituated pattern of behavior, he weighs alternative goal choices in terms of the kinds of outcomes he prefers and selects a means for attaining the choices he makes.

Whenever man receives a stimulus he looks into his past experience and asks himself what similar stimuli he has received, what similar problems he has faced... Next, he asks himself how he responded or acted in
relation to these similar stimuli when he met them in the past. This would apply to both ends and means. He then recalls his evaluations of his actions; was he satisfied or unsatisfied, with the outcomes of his actions?

Man relates his past to the future by asking himself if he wants the same outcomes or goals now as he did when he responded to the similar stimuli in the past. If not, what different goal(s) does he want to attain or consider? He projects to the future to determine if the same alternative means that were open to him in the past are still available. Are there more efficacious means now available? Only after he has considered his 'relevant' past experiences and his projections of the future does he choose an alternative (end or mean) which best suits his values."

(p. 294)

The foregoing considerations have been presented from a mean-end frame of reference. Implicit in this discussion is the recognition that a goal may not always represent a fixed relationship in the future. For example, at one point in time a goal may evolve into a means for reaching a more distant goal or objective. A particular goal may represent for the individual an intermediate step towards some later goal. In this transitional situation, the immediate goal becomes a means toward the ultimate goal, (or another alternative goal) projected into the future. It follows then, that whether a particular objective or goal is considered by the individual as a means or an end, depends upon the level or stage of conceptualization along the complex of the means-ends scheme.
Individual determination of values, goals and means-end schema:

During the last four or five decades American behavioral scientists have devoted considerable time and attention to the task of identifying, classifying and interpreting the configurations of human behavior represented by a wide divergency of empirical research. Formerly regarded as supplemental to the study of personality traits, behavioral patterns, and institutional structures, the examination of values, (including goals) has now been widely accepted as feasible conceptual approach in behavioral analysis. Many scholars and researchers have found in this conceptualization a key to some aspects of human behavior which are less accessible by other avenues of investigation.

Implicit in this conceptualization is the assumption that over time, the individual orients himself, and his perceptual world, toward a multiplicity of goals, some of which he expects to accomplish in a relatively short time, others which are represented in his constellation of precepts as projected into a more distant or ultimate future. Pertinent to this conceptualization are some generalizations concerning value(s) as they relate to human behavior.

It is the responsibility of this dissertation to define for the purpose of this study, what is meant by the term value. From this frame of reference it is essential that a conceptualization of what values are, and how they may be
recognized, and the role they play in a schema of motivated human behavior be presented. Values have been defined as motivational variables influencing human action or behavior. The values themselves cannot be empirically examined, but human behavior which is assumed to flow from a value held by the individual may be observed and empirically evaluated. It follows then that empirical evaluation of human behavior or action will impute to the individual certain values which are assumed to motivate this specific behavior or action.

A common notion of value is that value refers to any aspect of a situation, event, or object that is invested with what might be called or defined as a preferential interest. Said interest may be examined from the point of view of being "good", "bad", "right", "wrong" etc. This framework is not sufficient for the purposes of this dissertation. However, problems develop when it is found that a formal definition is often too general to be of specific benefit, and most general definitions involve elements of circularity (e.g. to define value as "interest" leads to only another way of saying value). In order to project the boundaries of value for purposes of this dissertation, those phenomena, largely introspectively established, which are experienced by individuals as value(s) will have three qualities: (1) values have a conceptual element in their makeup - they represent more than sensations, emotions, reflexes or needs. Values are abstractions drawn
from the individuals' repertoire of experience, (2) values are effectively charged, they represent actual or potential emotional involvement or mobilization, and (3) values are not the concrete goals of action, but rather the criteria by which goals are chosen.

From the frame of reference of a social system, values are rarely represented by a clear cut dichotomy, but more often a continuum along which individually held values may range. At one pole are found intense moral/ethical values of the social system, usually internalized by the majority of the members of the social system. Generally, group sanctions available to the social system are called up to punish an individual offender or deviate. From this polar type, individually held values shade off into those evoking less intense personal guilts and less severe social sanctions. At this opposite end of the polar type are found various normative forms of esthetic standards, conventional proprieties, and simple norms of expediency or technical efficiency. Individual behavior at this end of the continuum may be widely divergent, with little or no introspective reflection by the individual actors as to what the "proper" course of behavior in a given situation might be. Only careful research can establish the position of any alleged value along this continuum in the actual functioning of an individual in a social system.

These generalizations concerning value(s) have been pre-
sented prior to the introduction of the process of goal(s), mean(s) and end(s) selection by individual human actors. It is assumed that the process by which an individual selects his goal(s), and end(s) and the mean(s) to reach these objectives in a social system flow from his individual value system. The individual develops this value system by the selective process of judgements based on the accretion of past experience, which are perceived relevant. The individual organizes the satisfactions or dissatisfactions that accompanied each of these experiences, both individually and collectively into a value system. This value system then provides a basis for interpretation of stimuli.

Kluckhohn, et al., state:

"Value implies a code or a standard which has some persistence through time, or more broadly put, which organizes a value system of action. Value, conveniently and in accordance with received usage, places, things, acts, ways of behaving, goals of action on the approval-disapproval continuum.

A value is a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable which influences the selection from available modes, means and ends of action." (37, p. 395)

Bohlen and Beal state:

"The individual's value system provides him with a set of tendencies to act in relation to stimuli which he receives." (12, p. 294)

A value is a subjective interpretation of the relationship which ought to exist between phenomena." (12, p. 291)
Williams states:

"It must be always kept in mind that values, and systems of belief do not operate as single and separate units but are continually shifting and recombining configurations marked by very complex interpenetration, conflict, and reformation. Furthermore, any descriptive scheme that necessitates separate themes of values must not be allowed to leave the impression that values are disembodied elements which somehow function apart from concrete social relations and personalities. Although values are abstractions, everything described must be capable of observation, in some sense, in the behavior of real personalities and in actual social structure." (68, p. 215)

The normative aspects of individually held values resulting from the social system acting upon the individual should be obvious. It is equally possible to evaluate the process of goal(s) and means-end(s) selection by the individual from a framework of possible choice patterns individually selected by the acting individual. It is implied that while choice is possible among alternatives, most of these alternatives are structured by the social system within which the individual functions. From all of the possible interpretations that might be used to evaluate goal(s) and means-end(s) schema, it is the focus of this dissertation to present data relative to the instrumental aspects of value(s), goal(s) and means-end(s) schema as they relate to human behavior. By instrumental it is meant that while such values as wealth, power, work, and the like may be in themselves values, it is the purpose of this research to consider them primarily as instrumental for the achievement of other values. For example, using the concept of legislation, some legislation is enacted as an end in itself
to achieve some value plateau, or goal. Other legislation may be enacted as permissive or enabling, and the prime function of such legislation is to clear the way for action towards a more ultimate goal or end.

It follows then that there must be some connection between what might be termed group values/goals, and individual values/goals. In reply to the question "Why are there values?", Clyde Kluckhohn takes the following position:

"Because social life would be impossible without them; the functioning of the social system could not continue to achieve group goals; individuals could not continue to get what they want and need from other individuals in personal and emotional terms, nor could they feel within themselves a requisite measure of order and unified purpose. Above all, values add an element of predictability to social life." (37, p. 400)

The term goal has been used heretofore without definition. Goals, like values may be examined on many different levels. For the purpose of this dissertation a goal represents a hoped for, deliberately sought for state or situation. These goals are perceived by the individual as having a hypothetical possibility of attainment in the future. It is not implied that the goal must be realized in its entirety, but some substantive portion of it is perceived by the individual as attainable. It is not assumed that all individuals hold similar goals, nor that these given goals must be held in the same degree of intensity by all individuals. It is possible for different individuals to hold opposite or contradictory
goals within the same social system.

Goals therefore will vary from one individual to another. For the acting individual, goals are subjected to a continuous evaluation through the process of decision making, and evaluations of the outcomes of actions taken resulting from decisions made. It is assumed that every stimuli does not involve the whole of the cognitive process at every instance. Many experiences and/or stimuli call up a collectivity of perceived similarities for which the individual has already worked out a patterned response. This response can be conceptualized as a "habituated" response. It is recognized that a single stimulus has the potential of producing many different interpretations. Goals then are not static or rigid, but are continuously developing and subject to change. For a single instrumental value, many different goals may be appropriate and attainable.

In discussing this point Kaplan states:

"Because any social system is a complex matter, and some social systems are much more complex than others, the 'final' pattern of problems that face the individual will be unique. Moreover, his state at the time he is faced with a new problem and learns the appropriate solution will also be unique. Thus, the pressures of socialization may produce an individual who is like many other individuals in certain aspects, but these pressures do not rule out the development of individual differences. Furthermore, learning an appropriate response to a recurring social situation does not require that the underlying motives be the same for all individuals. The motivational basis for orderly, appropriate social behavior need not be isomorphic to the role itself. A variety of motives may result in the same response, just as a variety of responses may come from the same motivational base." (34, p. 662)
According to Krech, et al., (38) which particular goal(s) are selected and their rank ordering by an individual depends upon four factors. These four factors are: (1) cultural norms and values, (2) biological capacity of the individual, (3) individual personal experience, and (4) accessibility in the physical and social environment.

While the above four factors have been presented in relationship to the general process of goal selection by an individual, perusal of factor four calls attention to the fact that goal selection through a process of individual decision making is based in part upon the individual's subjective interpretation of what goals are appropriate for him in his social system, particularly from his subjective interpretation of possibilities of goal attainment. For example, the declaration, "Some day I'm going to be President of the United States", has one interpretation of possibility of goal attainment for a member of the dominant caucasian race, but would at this point in time have quite another interpretation of possibility of attainment for a member of the negro minority in America. In this dissertation it is implied that different perceptions of goal attainment, while they may not change the ultimate goals for these individuals, would introduce certain dimensions of accessibility within the social system, and therefore have an effect on individual decision making.

The means-ends schema may also be examined from an instrumental frame of reference. In this dissertation it is
assumed that the means and ends selected by the individual actor are reflected in his subjective thought, interpretation, evaluation, and demonstrated by his action. It is assumed that an individual who responds to a question about what choice he would make relative to a future action or behavior if a certain phenomena or situation were present, has demonstrated evidence of means-end interpretive decision making. An individual who asserts that he would, or would not, take a subsequent course of action has evaluated or interpreted the stimuli presented by the question, and has responded within the frame of reference of symbolic adoption or non-adoption, as used in this dissertation. The data evaluated in this dissertation is presented in an "if-then" frame of reference. The assumption is made that means-ends criteria are called up by the respondent, and may be empirically validated by evidence of individual decision making even though no specific overt action has been undertaken by the acting individual.

It is assumed in this dissertation that in the means-ends schema the criteria for individual selection of the most appropriate means from among alternatives are consistent with those used in the selection of goals. These criteria are: (1) cultural norms and values, (2) biological capacity of the individual, (3) past personal experience, and (4) accessibility in the physical and social environment. It is assumed that these criteria are individually significant, or may be combined in a large number of different configurations by the
individual in his decision making process. It is postulated that the acting individual may only select from those means of which he is aware. It is assumed that individual differences in ability, social class, knowledge, technical competence, attitudes, or other variables may significantly influence the extent and degree of individual awareness of possible alternative means. These variables may also play a critical role in helping or hindering the individual to interpret and evaluate the alternative means available in his social situation.

Basic premises and postulate(s)

In its major aspects the foregoing discussion of human behavior represents basically the behavioral scientists' means-ends schema of human behavioral responses developed within the disciplines of anthropology, certain theories of sociology, and certain motivational theories of psychology. In its broadest interpretation, the means-ends schema hypothesizes that individual human behavior is determined by a combination of individual characteristics represented by biological components, personal and social configurations that are the consequences of the process of socialization, individual unique experiences that constitute personal social learning, including all relevant aspects of the individual's relationships with his social environment.

Based upon the preceding generalizations about human beings and human behavior, the following basic premises are
stated:

1. Man is telic, he demonstrates goal directed behavior.

2. Man is an organizing being, he creates his own world of reality.

3. Man is a product of his past experience, including those structured by his culture, his social class, other social systems, as well as those unique to him as an individual.

4. Human behavior is normatively regulated, largely by norms present in the individual's social environment.

5. Human behavior is influenced by the phenomena of interpretation, which takes place subjectively, (introspectively) between the stimulus and the response.

Based upon the preceding discussion, generalizations drawn about human action, and the foregoing basic premises, the following basic postulate is stated:

Basic postulate:

Human behavior is largely a product and/or a collectivity of individual responses to stimuli that are subjectively, (introspectively) interpreted in relationship to certain critical variables, both individually and socially derived, before appropriate action is undertaken by the individual decision maker.

Social class, dimensions and ramifications

Distinctions and dimensions are established in any society that tend not only to distinguish between persons and groups in terms of hierarchic levels, but also serve to keep these persons and groups separated from each other. The process by which this differentiation is accomplished is known as social stratification. By stratification is meant the division of a population into two or more relatively homogeneous layers,
between which there are differences in privileges, restrictions, rewards and obligations. In general, the effect of such distinctions tends to limit social interaction between class stratification. Each layer of the stratification schema is only relatively homogeneous, and the dimensions of each layer become more marked and recognizable when a given layer is compared to the other layers along the continuum. Depending upon the society or culture under examination, these dimensions of differences in privileges and rewards enjoyed, or restrictions and obligations imposed upon individuals, may be more or less arbitrary, or more or less functional. By functional it is meant that the stratification process is somehow related to the total needs of the society. While the process of ranking categories of individuals into various layers within society is stratification, the layers themselves are frequently referred to as social classes. The two most common distinctions are drawn between "social class" and "social caste." Social caste refers to a stratification process resulting in distinct, non-overlapping, relatively immutable categories, usually arranged in a "social heirarchy." Social class refers to stratification into less distinct categories. In most societies stratified on the basis of social class it is possible for an individual to move vertically from one class to another by altering his position in relation to one or more of the variables used to establish the dimensions of the class. The most common representation
of social class is usually referred to as the Socio-Economic status of an individual. Most of the social stratification research in the United States has been done on the basis of criteria relevant to the socio-economic structure of American society. The process of stratification is then demonstrated by different levels of individual attainment along this continuum. Usually this research finds that the economic institution is dominant in American life. Thus, the position of the individual in the economic sub-system is important in determining his over-all "place" in American society.

In the socialization process of an individual, the individual learns to view relevant objects in the same frame of reference as do the other significant persons in his world. He must learn to do so in order to communicate with these other individuals about important phenomena in order to fulfill his own needs in the social system. As this process takes place two significant dimensions of the communicating process occur, (1) the individual's perceptions are "corrected" when they differ from accepted perceptions made by the rest of the social system, and (2) the individual is exposed, by the group, to only the shared frame of reference of the group. Thus, the individual learns to perceive the world in a manner that is shared by the significant others in his social system.

Members of small face to face groups develop shared ways of looking at the world, in much the same way that the individual does in the socialization process. These shared frames
of reference are called norms. Just as attitudes refer to the individual's predispositions to respond to a class of objects in a certain positive or negative way, so norms refer to shared predispositions of an interrelated set of people, (a group, category, etc.) to respond to classes of objects or stimuli in certain positive or negative ways. Group norms include: (1) the frame of reference from which the stimuli or given relevant object is perceived, (2) socially prescribed "right" attitudes or behavior toward the object or stimuli, (3) affective feelings regarding the "rightness", (sacredness) of these attitudes and violation of the norm, and (4) positive and negative sanctions by which proper behavior is rewarded and improper behavior is punished by the social system. Norms are "in the eye of the beholder", they exist for a given individual and influence his behavior to the extent that he believes that relevant others hold these norms.

At the level of empirical operationalization relevant to the concept of social stratification three general level approaches are usually used, either in combination, or singly. These approaches are: (1) the reputational approach; the social class of the individual is defined by the interpretation of others, who place the individual in the social hierarchy, (2) the objective approach; the social class of the individual is defined in terms of some objective criterion or indices such as educational level, occupation, income, area
of residence and the like, and (3) the self-evaluation or subjective approach; the social class of the individual is defined in terms of the individual's own perception of his class membership. Type one, (1) research is illustrated by the research conducted by Warner (62, 63), type two, (2) research is illustrated by the studies conducted by Hollingshead (29), (30), type three, (3) research is illustrated by the studies conducted by Centers (16).

Attention has been focused on the concept of social stratification because it is assumed that the individual's place in society has important effects on the formation of individual attitudes, values and behavior. Strodbeck, et al., (59) found that the social class of jurors, as the social class of each juror was perceived by their fellow jurors, affected the participation and influence of the individual juror. Social class as related to voting behavior, political affiliation and attitudes was studied in 1958 by Converse, (18). In a study to determine the ratio of psychotics and neurotics on the basis of social class, Hollingshead (30), found more psychotics in the lower social class, while more neurotics were represented by individuals within the middle social class.

The most intensive studies of class differentials and distinction has been in the arena of various child care practices. From the standpoint of longitudinal studies of
this nature, Davis and Havighurst (20), reported that in the 1930's the middle social class tended to be more restrictive, usually attempted toilet training of the infant at an earlier age, and in general placed considerable stress upon the achievement of "independence" by the child. In contrast the lower class was reported as being more permissive and possessed a wider range of "acceptable" behavior before sanctions were used. However, when sanctions were deemed necessary, the lower class parent was much more prone to use physical punishment as a means of social control. In contrast, studies conducted approximately two and one-half decades later by Sears, et al., (54), and by Bronfenbrenner (14), produce data that indicate that trends noted in the 30's seem to have been reversed.

The general nature of the theory of social comparisons provides that theoretical basis for hypotheses generated positing expected differences in perception and ultimate behavior patterns between members of different social classes. It has been hypothesized by Homans (31), that individuals prefer to be compared with others who most resemble themselves on various selected criteria and characteristics, such as educational level, occupation, attitudes and abilities. Homans found that when the individual was given the opportunity to make personal social comparisons, he most often compared himself with others who resembled himself on these selected criterion and characteristics. Hollingshead (29) found that
individuals were selected for formal group membership on the basis of those socio-economic variables which were basically similar to the current membership of the organization. Homans (31), in evaluating the pioneer work of Whyte's study of the "Bank Wiring Group", and "The Norton Gang", presents the following generalizations:

"...the more nearly equal in social class or status a number of individuals are, the more frequently they will interact with one another. This implies that interaction is the most frequent where social distance is the least." (p. 66-67)

Homans justifies this hypothesis by proposing that interaction between individuals is both a "give" and "take" situation. By this he meant that interaction with an individual of a perceived higher social class adds prestige to one's own status, and conversely, interaction with an individual of a perceived lower social class may, by either group or introspective personal evaluation endanger one's own social class standing or status. It is assumed that social distance will discourage interaction with those of a perceived lower social class or status.

Lionberger states:

"Whenever people associate over extended periods of time they rate each other on the basis of things considered important. The evaluation may be on what they say and do, in terms of local expectations, or on whether they possess generally valued attributes and characteristics. Thus high income, ownership of a big farm, and high educational attainment may be prized possessions. Other things being equal, those who possess them singly or in a combination are regarded as being "better situated" than those who do
not. In a sense, persons are placed in a high-low hierarchy on the basis of what they have or don't have, or on the basis of how much they have of what is considered valuable. The position assigned is referred to as social status, and the factors upon which social position is assigned as status factors."

(p. 84)

It is assumed in this dissertation that differences exist between various social classes. These differences may be examined from various perspectives. In this dissertation, certain objective criterion, namely, education, occupation, income, etc. will be operationalized. The social class of the individual will be determined on the basis of the individual's position along the objective criteria continuum.

It is assumed that individual membership in a certain social class will also be reflected in the availability, or non-availability of opportunities to become aware of the public fallout shelter program. It is recognized that the civil defense change agent has used various types and kinds of mass media to expose the population to the civil defense shelter program, and therefore mass media may cross class lines. However, it is further recognized that certain direct programs have been initiated by various civil defense change agents, active in the shelter phase of the program, that have had as their major focus selected groups, organizations, and categories of individuals. Certain situational variables such as membership(s) in civic, religious, fraternal and other social groups outside of the peer associations in the home are directly related to social class. It is assumed in this
dissertation that differential exposure to the shelter program, based on differences between the class structures of the individuals may be present. In other words, if one's social class is marked by very few opportunities to communicate with others, in contrast to another individual who has a much wider group association, awareness, or personal evaluation of the civil defense shelter program may differ significantly between these two individuals.

**Basic premises and postulates**

In its major aspects the foregoing discussion presents certain selected portions of the behavioral scientists' interactional schema of human behavioral characteristics in relation to social class differences.

Based upon the preceding generalizations about human behavior as influenced by social class membership of the individual, the following basic premises are stated:

1. Social stratification takes place in every society.

2. Social stratification tends to limit social interaction between class lines, and to encourage social interaction within social class dimensions.

3. Social stratification in the United States, most generally takes place along a continuum usually related to the socio-economic circumstances of the individual.

4. The socio-economic position of the individual can be determined by certain selected criterion such as occupation, education, income, etc.

5. Exposure to certain stimuli is either fostered, or hindered by individual membership in a specific social class.
Based upon the preceding discussion, generalizations drawn concerning human behavior, and the foregoing basic premises, the following basic postulate is stated:

Basic postulate:

Human behavior is significantly determined by a process common to all social groups, namely, social stratification; this phenomenon both limits and encourages social interaction and communication, as well as influencing the stimuli available to individuals within certain social classifications.

Attitudes

During the last few decades the measurement of "attitudes" has become an American industry. For the price of a newspaper the average American can learn the results of public-opinion studies conducted either regularly or on a single incidence basis by local or national polling agencies. Many of the "slick paper" magazines present findings of more specialized studies conducted. It is well known that certain individuals or firms, through the expenditure of large sums of money, purchase the services of one or more commercial agencies which carry out a custom built attitude survey to meet the specific needs of either the individual or the firm, or in some cases both.

The rationale behind this inquiry stems from generalizations and assumptions that are not particularly difficult to ascertain. It is assumed that knowledge relevant to the attitudes of individuals about certain circumstances or phenomena
will lead to greater precision and accuracy in the prediction and control of individual behavior. It is further assumed that this said prediction and control relative to the behavior of others is important for specific individuals or groups of individuals.

The importance of "attitudes" in establishing some aspect of predictability in human behavior is given by Krech, Crutchfield and Ballachey, who state:

"As man in his finite world is repeatedly forced to cope with the same objects, the repeatedly evoked cognitions, feelings, and response dispositions become organized into a unified and enduring system - for man is an organizing and conserving animal. This entire 'package' of particular beliefs, feelings and response tendencies is henceforth always there, on the ready, whenever the individual is confronted by the appropriate object. In other words he now has an attitude toward the object.

As the individual acquires more and more attitudes - as he 'assimilates' more and more objects in his world, his improvisations toward these objects and his fresh examinations and interpretations of them decrease. His actions become stereotyped, predictable, and consistent - and social life becomes possible. Where there are no enduring beliefs, evaluations, and action tendencies which can be shared by a company of men, social life as we know it would be impossible." (38, p. 137)

The pre-dispositional aspects of attitudes is clearly a part of the frame of reference of these authors. In addition, these authors incorporate a "systems" frame of reference in delineating the concept. By the use of this systems point of view, they posit three attitudinal components which become mutually interdependent in discussing the concept of attitude.
These three components are: (1) the cognitive component, (2) the feeling component, and (3) the action tendency component (p. 135). The cognitive component consists of the beliefs of the individual about the object or phenomena. The feeling component of an attitude refers to the emotions generated by the object or phenomena. The action tendency component of an attitude includes all the behavioral readiness associated with an object or phenomena (i.e., if an individual holds a positive attitude toward a given object, he will be disposed to help, reward, or support the object or phenomena; if he holds a negative attitude he will be disposed to harm, punish or destroy the object or phenomena).

Many researchers in the field of human behavior have taken a position that is basically similar, or only slightly modified, in relationship to their definition and use of the concept; attitude.

Beal and Bohlen state:

"An attitude is an individual's tendency to act based upon his beliefs and values." (12, p. 294)

Katz and Lazarsfeld state:

"An attitude is a disposition to act...social actions of individuals reflect their attitudes...interpersonal relationships seem to be anchorage points for individual opinions, attitudes, habits and values. That is, the interacting individuals seem collectively and continuously to generate and to maintain common ideas and behavior patterns which they are reluctant to surrender or modify unilaterally." (35, p. 44)
Secord and Backman, while using different words to
determine the components or parts of the concept attitude,
do not differ in any essential manner from the above research-
ers.

Secord and Backman state:

"An attitude is usually thought of as a hypothetical
construct, not directly open to observation but in-
ferred from verbal expression or overt behavior. The
term attitude refers to certain regularities of an
individual's feelings, thoughts, and predispositions
to act toward some aspect of his environment. Feelings
are often referred to as the affective component,
thoughts as the cognitive component, and predisposi-
tions to act as the behavioral components. One may
hold attitudes towards abstract entities, such as
democratic government. Attitudes may pertain to remote,
impersonal entities such as foreign aid, concrete
entities such as Coca-Cola, or they may be extremely
personal, such a feeling that one's nose is too big."  
(55, p. 98)

The problem presented by the concept attitude can be
more specifically recognized when it is noted that simultane-
ously the behavioral science researcher is confronted with
attitudes that are both directed by the individual towards
his social system, and attitudes that are directed by the
social system towards the individual. If for example, one
examined the individual for some specific intensively held
attitudes, (i.e., anxiety, honesty, etc., which are sometimes
called traits) it is necessary to contend with the extensive
degree of variational situations and circumstances by which
such traits or characteristics are called up and express
themselves in a measurable manner. If, on the other hand,
one evaluates from the position of behavior principally determined by cultural norms or roles of the impinging social system or society acting or working on the individual, one is immediately beset with a wide divergency in terms of the degree and extent of internalization of the specific attitude by different individuals under examination.

Of the several attempts to provide a mode of analysis for overcoming these coexisting directions, Kurt Lewin has proposed a field theory of behavior. In its essential characteristics, field theory as defined by Lewin is represented by: "...the totality of coexisting facts which are conceived as mutually interdependent." (40, p. 37) Analogically, it represents an attempt to overcome the perceptual problems in viewing reversible figures, and as an attempt to make it possible to understand psychologically and sociologically interrelated data simultaneously.

Milton Yinger, in attempting to conceptualize the problems of attitude strength in terms of operational measurement, borrowing from the "field theory" of Lewin, by developing the theory in more detail states:

"If in our interpretations of behavior we keep the full range of forces in mind, we can use - indeed, need, - terms that refer to each of the forces separately. We simply need to avoid using them as direct explanations of behavior. I shall use tendency, (i.e. tendency to act) to denote an inner disposition that is expressed only under certain conditions, thus implying the necessity for specification of conditions before its relevance for behavior is known."
Because 'trait' usually carries the connotation of a fixed disposition, almost regardless of the situation, I shall avoid using the term. It could possibly be made a useful part of the field of theoretical vocabulary by employing it somewhat after the manner of Gordon Allport. He defines a trait as 'a generalized and focalized neuro-psychic system' (peculiar to the individual), with the capacity to render many stimuli functionally equivalent, and to initiate and guide consistent (equivalent) forms of adaptive and expressive behavior. This Allport contrasts with 'attitude' on various grounds, most helpfully, perhaps, in terms of its greater generality. An attitude is a predisposition focused on a specific object or class of objects; few stimuli are functionally equivalent. It may be close to some of his meaning to suggest a continuum of predispositions, ranging from the trait end, (activated by many functionally equivalent stimuli) to the attitude end, (activated by a specific stimulus). The words involved have such diverse meanings however, that I prefer to think in terms of tendencies that have varying degrees of strength." (70, p. 40)

Conceptually:

Strong (traits) ---- (tendencies - predispositions) ---- (attitudes) weak. Perusal of the above position will disclose that it does not fundamentally differ from those presented by other researchers cited in this dissertation. While attitudes in this schema may be classified as "weak" it is assumed that every attitude includes a predisposition or tendency to act. If, however, the attitude is not held by the individual with sufficient intensity to produce a measurable amount of behavioral activity, the concept is vague and non-operational to this degree, specifically from the action tendency or behavioral component point of view. This does not in any way imply that the affective or cognitive aspects of attitudes
are impaired.

By using this schema which provides sufficient latitude of operationalization to include attitudes that produce no empirical measurable effect, it is expected that a more meaningful interpretation of the concept attitude may be made.

The major focus of this dissertation in the area of attitude measurement will center on the action tendency, or the behavioral component as disclosed by the decision making process of the individual to whom the questionnaire was addressed. There will be no attempt to measure the influence of the attitude of the individual on the social system. While certain individuals may disclose attitude(s) towards civil defense, and public fallout shelters, if there is no measureable amount of behavioral activity, the attitude will be considered of little significance, though it may have potential as a predisposition towards action through additional intensity, or at a later point in time.

In the earlier section of this chapter the general development of individual human behavior was posited as significantly influenced by the interaction of the individual with his social system(s). Moving to the specific concept of attitude it is assumed that the same generalizations are applicable; i.e. individual attitudes are partially formed, altered, directed, and in general are the product of the interaction of the individual in his given social system.
Considerable validity for this position has been generated by studies conducted by various social scientists. For example:

Newcomb states:
"...(in reference to attitude formation)...people who interact with each other tend to perceive things in similar ways."  (45, p. 575)

"...(in evaluation of attitude formation)...interaction on a college level leads to conformity."  (45, p. 586)

Rogers and Beal state:
"...people who interact have similar values and attitudes, and are important referents to each other."  (50, p. 335)

Katz and Lazarsfeld state:
"...(in reference to attitude formation)...interpersonal relationships seem to be anchorage points for individual opinions, attitudes, habits and values. That is, interacting individuals seem collectively and continuously to generate and to maintain common ideas and behavior patterns which they are reluctant to surrender or modify unilaterally."  (35, p. 44)

Festinger, Schachter and Back state:

"Physical 'reality' of a situation can be readily determined by observation, but 'social reality' is not as black and white."

"...the hypothesis may be advanced that the social reality upon which an opinion or an attitude rests for its justification is the degree to which the individual perceives that this opinion or attitude is shared by others. An opinion or attitude which is not reinforced by others of the same opinion will become unstable generally. There are not usually compelling facts which can unequivocally settle the question of which attitude is wrong and which is right in connection with social opinions and attitudes as there are in the case of which might be called facts. If a person driving a car down a street is told by his companion that the street ends in a dead end, this
piece of information may easily be checked against physical reality...the reality which settles the question in the case of social attitudes and opinions is the degree to which others with whom one is in communication are believed to share these opinions and attitudes." (23, p. 168)

The above quote is particularly pertinent to this dissertation as the empirical measures of individual attitude(s) will be assumed to have been influenced by the attitude of the pertinent social system(s) with which the individual interacts.

In this dissertation in order to determine the hypothesized effects of attitude(s) in relation to anticipated behavior or action, a continuum will be generated using certain selected attitudinal questions from the questionnaire. It is assumed that these selected questions will provide a measure of the individual's attitude(s) held toward Civil Defense, as well as a measure of the individual's attitude(s) held toward the public fallout shelter phase of the program.

Basic premises and postulates

In its major aspects the foregoing discussion represents certain selected portions of the behavioral scientists' interactional schema of human behavioral characteristics in relationship to attitude formation and differentials, with specific attention drawn to the tendency or predisposition to act component of the concept attitude.

Based upon the preceding generalizations about human behavior as influenced by attitudes, the following basic premises
are stated:

1. Attitudes are held by individuals, which influence their behavioral actions.

2. Attitudes are predispositions or tendencies to act.

3. Individually held attitudes develop from interaction with the relevant aspects of one's social system(s).

4. Since "tendencies" or "predispositions" to act represent only one aspect of the components of attitudes, attitudes may be held that influence the other component parts, that may not be reflected in the behavioral aspects of attitudes.

5. When no empirical evidence of specific individual overt behavior is demonstrated, presence of the attitude may be inferred by a specific verbal or written response to a question, which, in and of itself, then represents a behavioral response.

Based upon the preceding discussion, generalizations drawn concerning human behavior, and the foregoing basic premises, the following basic postulate is stated:

Basic postulate:

Individual human behavior is significantly altered or determined by the attitudes, (predispositions or tendencies to act) held by the individual, and these attitudes can be measured by evidence of either overt or some form of symbolic behavior; the major portion of the attitudes held by an individual are formed by interaction with relevant and significant aspects of one's social system(s).

Knowledge

Throughout this dissertation attention has been given to the significance of the social system as it influences individual human behavior. From this frame of reference it follows that the social system functions for the individual by providing certain status roles, relationships and regula-
tions, as well as specific norms of behavior for the indi-
vidual, which are directed and controlled by the social sys-
tem. If the behavior of the individual is to be accepted by
the social system, this individual behavior must be within
the tolerance limits of the social system.

Perusal of the research done over the last few years
discloses that much attention has been directed towards exam-
ination of the effect of attitude(s) and selected demographic
and situational variables related to human behavior, often
conceptualized as social systems. Knowledge as a concept,
and as a significant variable influencing human behavior has
received minor attention. These additional data and theoret-
ical efforts have been effective in extending the body of
knowledge of social science in relation to these areas of
specialization, often at the cost of more general interpreta-
tions of human behavior. It would follow that some attempt
to integrate additional general concepts in theoretical and
empirical research endeavors would be beneficial, and specifi-
cally that the examination of knowledge as a general concept
influencing human behavior may broaden the base for meaningful
interpretation and evaluation of human behavior.

The concept knowledge, possesses a wide and diversified
range of definitions and interpretations. In spite of the
difficulties in generating meaningful conceptualization(s) to
provide definite, discrete categories for operationalization
it is believed that knowledge represents a significant aspect or portion of the factor(s) that influence human behavior and action. In general, specific definitions and interpretations for the concept are subject largely to the individual context within which the concept is used. For example in learning theory, the relationship of knowledge to attitude and performance is explained by the stimulus - response - reward schema. Other aspects of learning theory suggest that attitudes, knowledge, and performance activities can be taught, and thereby acquired by the individual. This position presents one theoretical relationship assumed in the learning process. Selecting some of the general level components of adaptive human behavior, McGehee and Thayer state:

"...attitudes, as are other forms of behavior, are acquired as a function of experience, they are learned. This means that in attempting to develop or modify attitudes in an industrial situation we are confronted with the same type of problem we meet when we try to teach an employee a skill or impart knowledge." (42, p. 169-170)

It is assumed therefore, that there exists a direct interaction between attitudes and knowledge, and specifically that attitudes influence the knowledge which is acquired by the individual. It is assumed there exists a relationship between attitude and knowledge in reference to performance. A circularity is in evidence here, as performance is a result of knowledge and attitude, and attitude and knowledge are affected by the individual action taken.
Another significant dimension of knowledge is given by Beal and Bohlen in their discussion of the manner by which the individual reaches a determination to take action in the decision making process. Beal and Bohlen state:

"Because of the unique nature of his intelligence he, (man) has a penchant for placing all the phenomena which he perceives into patterns of meaningful interrelationships -- man is an organizing being. He organizes the world around him into patterns of cause and effect which to him are rational. Since, in many instances he does this without taking into consideration all of the data that are known or possible to know, he sometimes assigns relationships to phenomena which are spurious, from the point of view of scientific 'facts'." (12, 293-294)

This position makes direct reference to the existence, extent and intensity of knowledge used by the individual in the decision making process. It is assumed that the "correctness" or "incorrectness" of the knowledge, used by the acting individual has a direct bearing on the course of action chosen. It is assumed that, in general, the greater the amount of "correct knowledge", possessed by the acting individual about the subject under evaluation, the greater will be the opportunity of the individual actor to accurately evaluate the situation, choose from among the perceived alternatives, and initiate what to the individual appears to be the most rewarding course of action. Beal and Bohlen further elucidate the relationship of knowledge to individual action by taking the position that knowledge as perceived through the eyes of the individual actor is represented by, "...the relationship that (the actor believes) exists between phenomena." (12, p. 293)
Perusal of the above given quotation discloses that interpretation is intimately tied to the patterns of cause and effect, that, to the individual actor, are perceived as being interconnected. Knowledge, that is limited, incorrectly associated, or in any other manner defective, may still be construed by the individual actor as disclosing a relationship that establishes a rationale upon which the individual initiates action. Such spurious associations may limit, misdirect, or in other ways orient the individual to action/behavior decisions deemed inappropriate by others with a greater amount of knowledge, or who view the action/behavior of the individual from another frame of reference. This point is highly relevant in the study of human behavior, and is especially significant in the conceptualization used in this dissertation. If one is only interested in understanding or explaining an individual's behavior one may start from analysis of a given individual's level of knowledge, (i.e. the individual's constructed world of relationships between phenomena) and relate this level of knowledge to individual behavior. However, much behavior research, including this dissertation takes a more normative position. The researcher uses some normative criterion in order to establish a more general and accepted relationship between phenomena. This normative criterion is usually relationships determined on the basis of the scientific method. Through the use of the
scientific method, knowledge of an individual is not described or measured in terms of relationships between phenomena constructed by the individual, but represents the degree to which the individual's constructed relationships agree or disagree with relationships supported by scientific inquiry in reference to the phenomena under investigation.

This discussion brings into focus the concept of perception. The use of this concept of perception is taken from several social science research workers.

Hallowell states:  

"Perception is the process by which we register what is in the field of view in a way that is meaningful."  
(26, p. 171-172)

Hartley and Hartley state:  

"In general, the individual learns to see the world on three levels:  
1. A simple visual response to stimuli.  
2. A more complex reaction, involving the interpretation of such stimuli and the imputation of meaning on the basis of the patterning of the stimuli.  
3. Perception of social situations in terms of previous learnings, expectations, and personal needs."  
(27, p. 309-310)

Krech, Crutchfield and Ballachey state:  

"The cognitions of the individual - his ideas about things, are selectively organized. Only certain things, among all the objects that are 'out there', enter into his perception of the external world."  
(38, p. 17)

"Mental sets may influence which of the many alternatives and meanings of an object will be salient - mental set as a readiness of the individual to organize his perception and cognitions in a particular way. They reflect emotions, physiological states, and the experiences of the individual."  
(38, p. 180)
The quotations given above have introduced the term "information". In this dissertation the concept knowledge is a synonym for the term information. In this dissertation it is assumed that the cognitive world of the individual must involve the phenomena under discussion, before perception can take place for the individual decision maker, i.e., if empirical examination discloses that the phenomena under discussion is foreign to the individual, perception has not taken place for him.

Previous discussion has indicated that the social system(s) of the individual are significant in determining individual behavior. This leads one to the assumption that the intensity, variation, or in some cases, the absence of a specific social system in the perceptual world of the individual will alter individual decision making and behavior. In other words, if the change agent, and the innovation that he advocates are considered as a social system, this social system must be relevant in the perceptual world of the individual decision maker if the individual is to adopt the innovation.

In a study that includes the concept, knowledge, as a part of the research design and conceptualization, one useful approach would be to consider the change agent, and the innovation he advocates from a system(s) frame of reference. Legitimate questions may then be raised as to the number of individual decision makers in the target population who are
The O.C.D. may be conceptualized as a social system, and the innovations advocated by the change agents in O.C.D. as significant aspects of this social system. Knowledge of other elements of the social system such as its goals, facilities, status roles, beliefs and norms may also affect the behavior of the individual decision maker in relation to the system, its programs and innovations. It follows then, that if the social system represented by the O.C.D. is unknown to the individual decision maker, the innovation originating from the O.C.D. change agent(s) may not be relevant to the individual decision maker.

Additional evaluation of the relationship of knowledge to individual decision making is made by Bohlen and Beal, who state:

"Part of man's value system is the tendency to organize both ends and means into more or less organized hierarchies on the basis of favorableness and acceptability to himself as an individual. He may place these in juxtaposition when making his choice of alternatives. When he does this he may choose a lower level or less favorable goal because the means of attaining the more favorable goal was too unsatisfactory for him to accept. When a given goal exists with alternative means for attaining it, he inevitably, (unless he is mentally ill) chooses the means which he considers most satisfactory to him. But of course, amount of knowledge, as well as values and attitudes, will determine even the alternatives he considers in making decisions." (12, p. 294-295)

The relationship assumed between knowledge and decision making in a hypothetical situation similar to the Civil Defense
frame of reference was tested by Bohlen and Beal in a study of 120 farmers in south central Iowa (12). Their findings support and provide partial validity for the assumed relationships between knowledge of several elements of a social system, (cooperative extension) and adoption behavior relevant to innovations recommended by the system.

In the presentation of the concept of Civil Defense, the O.C.D. programs and innovations desired must stand on some rationale developed to indicate to the general population why the innovation is desirable. Philosophic arguments are strengthened by data and information of a specific nature that support the philosophic position of the innovator. For the purposes of this dissertation, these facts or data may be conceptualized as technical data regarding such areas as shelters, nuclear blast and fallout, and other protection factors. This type of knowledge may be conceptualized as technical competence, i.e., the amount of technical data or facts known or understood by the individual decision maker. It is assumed that these data or facts are used by the individual decision maker in his adoptive behavior. The focus here is on the technical competence of the receiver.

From the logic and rationale given in this discussion, the concept knowledge may be conceptualized into two sub-concepts. These are: (1) knowledge of the social system, represented by the change agent, and (2) technical competence,
specific data or facts about the scientific or technological aspects of, or related to, the innovation advocated by the change agent.

In the conceptualization of type one, (1); the major dimensions of the research study will be to determine the degree to which the target audience of the change agent possesses knowledge about the social system, and its relevant social system elements. From this frame of reference, the target audience is determined by the change agent, and the study must be conducted in such a manner as to include an appropriate sample, (if it is not possible to study the entire target audience) representative of this target audience.

In the conceptualization of type two, (2); the major dimension of the research study will be to determine the level of technical knowledge, data or facts regarding the innovation and related phenomena possessed by the individual decision makers, in the target audience of the change agent. A research design from this frame of reference would seek to determine the degree of adequacy of the technical information or data possessed by the receiver in relationship to the innovation being diffused by the change agent.

In both sub-concepts of knowledge the frame of reference is the individual decision maker as a receiver of information and an actor in relation to this knowledge.
Basic premises and postulates

In its major aspects the foregoing discussion represents certain selected portions of the behavioral scientists' interactional schema of human behavioral characteristics in relation to the action or behavior of the individual decision maker.

Based upon the preceding generalizations about human behavior in relation to knowledge, the following basic premises are stated:

1. The individual is constantly exposed to many different stimuli.
2. The individual selectively perceives stimuli.
3. Man creates his knowledge world of reality based upon his individually constructed perception of relationships between phenomena.
4. The knowledge world of man individually constructed, may differ from the scientifically derived world of reality.
5. One aspect of behavior is based upon knowledge, this aspect differing from attitude and values possessed by the individual.
6. Objective educational programs are conducted from the frame of reference that certain knowledge must be transmitted to, and understood by the individual receivers if they are to behave in intended, predictable ways.

Based upon the preceding discussion, generalizations drawn concerning human behavior, and the foregoing basic premise, the following basic postulate is stated:

Basic postulate:

The individual is exposed to many different stimuli which
are selectively perceived. The knowledge world of the individual is used to construct relationships between phenomena, creating his world of reality, which may differ from the world of reality scientifically determined. Knowledge influences individual behavior; specific knowledge must be transmitted to, and understood by the individual, if predicted behavior or action is to follow.

Two sub-concepts flow from the preceding generalizations, discussions, basic premises and basic postulate regarding knowledge. These two sub-concepts are: (1) knowledge of the social system, and (2) technical competence.
HYPOTHESES AND METHODOLOGY

The individual will make a decision to adopt, or to not adopt, a new idea, practice or product on the basis of the rationale he constructs. In this chapter some of the theoretical hypotheses implicit in the preceding chapter will be operationalized and empirical indicies will be developed.

Three general hypothesis are generated from the rational presented in the preceding chapter. These hypothesis are:

1. Social class is related to the symbolic adoption of an idea, practice or product.
2. Attitude is related to the symbolic adoption of an idea, practice or product.
3. Knowledge is related to the symbolic adoption of an idea, practice or product.

The research problem presented is that of moving the concepts in the general hypotheses to more specific, definite levels or terms for empirical investigation. Zetterberg (71), argues for a systematically interrelated set or group of propositions based on their informative value. Carnap, (15a), defines the process of moving general concepts to more specific definite terms for empirical investigation explication. Northrup (46a), has called the relationship between two different levels of a single concept, an epistemic correlation. In this process of explication, several epistemic correlations may be necessary depending upon the original level of conceptualization and the necessary level for empirical investi-
In the three general hypotheses there are four general concepts. These general concepts are social class, attitudes, knowledge and adoption. The level of social class, attitudes, and knowledge may vary independently for different individuals. This variation in social class, attitudes and knowledge may produce a variation in individual adoption behavior, (i.e., the adoption of a new idea, practice or product).

The variables, social class, attitude, knowledge and adoption presented as general concepts will be operationalized. For each of these general concepts, specific sub-concepts related to the general concepts will be given. The relationship of the sub-concepts to the general concepts will constitute step one in the process of operationalization, (i.e., transforming the general level concepts to more definite precise terms) by epistemic correlations relating the sub-concepts to the general concepts. For each of the sub-concepts an epistemic correlation will be used to relate the sub-concepts to the empirical measure used in this dissertation. This epistemic correlation will constitute step two. For each of the empirical measures used, an epistemic correlation will be used to relate the empirical measure to the initial general level concept. This epistemic correlation will constitute step three. These three steps, (epistemic correlations) will constitute the process of explication.
necessary to indicate the relationship between each general level concept, sub-concept and empirical measure used in this dissertation.

In relationship to the process of explication given above, each individual in the study responded to a series of questions in the initial research instrument related to the sub-concepts. These responses are coded to generate a continuum from low to high for each sub-concept. In this way a score is derived from the response of each individual in relation to each sub-concept. These individual scores, grouped according to the coding, then provide a series of mutually exclusive categories along the continuum generated for each sub-concept. This series of scores from low to high derived by coding the responses of the respondents to the questions relating to the sub-concepts in the initial survey instrument are then compared to the series of derived adoption scores which also range from low to high.

In the methodology used in this dissertation, the three general level concepts, (which are conceptualized as independent variables) are derived from responses of the individual to questions in the initial research instrument related to the appropriate sub-concepts. Analysis of the assumed relationship(s) between the dependent and independent variables used in this dissertation will be carried out by correlational analysis, which was chosen on the basis of the rationale
presented in the following discussion and generalizations.

Describing the relationship between two variables has been one of the fundamental tasks of the social scientist. The correlational coefficient is a statistical measure which describes the degree of relation between two or more variables.

Clearly this technique which permits precise quantification of the degree of relation in each set of data is necessary to compare such sets of data with confidence. In other words, not only does a measure of the degree of relation between two variables quantify what otherwise must be left to subjective appraisal, but such quantification permits the comparison of the strength of one relation to that of another.

The correlational coefficient is used in this dissertation as the statistical measure of the relationship between variables, for several reasons. These are:

1. The correlational coefficient is a general measure, i.e., the statistical measurement is independent of the specific units of measurement employed to measure the variables being related.

2. The correlational coefficient technique is a statistical measurement not restricted to limited data, but has wide applicability encompassing many kinds of data.

3. The correlational coefficient technique is a statistical measurement having fixed reference points, indicating the extremes of little or strong association between variables. The correlational coefficient technique is particularly applicable to data which also has fixed upper and lower limits, i.e., because upper and lower limits of association are defined and described, interpretation of a measure of association will be more meaningful for data that also has an upper and lower limit.
4. The correlational coefficient technique is a statistical measurement independent of the sample size, i.e., the value of the correlational coefficient will not change by simply changing the size of the sample.

5. The correlational coefficient technique is a statistical measurement whose size depends entirely on the extent to which the two or more sets of data are related.

6. The correlational coefficient technique is a statistical measurement that employs the full range of scores for each variable, rather than compress or grouping for the analysis.

Three assumptions are made concerning the data that relate to the correlational coefficient as the statistical measurement for the data. These assumptions are:

1. Linearity of data is assumed.
2. Interval-scale measurement is assumed.
3. Normal distribution of data is assumed.

The "t" test is not sensitive to spread if the distribution is normal. Since the distribution is assumed normal, the calculated "t" for each comparison of data is reported at two levels of significance. The correlational coefficient computed between the variables is given. By comparison with the "t" value the significance of the calculated correlational coefficient is given. In order to statistically make inferences about the correlation of data when direction of correlation is predicted, a "one-tailed", "t" value is given in the analysis of data.

The number of individuals ("n") in the Des Moines data
is 246. The calculated "t" statistic is .1058 at the .05 level of significance. The calculated "t" statistic is .1490 at the .01 level of significance. Both the .05 and the .01 level of significance will be used for comparative purposes of the various calculated correlational coefficients between the various variables.

Each of the empirical hypotheses in this dissertation states the expected direction of the relationship between the variables. These hypotheses are stated in such form that it is possible through the use of the correlational coefficient to test whether there is a relationship, (direction stated) between two or more variables.

The operational procedure used in the remainder of this dissertation will be as follows:

1. The number and identity of the sub-concepts assumed related to each general concept will be stated.
2. The rationale relating each sub-concept to a general concept will be stated.
3. The questions from the initial research instrument related to the sub-concept will be stated.
4. The coding used to generate an empirical score for each question will be stated.
5. The epistemic correlations for steps, one, two, and three will be stated.
6. On the basis of the rationale developed, an empirical hypotheses will be generated for each sub-concept.
7. The expected direction of the relationship between the sub-concept scores and the adoption scores will be stated.
The variable common to all hypotheses is the independent variable, adoption. Adoption will be the first variable operationally defined and for which empirical measures will be developed.

Adoption

Adoption has been defined as the behavior or action of the individual following the decision making process. From the frame of reference of the change agent, adoption will be demonstrated when the individual decides to accept the new idea, practice or product advocated by the change agent. At least three general responses for the individual decision maker are possible. These are: (1) the individual may decide not to accept the new idea, practice or product, (2) the individual may accept the new idea, practice or product in such a manner as to "test" this acceptance by restricting his decision to a small limited sample and then evaluate the results before committing all the resources needed for using the idea, practice or product, or (3) the individual may accept the new idea, practice or product in such a manner as to totally commit needed resources to using the new idea, practice or product. An additional possibility is that the individual is unaware of the innovation. Individual adoption may therefore range along a continuum from non-adoption (i.e. non-acceptance) to full commitment/adoption (i.e. full acceptance) of the innovation.
The above discussion has been taken from a frame of reference of what the individual "might do". In this dissertation the decision of the individual relevant to adoption has been secured by specific individual responses to a questionnaire. It is therefore empirically possible to determine the ranking of the individual decision maker along a continuum from non-acceptance to full acceptance of the symbolic adoption of the use of a fallout shelter in the event of a nuclear attack.

In this dissertation the individual is conceptualized in one of the adoption stages in the adoption diffusion model previously defined. Based on the Des Moines Civil Defense Study, the following ten questions are used to determine the adoption stage of the individual with respect to the idea of using a public fallout shelter in the event of a nuclear attack. The questions are given by stages of adoption, and numbered as they appear in the initial Civil Defense Questionnaire.

**Awareness questions:**

42. Have you seen or heard about a civil defense program of preparing buildings for public fallout shelters in this city which will be available in case of nuclear attack?

50. Do you know of any fallout shelter signs posted on any buildings in this city?

51. Do you know about any buildings in this city that have fallout shelter areas stocked with supplies so they can be used in case of nuclear attack?
Information questions:

47. After you first saw or heard about the program for preparing buildings for public fallout shelters have you seen any marked buildings or have you obtained more information about the program?

Evaluation questions:

62. Have you thought about the possibility of you or your family using a public fallout shelter in the case of a nuclear attack?

63. Have you discussed the possibility of using a public fallout shelter in case of a nuclear attack with anyone in your family?

64. Have you discussed the possibility of using a public fallout shelter in case of a nuclear attack with anyone else?

Trial questions:

Questions pertaining to the trial stage were not included in the study. The adoption was of a symbolic nature, and since licenses signed by building owners do not allow the use of the public fallout shelters except in a nuclear attack, in most situations it is impossible for an individual to "try out" a public fallout shelter.

Adoption questions:

83. Have you made the decision to go to a public fallout shelter if a nuclear attack occurs while you and your family are in the business district?

65. Which of the following statements best describes your decision about the use of public fallout shelters if a nuclear attack occurs while you are at home with your family?

(a) Have decided not to go to a public fallout shelter.

(b) Have made no decision about going to a public fallout shelter.
(c) Have decided to go to a public fallout shelter.

66. Do you have a specific plan for the steps you would take to get to a public fallout shelter if there were a nuclear attack, (while you are at home with your family)?

Moving from conceptualization to categorization into adoptor categories, respondents who:

Answered "no" to questions numbered 42, 50 and 51 were conceptualized in the "unaware" stage.

Answered "yes" to one or more of the questions numbered 42, 50 or 51, but answered "no" to question number 47, were conceptualized in the "awareness" stage.

Answered "yes" to one or more of the questions numbered 42, 50 and 51; answered "yes" to question number 47; did not answer "yes" to questions numbered 62, 63 or 64; and answered "no decision", or "undecided" to adoption questions number 65 and 83, were conceptualized as in the "evaluation" stage.

Answered "yes" to question number 83, and answered "decided not to go" or "have made no decision about going" to question number 65 were conceptualized as in "adoption type one", (downtown) stage.

Answered "decided to go" to question number 65, and answered "no" or "don't know" to question number 66, (have a plan for steps you would take to get to shelter) were conceptualized in "adoption type two", (home adoption, no plan) stage.

Answered "decided to go" to question 65, and answered
"no" or "don't know" to question number 66, (have a plan for steps you would take to get to shelter) were conceptualized in "adoption type two" (home adoption, no plan) stage.

Answered "decided to go" to question 65, and answered "yes" to question number 66, (have a plan for steps you would take to get to shelter) were conceptualized in "adoption type three", (home adoption, with a plan) stage.

The five adoption process stages and the three adoption types can thus be conceptualized as a continuum composed of seven stages. Since only six respondents were in the awareness stage, they were combined with respondents in the information stage for the purposes of analysis. Thus, there are six different analytical stages: Unaware, aware-information, evaluation, downtown adoption only, home adoption – no plan, and home adoption with a plan. For each of these adoption stages, an adoption score is assigned which is used to identify each individual respondent, along the adoption continuum generated. The following table is given to illustrate the appropriate adoption stage, and the score assigned to each stage.

<table>
<thead>
<tr>
<th>Score</th>
<th>Adoption stage</th>
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<tbody>
<tr>
<td>0</td>
<td>Unaware</td>
</tr>
<tr>
<td>1</td>
<td>Aware - information</td>
</tr>
<tr>
<td>2</td>
<td>Evaluation</td>
</tr>
<tr>
<td>3</td>
<td>Adoption type one, downtown adoption only</td>
</tr>
<tr>
<td>4</td>
<td>Adoption type two, home adoption, no plan to get to shelter</td>
</tr>
<tr>
<td>5</td>
<td>Adoption type three, home adoption, with plan to get to shelter</td>
</tr>
</tbody>
</table>
The theoretical range for the adoption score is from 0 to 5.

The three adoption types delineated above may be conceptualized as a continuum within the adoption stage. The rationale for the ranking of the adoption types in the manner given above is based upon the assumption that there is a greater potential for saving more lives in the event of a nuclear attack in the progressive order stated. For example, adoption type one is conceptualized on the basis of the response of the individual to a question about using a public fallout shelter "if a nuclear attack occurs while you and your family are in the business district", (Question 83). In the normal course of family day to day activity the family members are much more likely to be separated during the greater part of the day, and if together for any extended period of time there is a greater likelihood they will be so in the vicinity of the home. In other words, in the normal operation of most American families the potential number of hours or times spent together in the downtown business district is considerably less than the potential number of hours or time spent together in or near their place of residence.

In addition to the above generalizations and discussion, additional rationale may be given on the basis of safety and the potential for saving the most lives in the event of a nuclear attack. If one is to assume that an atomic attack
might take place, it is most logical to assume that the target area would be the central business district of the target city. From the standpoint of the most destruction and paralysis of the nerve centers of American society, an atomic explosion in the central city would likely be most effective. Assuming that the enemy force possesses accurate guidance systems, the potential for saving lives would increase in direct proportion to the distance away from the central business district, i.e. the further away the citizens are from the explosion, the greater the potential for saving their lives, and the greater the safety factor they have. Most of the citizens of urban America live in the periphery regions surrounding the cities. The location of the greater majority of the homes would provide spatial separation from the assumed target area.

Adoption type two is conceptualized on the basis of the response of the individual to a question about using a public fallout shelter "if a nuclear attack occurs while you are at home with your family", (Question 65). On the basis of the discussion and rationale presented, it is assumed that an affirmative response to this question would present a greater potential for saving individual lives because the possibility of the family being together is greater and safety and protection is probably greater in homes away from the central city.

Adoption type three is conceptualized on the basis of the response of the individual to a question about having "a
specific plan for the steps you would take to get to a public fallout shelter if there were a nuclear attack." It is assumed that the likelihood that the family will use a public fallout shelter in the event of a nuclear attack is potentially increased if they have generated or devised a plan to go to a public fallout shelter.

The O.C.D. as a change agent may assume, in a subjective frame of reference, that adoption type three is more desirable than adoption type two, and that adoption type two is more desirable than adoption type one, on the basis of the rationale generated. In this dissertation the three adoption types will be conceptualized as a continuum of types within the adoption continuum. In this dissertation the three adoption types will be referred to as stages, even though in a more precise sense they compose types within the adoption stage. This conceptualization will also facilitate the communication of findings and the analysis of data.

Epistemic correlations are needed to relate the dependent variable, adoption, to each of the general concepts, and the sub-concepts relevant to these general concepts. These epistemic correlations will be used to operationalize the hypotheses generated in this dissertation, and to establish the relationships between the hypotheses and the empirical measures used to determine the criterion for the general concepts.
The epistemic correlations used to relate the symbolic adoption of using a fallout shelter in the event of a nuclear attack to each of the concepts and sub-concepts generated in this dissertation are:

Epistemic correlation 1:

E. C. 1: Symbolic adoption of public fallout shelters is a type of adoption.

E. C. 2: The adoption score is a measure of symbolic adoption.

E. C. 3: The symbolic adoption score is a measure of adoption.

Social Class

Social stratification was defined as the process of ranking categories of individuals into various layers within a society. The layers are referred to as social classes. The theoretical relationship of social class to adoption was given in the previous chapter. Certain research workers and studies were cited to illustrate the relationship of the general concept, social class to adoption, (4, 7). In this dissertation operationalization of social class will be made on the basis of three objective criterion, namely: (1) occupation of household, (2) family income, and (3) years of formal education. These three criterion are conceptualized as sub-concepts of the general concept, social class.

*Hereafter epistemic correlation is indicated by E. C.*
Occupation of household

In this study, by research design, approximately one-half of the interviews were secured from men and one-half from women. The research problem is that of determining some meaningful way to conceptualize the responses of both men and women in relation to occupation so that inferences may be generated from the data collected. Essentially, the occupation of the household is sought, with the assumption that the occupation of the principal wage earner in the family will more likely provide an adequate index of the occupation of the household.

Occupation is defined as the vocational employment of the individual. The relationship of occupation to social class has been the focus of study of many research workers, among them Warner (62) and Hollingshead (29). From these and other studies, occupation as a sub-concept of social class has been empirically validated.

In previous studies, occupation has been conceptualized as various forms or kinds of employment ranging along a continuum from very high prestige, (i.e. very desirable) to employment of very low prestige, (i.e. not desirable). The North-Hatt scale has been developed and used as an operational measure for determining a continuum for occupational prestige and desirability. The use of the concept, occupation of household, focuses on the vocation of the head of the
household, and the social desirability of this vocation. A significant difference exists, depending upon the distance or separation along this continuum, in the social evaluation of various occupations.

To operationalize the sub-concept, occupation of household, two empirical measures are used; one is used when the respondent is the male respondent, (male head of the household) and the other when the respondent is the female respondent, (wife of the head of the household). In other words, when the male head of the household was interviewed, his designated occupation was taken as the measure of occupation. When a wife was interviewed, she was asked the occupation of her spouse, and this was taken as the measure of occupation. These two measures provide the operational indices for the sub-concept, occupation of household. In the initial research instrument, the individuals responded to the following questions, and their responses were categorized in relation to the discussion and rationale given:

Question 104. What is your occupation? (used for male head of household)

Question 107. What is your spouse's occupation? (used when wife was interviewed)

Occupation is measured by use of the North-Hatt scale, (see Appendix). In this conceptualization, occupations are ranked on a scale from 33-99, depending upon the social evaluation of the occupation. Therefore, the occupation of
household is given a score according to the social position/evaluation of the occupation of the head of the household. The theoretical range for this sub-concept, occupation of household, is therefore from 33-99. The following relationships are thereby stated:

E. C. 4: Occupation is a measure of social class.

E. C. 5: The ranking on the North-Hatt scale is a measure of occupation.

E. C. 6: The ranking on the North-Hatt scale is a measure of social class.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 4, 5 and 6. The following empirical hypotheses is stated:

Empirical Hypotheses 1:

E. H. 1: The ranking on the North-Hatt scale is positively related to the adoption score.

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*aIn the process of scoring used in this dissertation, the range is usually from low to high, therefore uni-dimensional. The scoring range is dependent upon the dimensions of the concept as empirically measured in the process of operationalism.

*bHereafter empirical hypotheses is indicated by E. H.
Family income

Family income is defined as the average yearly income of the family at the time the interview was taken. Income as a sub-concept of social class has been empirically validated in studies conducted by Converse (18), Centers (16), and others. The use of the concept, family income, focuses directly on the yearly income of the family, and the social desirability of this income. The workers and studies previously cited found that a significant difference exists between various categories or levels of income. In this dissertation family income is used as one empirical measure of social class. In the initial research instrument, the response of the individual was made to the following question:

Question 120 "A". Which of the categories best estimates your AVERAGE family income for the past three calendar years? (1960, 1961, 1962)

1. $1,000 - 1,999
2. $2,000 - 2,999
3. $3,000 - 3,999
4. $4,000 - 4,999
5. $5,000 - 5,999
6. $6,000 - 6,999
7. $7,000 - 7,999
8. $8,000 - 8,999
9. $9,000 - 9,999
10. $10,000 - 11,999
11. $12,000 - 13,999
12. $14,000 - 15,999
13. $16,000 - 17,999
14. $18,000 - 19,999
15. $20,000 - 21,999
16. $22,000 - 23,999
17. $24,000 - 25,999
18. $26,000 - 27,999
19. $28,000 - 29,999
20. $30,000 - 31,999
21. $32,000 - 33,999
22. $34,000 - 35,999
23. $36,000 - 37,999
24. $38,000 - 39,999
25. $40,000 - 41,999
26. $42,000 - 43,999
27. $44,000 - 45,999
28. $46,000 - 47,999
29. $48,000 - 49,999
30. $50,000 - 51,999
31. $52,000 - 53,999
32. $54,000 - 55,999
33. $56,000 - 57,999
34. $58,000 - 59,999
35. $60,000 - 61,999
36. $62,000 - 63,999
37. $64,000 - 65,999
38. $66,000 - 67,999
39. $68,000 - 69,999
40. $70,000 - 71,999
41. $72,000 - 73,999
42. $74,000 - 75,999
43. $76,000 - 77,999
44. $78,000 - 79,999
45. $80,000 - 81,999
46. $82,000 - 83,999
47. $84,000 - 85,999
48. $86,000 - 87,999
49. $88,000 - 89,999
50. $90,000 - 91,999
51. $92,000 - 93,999
52. $94,000 - 95,999
53. $96,000 - 97,999
54. $98,000 - 99,999
55. $100,000 - 101,999
56. $102,000 - 103,999
57. $104,000 - 105,999
58. $106,000 - 107,999
59. $108,000 - 109,999
60. $110,000 - 111,999
61. $112,000 - 113,999
62. $114,000 - 115,999
63. $116,000 - 117,999
64. $118,000 - 119,999
65. $120,000 - 121,999
66. $122,000 - 123,999
67. $124,000 - 125,999
68. $126,000 - 127,999
69. $128,000 - 129,999
70. $130,000 - 131,999
71. $132,000 - 133,999
72. $134,000 - 135,999
73. $136,000 - 137,999
74. $138,000 - 139,999
75. $140,000 - 141,999
76. $142,000 - 143,999
77. $144,000 - 145,999
78. $146,000 - 147,999
79. $148,000 - 149,999
80. $150,000 - 151,999
81. $152,000 - 153,999
82. $154,000 - 155,999
83. $156,000 - 157,999
84. $158,000 - 159,999
85. $160,000 - 161,999
86. $162,000 - 163,999
87. $164,000 - 165,999
88. $166,000 - 167,999
89. $168,000 - 169,999
90. $170,000 - 171,999
91. $172,000 - 173,999
92. $174,000 - 175,999
93. $176,000 - 177,999
94. $178,000 - 179,999
95. $180,000 - 181,999
96. $182,000 - 183,999
97. $184,000 - 185,999
98. $186,000 - 187,999
99. $188,000 - 189,999
100. $190,000 - 191,999
101. $192,000 - 193,999
102. $194,000 - 195,999
103. $196,000 - 197,999
104. $198,000 - 199,999
105. $200,000 - 201,999
106. $202,000 - 203,999
107. $204,000 - 205,999
108. $206,000 - 207,999
109. $208,000 - 209,999
110. $210,000 - 211,999
111. $212,000 - 213,999
112. $214,000 - 215,999
113. $216,000 - 217,999
114. $218,000 - 219,999
115. $220,000 - 221,999
116. $222,000 - 223,999
117. $224,000 - 225,999
118. $226,000 - 227,999
119. $228,000 - 229,999
120. $230,000 or over

(Average family income)
The theoretical range for this score is from 1 to 18. Through the process of coding, a family income score is generated. The following relationships are stated:

- E. G. 7: Family income is a measure of social class.
- E. G. 8: The family dollars earned is a measure of family income.
- E. G. 9: The family dollars earned is a measure of social class.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 7, 8 and 9. The following empirical hypotheses is stated:

- E. H. 2: The family dollars earned score is positively related to the adoption score.

**Formal education**

Formal education is defined as the number of years of formal schooling completed by the individual respondents. Formal education as a sub-concept of social class has been validated in the research and studies previously cited. In these earlier studies formal education has been conceptualized along a continuum grouping various kinds and types of formal schooling into several different levels. The use of the concept, formal education, focuses directly upon the number of years of formal education completed by the individual, and the social desirability of his years of formal education. These earlier cited research workers and studies have found significant difference between various categories or
levels of formal education. In this dissertation the educa-
tional level of each respondent was obtained. The educational
level of each respondent is used as one measure of social
class. In the initial research instrument, the response of the
individual was made to the following question:

Question 112. What is the number of years of formal
education you completed?
1 8 years or less (8th grade or less)
2 9 - 11 years (some high school)
3 12 years (High school graduate)
4 13 - 15 years (Some college)
5 16 years (College graduate)
6 17 plus years (Graduate work)

The theoretical range for this score is 1 to 6. Through
the process of coding, a formal education score is generated.

The following relationships are stated:

E. C. 10: Formal education is a measure of social class.
E. C. 11: The years of schooling is a measure of formal
education.
E. C. 12: The years of schooling is a measure of social
class.

Empirical hypotheses can now be generated using data
from epistemic correlations 1, 2, 3, 10, 11 and 12. The
following empirical hypotheses is stated:

E. H. 3: The years of schooling score is positively
related to the adoption score.
Attitude

Attitude is defined as a pre-disposition or tendency to act. These attitudes, held by individual decision makers, are assumed to be involved in the process of decision making. The theoretical relationship of attitude to adoption was given in the previous chapter. Selected research workers and studies were cited to illustrate the relationship of the general concept, attitude, to adoption (1, 28). In this dissertation attitude(s) will be operationalized on the basis of analysis of individual responses to six questions in the initial research instrument. It is recognized that multiple item scales are usually used to measure attitudes. However, this approach was not used in this study for two main reasons; (1) it was desired to examine several dimensions of attitudes that were not necessarily related to each other, (i.e., a relationship between the attitudes may exist, but the attitudes are not necessarily uni-dimensional and therefore additivity cannot be assumed to always exist in a progressive order between the items) and (2) from this frame of reference the research instrument in general provided only one question per dimension in terms of the response of the individual to the questionnaire. Since the data for this study was taken from the questionnaire it appeared that a broader spectrum would be provided and a more meaningful conceptualization of the concept attitude might be generated if the several attitude questions were treated
independently. These five questions represent responses elicited from the frame of reference of the attitude of the individual toward nuclear fallout, civil defense and fallout shelters, as well as specific attention to local public fallout shelters. These five sub-concepts are: (1) Protection from nuclear fallout, (2) Community responsibility, (3) General civil defense activities, (4) Fallout shelter, and (5) Taxation to support local fallout shelter construction.

Protection from nuclear fallout

It has been pointed out that the shelter program phase of the civil defense program is directly related to the use of a public fallout shelter if a nuclear blast should occur. It was implied in the initial research instrument that the danger from nuclear fallout would be the result of armed conflict or other acts of aggression and war. In addition to questions relevant to perceived threat of war, questions were asked about the respondents perception of what a nuclear attack might mean in relation to the kind, type and spread of devastation resulting from nuclear blast and fallout. In all of the varied questions the overshadowing caste was the effect of nuclear fallout. The use of the concept, protection from nuclear fallout, focuses on those individuals who are concerned about protection from nuclear fallout. Since the fallout shelters have been advocated and presented to the citizens as the major form of protection in the event of nuclear fallout, it would follow there could be a
significant difference between those who believe protection necessary from the possibility of nuclear fallout and those who do not feel such protection necessary. In this dissertation, protection from nuclear fallout is used as one empirical measure of attitude. In the initial research instrument, the response of the individual was made to the following question:

**Question 5-A** At the present time, how concerned are you about protection from nuclear fallout?

00 Have almost no concern whatsoever.

02 Have a little concern.

04 Have a strong concern.

06 Have a very strong concern.

The attitude of the individual in relation to protection from nuclear fallout is measured by the coding, (which was not indicated to the respondent) given above. The attitude of the individual in relation to protection from nuclear fallout was therefore given a score according to the response of the individual to this question. The theoretical range for this score is from 0 to 6. The following relationships are stated:

**E. C. 13:** Attitude about protection from nuclear fallout is a measure of attitude about civil defense.

**E. C. 14:** The protection from nuclear fallout score is a measure of attitude toward protection from nuclear fallout.

**E. C. 15:** The protection from nuclear fallout score is a measure of attitude about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 13, 14 and 15. The following
empirical hypotheses is stated:

E. H. 4: The protection from nuclear fallout score is positively related to the adoption score.

Community responsibility

In the previous discussion it has been pointed out that the O.C.D. has attempted to influence certain special categories or groups of individuals to become involved in specific training aspects of various civil defense programs. It was also pointed out that for those willing to become so involved, the civil defense change agent(s) have desired that these individuals also make the symbolic adoption of using a public fallout shelter in the event of a nuclear attack. In the great majority of the special training programs that have been initiated, these programs have been ancillary to the public fallout shelter program advocated by the O.C.D. In most instances, individuals who have been willing to assume community responsibility in civil defense programs have done so on a voluntary basis. It would follow therefore that individuals who have been willing to assume community responsibility in either the national or local civil defense programs have been exposed to more O.C.D. influence to make the symbolic adoption of using a public fallout shelter in the event of a nuclear attack. On the basis of this exposure to additional influence, it is assumed that those who perceive that they have community responsibility in civil defense will demonstrate more symbolic adoption than others in the general population not so intensive-
ly exposed to the influence of the O.C.D. change agent(s).

From this frame of reference it would follow that there could be a significant difference between those individuals who feel that they have community responsibility in the area of civil defense, and those who do not. In this dissertation, community responsibility, is used as one empirical measure of attitude. In the initial research instrument, the response of the individual was made to the following question:

Question 29: Do you believe that you have any community responsibility in the area of civil defense?

00 Don't know.
00 I have no community responsibility.
02 I have very little community responsibility.
04 I have some community responsibility.
06 I have a major community responsibility.

Community responsibility is measured by the coding, (which was not indicated to the respondent), given above. The community responsibility of each individual was therefore given a score according to his response to this question. The theoretical range for this score is from 0 to 6. The following relationships are thereby stated:

E. C. 16: Belief about community responsibility is a measure of attitude about civil defense.

E. C. 17: The community responsibility score is a measure of belief about community responsibility in civil defense.
E. C. 18: The community responsibility score is a measure of attitude about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 16, 17, and 18. The following empirical hypotheses is stated:

E. H. 5: The community responsibility score is positively related to the adoption score.

General civil defense activities

The individual may be in favor of civil defense or may believe that the program is of no value. The attitude of the individual may therefore range from favorable to unfavorable in relationship to civil defense. State and local civil defense programs have integrated the idea of public fallout shelters advocated by the O.C.D. change agent(s) into their ongoing policies and activities. From the frame of reference of this integration, it follows that the assumption may be made that a favorable or unfavorable response in relation to civil defense may reflect a favorable attitude, or an unfavorable attitude in relationship to symbolic adoption of the idea of using a public fallout shelter in the event of a nuclear attack. From this frame of reference a significant difference may be expected to exist between those individuals who are in favor of civil defense activities, and those who are not. In this dissertation, general civil defense activities, is used as one empirical measure of attitude. In the initial research instrument, the response of the individual was made to the
following question:

**Question 13-11** Civil defense activities are nothing but a waste of money and human energy that could better be spent on working towards peace.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Marked 5, and agree, strongly agree</td>
</tr>
<tr>
<td>03</td>
<td>Marked 4, and agree, strongly agree</td>
</tr>
<tr>
<td>05</td>
<td>Marked 3, and agree, strongly agree</td>
</tr>
<tr>
<td>06</td>
<td>Marked 2, and agree, strongly agree</td>
</tr>
<tr>
<td>07</td>
<td>Marked 1, and agree, strongly agree</td>
</tr>
<tr>
<td>08</td>
<td>Undecided, or don't know</td>
</tr>
<tr>
<td>09</td>
<td>Marked 1, and disagree</td>
</tr>
<tr>
<td>10</td>
<td>Marked 2, and disagree</td>
</tr>
<tr>
<td>11</td>
<td>Marked 3, and disagree</td>
</tr>
<tr>
<td>13</td>
<td>Marked 4, and disagree</td>
</tr>
<tr>
<td>16</td>
<td>Marked 5, and disagree</td>
</tr>
</tbody>
</table>

General civil defense activities, (as a total concept) is measured by the coding, (which was not indicated to the respondent), given above. The general civil defense activities attitude of each individual was therefore given a score

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The previous scores have been uni-dimensional. This concept is multi-dimensional (i.e., the score may range from strongly agree to strongly disagree). The scoring range is expanded to accommodate this additional dimension. In addition it will be noted that the middle range of scores are separated by one point interval, the outside scores separated by a three point interval. It is assumed that the individual taking either a strongly agree or strongly disagree position has a stronger attitude about the concept than a person taking a middle position. For this reason the scoring was weighted to indicate this attitudinal position.
according to the response of the individual to this question. The theoretical range for this score is from 0 to 16. The following relationships are thereby stated:

E. C. 19: Attitude about general civil defense activities is a measure of attitude about civil defense.

E. C. 20: The general civil defense activities score is a measure of attitude about general civil defense activities.

E. C. 21: The general civil defense activities score is a measure of attitude about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 19, 20 and 21. The following empirical hypotheses is stated:

E. H. 6: The general civil defense activities score is positively related to adoption score.

**Fallout shelters**

The individual may be in favor of fallout shelters in general, but opposed to the local public fallout shelter program because he believes the local shelter program is inadequate, poorly organized, or the individual may have any number of other objections. The concept, fallout shelters, is therefore a more general and less specific concept than the local fallout shelter program. It is possible that the individual is new in the city, unaware of the local program, etc., and therefore might give a negative or don't know response to a question about the local civil defense shelter program, but in the larger context be favorable towards the concept. It is equal-
ly possible that the individual is unfavorable towards fallout shelters in any context. Regardless of the potential unawareness or antagonism of the individual towards civil defense, from the frame of reference of the O.C.D. change agent, it is desired that each individual adopt the symbolic idea of using a public fallout shelter in the event of a nuclear attack. It follows therefore, that one significant relationship of potential symbolic adoption is the attitude of the individual towards fallout shelters. The attitude of the individual may range from favorable to unfavorable towards fallout shelters. It is assumed that a significant difference exists in terms of potential adoption of the symbolic idea of using a fallout shelter between those who are favorable towards fallout shelters, and those who are not. In this dissertation, fallout shelters are used as one empirical measure of attitude. In the initial research instrument, the response of the individual was made to the following question:

**Question 93.** In general, how do you yourself feel about fallout shelters, are you strongly in favor of them, somewhat in favor, somewhat opposed, or strongly opposed to them?

- **00** Strongly opposed.
- **03** Somewhat opposed.
- **04** Don't know, no opinion.
- **05** Somewhat favor.
- **07** Strongly favor.
Fallout shelter(s) is/are measured by the coding, (which was not indicated to the respondent), given above. The fallout shelter(s) attitude of each individual was therefore given a score according to the response of the individual to this question. The theoretical range for this score is from 0 to 7. The following relationships are thereby stated:

E. C. 22: Feelings about fallout shelters are a measure of attitude about civil defense.

E. C. 23: The fallout shelters score is a measure of feelings about fallout shelters.

E. C. 24: The fallout shelters score is a measure of attitude about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 22, 23 and 24. The following empirical hypotheses is stated:

E. H. 7: The fallout shelters score is positively related to the adoption score.

**Taxation to support local public fallout shelter construction**

The cost of locating, marking and/or stocking, maintaining, and operating local public fallout shelter spaces must be assumed by some funded source. One possible alternative for the construction of local public fallout shelter spaces is a tax to be levied directly against the local residents to build these facilities. It is assumed that the individual who is not in favor of public fallout shelters will not be willing to pay additional taxes for shelter construction. The individual who is in favor of public fallout shelters may believe that some
other source of construction funds may be preferable to direct
taxation. Some individuals may believe that the value of
public fallout shelters is highly significant to them, and they
would be willing to submit to increased or additional taxation
for local public fallout shelter construction. It is recogniz­
ed that for some individuals who are in favor of public fallout
shelters, but unwilling to submit to direct tax for local
public fallout shelter construction, these individuals will
conceptually be in the same category as those individuals who
oppose taxation because they are opposed to the concept of
public fallout shelters. Regardless of the many possible
explanations why the individual might oppose taxation for local
public shelter construction, it is assumed that those willing
to accept additional taxation have demonstrated a favorable
attitude towards the concept of local fallout shelter construc­
tion. This focuses upon those willing to accept this taxa­
tion, in contrast to those not willing to do so. In terms of
the O.C.D. change agent(s) desire for symbolic adoption of the
use of a public fallout shelter in the event of a nuclear
attack it is assumed that a significant difference exists be­
tween those willing to add additional taxes for local public
fallout shelter construction, and those not willing to do so.
In this dissertation, taxation to support local public fallout
construction, is used as one empirical measure of attitude. In
the initial research instrument, the response of the individual
was made to the following question:

**Question 40-01:** (If you were to vote today); This city (county) should levy a one percent sales tax for a period of one year to be used to build public fallout shelters.

00 No
02 Don't know, no opinion
04 Yes

The concept, taxation to support local public fallout shelter construction, is measured by the coding, (which was not indicated to the respondent), given above. The taxation to support local public fallout shelter construction attitude of each individual was therefore given a score according to the response of the individual to this question. The theoretical range for this score is from 0 to 4. The following relationships are thereby stated:

E. C. 25: Attitude toward taxation to support local public fallout shelter construction is a measure of attitude about civil defense.

E. C. 26: The taxation to support local public fallout shelter construction score is a measure of attitude toward taxation to support local public fallout shelter construction.

E. C. 27: The taxation to support local public fallout shelter construction score is a measure of attitude about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 25, 26 and 27. The following empirical hypotheses is stated:

E. H. 8: The taxation to support local public fallout shelter construction score is positively related to the adoption score.
The general concept knowledge, has been conceptualized as having two sub-concepts. These two sub-concepts are: (1) general knowledge of the social system represented by the change agent, and the innovation he advocates, and (2) specific knowledge of technical data or information about the innovation advocated. In relationship to sub-concept, (1) it was pointed out that certain roles, relationships, beliefs and statuses impinge upon human behavior from the social systems with which he interacts, i.e., the social system may possess some or all of these various dimensions and the individual learns to relate to these factors in the process of socialization. It is assumed that knowledge about relevant social systems will influence individual decision making. In relation to sub-concept (2) it is assumed that the individual will use the data known to him to determine what to him is the most logical and rational course of action in a decision making situation. It follows therefore that an individual with specific technical knowledge or information about an innovation will probably use these data when confronted with a decision making situation that he perceives relevant to the innovation. It is assumed that an individual with data or information will possess a broader base for decision making than an individual who does not have these data or information.

In this dissertation, nine empirical measures of type
one will be operationalized, and one empirical measure of type two will be operationalized. The nine measure of type one are as follows: (1) knowledge of a civil defense program in the United States, (2) knowledge of a civil defense program in this city, (3) knowledge of a civil defense director in this city, (4) knowledge of civil defense in the last few months, (5) knowledge of place of employment marked or stocked as a public fallout shelter, (6) individual initiative re: civil defense, (7) knowledge of organizational activity relative to civil defense, (8) knowledge of any specific buildings selected as public fallout shelters, (9) knowledge of the objective of civil defense. The one empirical measure of type two is: (10) technical data.

Knowledge of a civil defense program in the United States

The change agents responsible for the national civil defense program have used many different kinds and types of media to present the activities, program and philosophy of the national civil defense efforts. Many individuals apparently have not perceived the stimuli resulting from the efforts of these national civil defense change agents. Other individuals are aware of a vague national civil defense program, but have little or no definite understanding of the national civil defense endeavors. From the frame of reference and definition of the concept knowledge used in this dissertation, awareness of the national civil defense program without a determination
of the degree or extent of specific understanding will be used to determine the empirical measurement of the sub-concept. The use of the concept, the national civil defense program focuses on those who are aware of the national civil defense program, in contrast to those who are not aware of the program. It is assumed that a difference will exist between those who are aware of the national civil defense program and those who are not. In this dissertation, knowledge of a civil defense program in the United States is used as one empirical measure of knowledge. In the initial research instrument, the response of the individual was made to the following question:

**Question 3.** At the present time is there a civil defense program in the United States?

- 00 No
- 02 Don't know
- 04 Yes

Through the process of coding, a knowledge of a civil defense program in the United States score is generated. The theoretical range for this score is from 0 to 4. The following relationships are thereby stated:

**E. C. 28:** Knowledge of a civil defense program in the United States is a measure of knowledge about civil defense.

**E. C. 29:** The knowledge of a civil defense program in the United States score is a measure of the national civil defense program.

**E. C. 30:** The knowledge of a civil defense program in the United States score is a measure of knowledge about civil defense.
Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 28, 29 and 30. The following empirical hypotheses is stated:

E. H. 9: The knowledge of a civil defense program in the United States score is positively related to the adoption score.

Knowledge of a civil defense program in this city

Knowledge of a civil defense program in this city is defined as awareness of a program that deals with some phase of civil defense activity under local direction or auspices. These local programs may range from those directed towards certain selected personnel such as doctors, nurses or other professional categories, to programs designed to have the entire population as their target audience. Many individuals apparently have not perceived the stimuli resulting from the programs of a local nature. Other individuals are aware of a local program, but have very little, or no understanding of the local efforts in relationship to civil defense. From the frame of reference and definition of the concept knowledge used in this dissertation, awareness of the local civil defense program without a determination of the degree or extent of specific understanding will be used to determine the empirical measurement of the sub-concept. The use of the concept, knowledge of a civil defense program in this city focuses on those who are aware of a local civil defense program, in contrast to those individuals who are not aware of the program. A
significant difference may possibly exist between those who are aware of the local civil defense program and those individuals who are not. In this dissertation, knowledge of a civil defense program in this city, is used as one empirical measurement of knowledge. In the initial research instrument, the response of the individual was made to the following question:

Question 23. Is there a civil defense program (education, training etc.) in this city?

00 No
02 Don't know
04 Yes

Through the process of coding, a knowledge of a civil defense program in this city score is generated. The theoretical range for this score is from 0 to 4.

The following relationships are thereby stated:

E. C. 31: Knowledge of a civil defense program in this city is a measure of knowledge about civil defense.

E. C. 32: The knowledge of a civil defense program in this city score is a measure of the civil defense program in this city.

E. C. 33: The knowledge of a civil defense program in this city score is a measure of knowledge about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 31, 32 and 33. The following empirical hypotheses is stated:

E. H. 10: The knowledge of a civil defense program in this city score is positively related to the adoption score.
Knowledge of a civil defense director in this city

The local civil defense director is presented the responsibility for establishing the relationship between the national and the local civil defense programs. While many communities may have action programs under the direction and guidance of the national civil defense program(s), (i.e., the civil defense change agents employed by the national office), a program with a local director, who is acquainted with and known to the local populace, will likely be more closely integrated and thereby more effective in the ongoing civil defense efforts. Not all cities or communities have local civil defense directors. In many instances individuals who live in cities or communities where there is a local civil defense director are unaware that such an individual has been so designated. It would follow of course that the informative value of using the local civil defense director as a measure of knowledge would only be possible where the city or community from which the respondents were interviewed did have a local civil defense director. In the Des Moines study used in this dissertation, there is a local civil defense director. The use of the concept, knowledge of a civil defense director in this city, focuses on those individuals who are aware that a specific person has been delegated this responsibility, in contrast to those individuals who are not aware that such an individual has been so designated. It is assumed that there
may be a significant difference between those individuals aware there is a local civil defense director, and those individuals who are not. In this dissertation, knowledge of a civil defense director in this city, is used as one empirical measure of knowledge. In the initial research instrument, the response of the individual was made to the following question:

Question 24. Does this city have a civil defense director?

00 No
02 Don't know
04 Yes

Through the process of coding, a knowledge of a civil defense director in this city score, is generated. The theoretical range for this score is from 0 to 4.

The following relationships are thereby stated:

E. C. 34: Knowledge of a civil defense director in this city is a measure of knowledge about civil defense.

E. C. 35: The knowledge of a civil defense director in this city score is a measure of the civil defense director in this city.

E. C. 36: The knowledge of a civil defense director in this city score is a measure of knowledge about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 34, 35 and 36. The following empirical hypotheses is stated:

E. H. 11: The knowledge of a civil defense director in this city score is positively related to the adoption score.
Knowledge of civil defense in the last few months

In the previous chapter various aspects of individual perception of stimuli were presented. Among the relationships between stimuli and perception it was stated that the more recently the individual has been aware of the stimuli, the more likely the individual would be motivated to act, i.e., the older the stimuli, the more it loses its potential to influence the individual. It follows then, that while the individual may have perceived certain civil defense stimuli, time is one significant factor in determining whether behavior or action follows. It would follow that the informative value of using the sub-concept, knowledge of civil defense in the last few months, as a measure of knowledge would only be possible where there had been recent civil defense activity in the vicinity of the respondent. In the Des Moines study used in this dissertation, local marking and stocking activities, as well as other civil defense programs, had been underway several months prior to the time of the interviews. The use of the concept, knowledge of civil defense in the last few months, focuses on those individuals who have perceived civil defense stimuli recently in contrast to those individuals who have not. A significant difference may be assumed to exist between those individuals who have perceived this recent civil defense stimuli and those individuals who have not. In the research instrument, the respondent was asked about his
awareness of recent civil defense activity in his city. In this dissertation, knowledge of civil defense in the last few months, is used as one empirical measure of knowledge. In the initial research instrument, the response of the individual was made to the following question:

**Question 27.** Have you heard or read anything within the last few months on what civil defense people are doing or planning in this city?

  00  No
  02  Don't know
  04  Yes

Through the process of coding, a knowledge of civil defense in the last few months score is generated. The theoretical range for this score is from 0 to 4. The following relationships are thereby stated:

**E. C. 37:** Knowledge of civil defense in the last few months is a measure of knowledge about civil defense.

**E. C. 38:** The knowledge of civil defense in the last few months score is a measure of civil defense in the last few months.

**E. C. 39:** The knowledge of civil defense in the last few months score is a measure of knowledge about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 37, 38 and 39. The following empirical hypotheses is stated:

**E. H. 12:** The knowledge of civil defense in the last few months score is positively related to the adoption score.
Knowledge of place of employment marked or stocked as a public fallout shelter

Local civil defense personnel have been involved in the marking and stocking of various buildings, both public and private, for use as fallout shelters in the event of a nuclear attack. Among the private buildings marked are churches, office buildings and other commercial and industrial locations. This marking of private business places for public fallout shelters has been evaluated by some individuals as a good policy, and by other individuals as a poor policy. Regardless of how the individual evaluates the program, if the location of a public fallout shelter is in a private business firm, marked and/or stocked, the business firm is responsible for maintaining signs, accesses, and seeing to it that some public display of the availability of the shelter is maintained. Publicity for the firm's employees about the shelter program may range from nothing more than the display of the shelter sign, to other means such as memos, letters or a company meeting with all of the employees present, to explain and detail the shelter program. Depending in part upon the policy of the firm, and in part upon the perception of the employee, the individual employees may range from those who are aware that their place of employment has been marked and/or stocked as a public fallout shelter, to those who are unaware that such a program has taken place at their place of employment. Regardless of the
circumstances under which the perception takes place it is assumed that there exists a potential difference between those aware that their place of employment is marked and/or stocked as a fallout shelter, and those who have not received this stimuli either because of unawareness, or because their place of employment is not actually so designated. The use of the concept, knowledge of place of employment marked or stocked as a public fallout shelter, focuses upon those who have received this stimuli as compared to those who have not. In this dissertation, knowledge of place of employment marked or stocked as a public fallout shelter is used as one empirical measure of knowledge. In the initial research instrument, the response of the individual was made to the following question:

**Question 74.** Has the building in which you work been marked and/or stocked as a public fallout shelter?

00 Doesn't apply

00 No

02 Yes, marked only

04 Yes, marked and stocked

Through the process of coding, a knowledge of place of employment marked or stocked as a public fallout shelter score, is generated. The theoretical range for this score is from 0 to 4. The following relationships are stated:

**E. C. 40:** Knowledge of place of employment marked or stocked as a public fallout shelter is a measure of knowledge about civil defense.
E. C. 41: The knowledge of place of employment marked or stocked as a public fallout shelter score is a measure of place of employment marked or stocked as a public fallout shelter.

E. C. 42: The knowledge of place of employment marked or stocked as a public fallout shelter score is a measure of knowledge about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 40, 41 and 42. The following empirical hypotheses is stated:

E. H. 13: The knowledge of place of employment marked or stocked as a public fallout shelter score is positively related to the adoption score.

**Individual initiative, re: civil defense**

As new information becomes available to an individual, changes in his thinking may occur. This new information may cause different changes in the individual's perceptive or cognitive world, and thus in turn may cause changes in his behavior or action. As individuals acquire new perceptions they may be led to seek out more new information. As they learn more about an innovation, new perceptions may be induced, possibly impelling them to learn still more. In addition to the stimuli available to the individual through mass media, local and national civil defense change agents have additional information and data about civil defense available for the individual who asks for it. In other words, if the individual is motivated to secure additional information or data about civil defense and the fallout shelter program, resources are available to
provide this information. This information or data is given from a frame of reference favorable to the use of a public fallout shelter in the event of a nuclear attack. It is recognized that the question used to operationalize this conceptualization is not a usual knowledge statement. It is more an intermediate behavior question. It could be argued that this behavior should result in additional knowledge about civil defense. However, as used in this dissertation the question seeks to determine if there is a relationship between those who have sought additional information about civil defense and their adoption of the use of a public fallout shelter in the event of a nuclear attack, regardless of their individual motivation, or specifically where the data or information was secured. Other research workers have found a relationship between those who sought information about a new innovation and their adoption of the innovation. For example, Klontlan, (36) found coupon clippers had a higher knowledge about pesticides and a higher rate of adoption of a weed killer (Handox) than those who did not seek additional information by sending the coupon. Sabri (53a) found a higher rate of adoption among those who sought information about civil defense, and fallout shelters. Yarbrough, (69a) found a slightly higher rate of adoption of fertilizer among those farmers who requested bulletins. In this study the individual behavior or action of seeking additional information about civil defense will be
treated as an indicator of knowledge. Individual initiative re: civil defense, is used as one indirect empirical measure of knowledge. In the initial research instrument, the response of the individual was made to the following question:

Question 10. Have you ever personally sought any information about civil defense?

  00  No
  02  Don't know
  04  Yes

Through the process of coding, (which was not indicated to the respondent) an individual initiative, re: civil defense score, is generated. The theoretical range for this score is from 0 to 4. The following relationships are thereby stated:

E. C. 43: Individual initiative, re: civil defense information is a measure of knowledge about civil defense.

E. C. 44: The individual initiative, re: civil defense score is a measure of individual initiative, re: seeking civil defense information.

E. C. 45: The individual initiative, re: civil defense score is a measure of knowledge about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 43, 44 and 45. The following empirical hypotheses is stated:

E. H. 14: The individual initiative, re: civil defense score is positively related to the adoption score.
Knowledge of organizational activity relative to civil defense

The fallout shelter program has been the focus of discussion by various groups and organizations. Sometimes local or national civil defense change agents are present to join the discussions, on other occasions data has been supplied by the change agents in relation to civil defense programs and activities. Regardless of whether resource personnel or data is available at the meeting, the interpersonal communication between the members is a source of knowledge. The use of the concept, knowledge of organizational activity relative to civil defense, focuses upon those individuals who have been present when groups or organizations discussed civil defense, in contrast to those who have not been present when such discussions took place. A significant difference may be assumed to exist between those individuals who were present when a group or organization discussed civil defense, and those who have not been exposed to the stimuli that such a discussion presents.

In this dissertation, the concept, knowledge of organizational activity relative to civil defense, is used as one empirical measure of knowledge. In the initial research instrument, the response of the individual was made to the following question:

Question 86. During the past year has any organization to which you belong participated in or discussed to any extent civil defense activity?

00 No
04 Yes
Through the process of coding, a knowledge of organizational activity relative to civil defense score, is generated. The theoretical range for this score is from 0 to 4.

The following relationships are thereby stated:

E. C. 46: Knowledge of organizational activity relative to civil defense is a measure of knowledge about civil defense.

E. C. 47: The knowledge of organizational activity relative to civil defense score is a measure of organizational activity relative to civil defense.

E. C. 48: The knowledge of organizational activity relative to civil defense score is a measure of knowledge about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 46, 47 and 48. The following empirical hypotheses is stated:

E. H. 15: The knowledge of organizational activity relative to civil defense score is positively related to the adoption score.

Knowledge of any specific buildings selected as public fallout shelters

Both the national and local civil defense change agents have been active in the locating, marking and stocking of fallout shelter spaces in various local communities. These activities have resulted in specific signs that designate specific fallout shelter areas, maps, plans and locations of shelter marked and/or stocked buildings distributed by various mass media. The result of this dissemination of information is that some individuals know the location of specific buildings
with shelter spaces designated, and other individuals have not perceived this stimuli, and do not know the location of any buildings where shelters spaces have been located, marked and/or stocked. The use of the concept, knowledge of any specific buildings selected as public fallout shelters, focuses directly on those individual who know the location of buildings so designated, in contrast to those individuals who do not know the location of shelter marked and/or stocked buildings. In this dissertation the concept, knowledge of any specific buildings selected as public fallout shelters is used as one empirical measure of knowledge. It is believed that a difference may exist between those who can name a specific building with a shelter for fallout protection, and those who cannot. In the initial research instrument, the response of the individual was made to the following question:

Question 52. Can you specifically recall any buildings that have been selected as public fallout shelters?
00 Doesn't apply
00 No
04 Yes

Through the process of coding, a knowledge of any specific buildings used for fallout shelters score, is generated. The theoretical range for this score is from 0 to 4.

The following relationships are thereby stated:

E. C. 49: Knowledge of any specific buildings selected as public fallout shelters is a measure of
knowledge about civil defense.

E. C. 50: The knowledge of any specific buildings selected as public fallout shelters score is a measure of any specific buildings selected as public fallout shelters.

E. C. 51: The knowledge of any specific buildings selected as public fallout shelters score is a measure of knowledge about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 49, 50 and 51. The following empirical hypotheses is stated:

E. H. 16: The knowledge of any specific buildings selected as public fallout shelters score is positively related to the adoption score.

Knowledge of the objective of civil defense

National and local civil defense assumes various dimensions for different individuals. For some, local problems believed under the jurisdiction of civil defense, such as tornado watching and warning etc, assume the role of the objective of civil defense for these individuals. For others, the national public fallout shelter program is the objective of civil defense. For the civil defense change agent, the public fallout shelter phase of civil defense is a major objective of civil defense for the majority of Americans. The use of the concept, knowledge of the objective of civil defense focuses upon those individuals who have received the stimuli from civil defense in such a manner that they identify the objective of civil defense as the public fallout shelter pro-
gram. These individuals are contrasted with those who do not identify the public fallout shelter program as the objective of civil defense. A significant difference is assumed to exist between those who respond that the objective of civil defense is the public fallout shelter program, and those who do not. In this dissertation, the concept, knowledge of the objective of civil defense, (accepting the public fallout shelter program as the objective) is used as one empirical measure of knowledge. In the initial research instrument, the response of the individual was made to the following question:

Question 6-07. (The objective of civil defense at the present time is:) To provide public fallout shelter space for everyone in the country.

00 Doesn't apply
00 No
04 Yes

Through the process of coding, a knowledge of the objective of civil defense score, is generated. The theoretical range for this score is from 0 to 4. The following relationships are stated:

E. C. 52: Knowledge of the objective of civil defense is a measure of knowledge about civil defense.

E. C. 53: The knowledge of the objective of civil defense score is a measure of the objective of civil defense.

E. C. 54: The knowledge of the objective of civil defense score is a measure of knowledge about civil defense.
Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 52, 53 and 54. The following empirical hypotheses is stated:

E. H. 17: The knowledge of the objective of civil defense score is positively related to the adoption score.

Technical data

A portion of the data supplied by both national and local civil defense change agents have been in the area of semi-technical data in relation to the effects of nuclear blast and fallout. Certain technical facts were grouped in a series of questions in the research instrument presented to the respondents in the Des Moines study. These technical data questions were to be answered in a "yes", "no", and "don't know" form by each of the individual respondents. Some of the questions were framed in such a manner that an affirmative answer indicated the respondent had technical knowledge related to the effects of nuclear blast and fallout. Some of the questions were framed in such a manner that a negative answer indicated that the respondent had technical knowledge related to the effects of nuclear blast and fallout. Regardless of how the individual question was written, the answers to the series of questions could be evaluated and the number of "correct" answers determined. This number of correct answers gave an empirical measure of the degree or amount of technical information or data known by the respondent. This series of grouped
questions dealt with the effects of radiation. In the conceptualization given for the general concept, knowledge, technical data was given as a sub-concept. It can be seen that each question could have been conceptualized as one part of the sub-concept technical data, generating thereby nine empirical measures of technical competence. However, since the ultimate purpose of this series of questions was to determine the extent of technical competence of each individual respondent some form of scoring using additivity appeared desirable. A decision was therefore made to group all of the questions and arrive at a total score for the grouped questions. From this frame of reference, each question is scored as correct if the response of the individual agrees with the correct response as given by the O.C.D. In this dissertation, technical data focuses upon the number of correct responses of each individual to questions relevant to nuclear radiation on the basis of technical facts supplied by the O.C.D. change agent. It is assumed that the greater the amount of technical data possessed by the individual, the greater will be his base for evaluation and decision making. These nine responses are therefore grouped as one empirical measure of technical data. In the initial research instrument, the response of the individual was made to the following series of questions:

Question 94 through 102:

Each person answered nine questions and the score
for each person was determined by the number of correct answers for the nine questions on the basis of data supplied by the O.C.D. The nine questions were as follows:

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<thead>
<tr>
<th>Scoring</th>
<th>Question and number</th>
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<tbody>
<tr>
<td>Agree</td>
<td>Disagree</td>
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<tr>
<td>0</td>
<td>1</td>
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Through the process of coding a technical data score is determined. In this operationalization each correct response was given a score of 1, therefore the theoretical range for the technical data score is from 0 to 9. The following

aAll "don't know" responses are scored and coded as 0.
relationships are stated:

E. C. 55: Technical data is a measure of knowledge about civil defense.

E. C. 56: The technical data score is a measure of technical data.

E. C. 57: The technical data score is a measure of knowledge about civil defense.

Empirical hypotheses can now be generated using data from epistemic correlations 1, 2, 3, 55, 56 and 57. The following empirical hypotheses is stated:

E. H. 18: The technical data score is positively related to the adoption score.

Selection of sample population

The rationale for the selection of the city of Des Moines, Iowa for the research project herein described has already been given. However, additional rationale and data are appropriate in relation to the sample and data collection procedures.

A decision was made to interview only husband and wife households in this study on the basis of the following rationale: (1) Since this was the first time adoption concepts were being applied to a civil defense innovation, a pilot study, a relatively homogeneous sample was desired. In other words, from the standpoint of conceptualization, categories of respondents that were homogeneous would allow the use of the model with fewer categories of respondents. Census data indicated that approximately 20 percent of the adult population would
have to be categorized in several ways to include various living arrangements, family statuses, etc., if these individuals were to be included in the sample. (2) The research problem of finding respondents for the study was one significant aspect of the pilot study, particularly because research monies for the pilot study were limited. From this frame of reference it was believed that funds could be better used to increase the sample size if a population could be selected with a minimum amount of time and expense spent in locating the respondents. (3) In decision making in relation to civil defense and public fallout shelters, it is assumed that a husband and/or wife population would likely include their minor children in any behavior or action they believed appropriate for themselves. From this frame of reference it is assumed that potential use of public fallout shelters, in terms of number of spaces used, or potentially used, could be more closely estimated.

According to the 1960 census, the city of Des Moines had 68,266 households. The Iowa State University Statistical Laboratory estimated that approximately 80 percent of these households are husband and wife households. Thus, the statistical population for this study was approximately 54,000 husband and wife households in Des Moines. A probability sample of households was selected for the study. Wives were to be interviewed in approximately one half of the households and
husbands in the other one half of the households. Whether a husband or a wife was to be interviewed in a household was systematically determined by research design before the interviewer went to the household. In a small sample of households both the husband and wife were to be interviewed to determine their consensus about using a public fallout shelter if there was a nuclear attack.

The interviews were taken in June and July of 1963. All interviews were taken by professional interviewers in a personal interview situation. A total of 246 interviews were completed. Of this number, 137 interviews were completed by wives, and 109 were completed by husbands. In 13 of the 246 interviews, both the husband and the wife in the household were interviewed. In the instance where both the husband and the wife were interviewed, they were interviewed separately.a

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aData on selection of sample, probability procedure etc. is given in a restricted report completed in 1964 by the research staff of the Sociology Department at Iowa State University. This report number is: Contract No. OCD-OS-62-150, sub-task 4811-D. Since this is a restricted publication, it is not included in the bibliography, but would be available to certain qualified individuals for examination.
ANALYSIS OF DATA AND FINDINGS

The number of individuals ("n") in the Des Moines study is 246. The calculated "t" statistic is .1058 at the .05 level of significance. The calculated "t" statistic is .1490 at the .01 level of significance.

Each of the empirical hypotheses in this dissertation states the expected direction of the relationship between the variables. These hypotheses are stated in such form that it is possible by using the correlational coefficient to test whether there is a relationship (direction stated) between two or more variables. The general hypotheses for this dissertation have been generated and the empirical measures used to operationalize the concepts in the general hypotheses have been developed. The empirical hypotheses have been stated. In the discussion which follows, the general hypotheses will be stated, followed by the empirical hypotheses used to test the general hypotheses.

General hypotheses 1: Social class is related to the symbolic adoption of an idea, practice or product.

E. H. 1: The ranking on the North-Hatt scale is positively related to the adoption score.

The calculated correlational coefficient was .1074.

The correlational coefficient is significant at the .05 level. These data support the empirical hypotheses.
E. H. 2: The dollars earned score is positively related to the adoption score.

The calculated correlational coefficient was .1263.

The correlational coefficient is significant at the .05 level. These data support the empirical hypotheses.

E. H. 3: The years of schooling score is positively related to the adoption score.

The calculated correlational coefficient was .2205.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

All three empirical hypotheses are supported, and thus the data support the general hypotheses that social class is related to adoption.

General hypotheses 2: Attitude is related to the symbolic adoption of an idea, practice or product.

E. H. 4: The protection from nuclear fallout score is positively related to the adoption score.

The calculated correlational coefficient was: .1579.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 5: The community responsibility score is positively related to the adoption score.

The calculated correlational coefficient was .2567.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.
E. H. 6: The general civil defense activities score is positively related to the adoption score.

   The calculated correlational coefficient was .2712.

   The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 7: The influence of the local fallout shelter program score is positively related to the adoption score.

   The calculated correlational coefficient was .3645.

   The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 8: The fallout shelter score is positively related to the adoption score.

   The calculated correlational coefficient was .2642.

   The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 9: The taxation to support local public fallout shelter construction score is positively related to the adoption score.

   The calculated correlational coefficient was .1475.

   The correlational coefficient is significant at the .05 level. These data support the empirical hypotheses.

All six empirical hypotheses are supported, and thus the data support the general hypotheses that attitude is related to adoption.
General hypotheses 3: Knowledge is related to the symbolic adoption of an idea, practice or product.

E. H. 10: The knowledge of a civil defense program in the United States score is positively related to the adoption score.

The calculated correlational coefficient was .4341.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 11: The knowledge of a civil defense program in this city score is positively related to the adoption score.

The calculated correlational coefficient was .3428.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 12: The knowledge of a civil defense director in this city score is positively related to the adoption score.

The calculated correlational coefficient was .2947.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 13: The knowledge of civil defense activity during the last few months score is positively related to the adoption score.

The calculated correlational coefficient was .1436.

The correlational coefficient is significant at the .05 level. These data support the empirical hypotheses.

E. H. 14: The knowledge of place of employment marked and/or stocked as a civil defense shelter
score is positively related to the adoption score.

The calculated correlational coefficient was .2105.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 15: The individual initiative, re: civil defense score is positively related to the adoption score.

The calculated correlational coefficient was .1902.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 16: The knowledge of organizational activity relative to civil defense score is positively related to the adoption score.

The calculated correlational coefficient was .2167.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 17: The knowledge of any specific buildings selected as public fallout-shelters score is positively related to the adoption score.

The calculated correlational coefficient was .7073.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 18: The knowledge of the major objective of civil defense programs score is positively related to the adoption score.

The calculated correlational coefficient was .1617.
The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

E. H. 19: The technical data score is positively related to the adoption score.

The calculated correlational coefficient was .2973.

The correlational coefficient is significant at the .01 level. These data support the empirical hypotheses.

All ten empirical hypotheses are supported, and thus the data support the general hypotheses that knowledge is related to adoption.
ADDITIONAL ANALYSIS

For the purpose of additional analysis the data were grouped to provide further conceptual categorization. This categorization was done on the following basis: (1) the general concept, social class, was expanded to include one additional empirical measure, occupation of spouse, (2) the general concept, attitude, was expanded to include one additional empirical measure, influence of the local fallout shelter program on the respondent, (3) the general concept, knowledge, was limited to five empirical measures, and (4) the sub-concept, technical competence, was expanded by using some of the measures included in the general concept, knowledge, (used in the preceding basic analysis) as measures of technical competence. Therefore there were a total of 20 empirical measures in the operational procedure.

The scores for each of the empirical measures of the concepts were equalized by using the maximum sub-concept score in each general level concept, and with this as a basis, each of the other sub-concepts scores were multiplied by a constant so that each of the scores in the sub-concepts had equal "weight". Therefore each of the sub-concepts in the general concepts provided a range of scores, and the total sub-scores gave a score range for each general level concept. Each of the general level concepts were treated independently, i.e., the actual range of scores for each general level concept was
divided into thirds, providing a low, medium and high range for each general level concept. An individual could have been in either the high, medium or low range for each general concept.

The data is further analyzed, and typologies, (conceptualized as low, medium and high adoption potential) were generated as follows: (1) the individual who was in the lower one-third of the ranges for three out of four of the general level concepts, social class, attitude, knowledge, or technical competence, was conceptualized as having low potential for adoption, (2) the individual who was in the middle one-third of the ranges for three out of four of the general level concepts, social class, attitude, knowledge, or technical competence, was conceptualized as having medium potential for adoption, and (3) the individual who was in the top one-third of the ranges for three out of four of the general concepts, social class, attitude, knowledge or technical competence, was conceptualized as having the highest potential for adoption. Following this procedure, the sample was reduced from 246 to 151. Those dropped from the analysis did not qualify for any of the typologies given. It was believed that the respondent should be consistent in three out of the four general concept measurements to be included in one of the three typologies.

The frequency and percentage distribution of the three typologies is presented in Table 1. From this table was
was determined the number of individuals in each typology above and below the grand median of the combined typologies. This information is reported in Table 2.

The median chi-square test of significance was used to test for differences in the medians of the three typologies. The calculated median chi-square is 38.70. The tabular chi-square at the .005 level is 10.60. The calculated chi-square provides evidence to reject the hypotheses of identical medians for the three typologies.

Additional inspection of the table discloses that those conceptualized as having low potential adoption, actually are in the lowest portion of the adoption score range. Those conceptualized as having medium adoption potential, range over the entire adoption score range, but there is a tendency for grouping nearer the center of the range. Those conceptualized as having high adoption potential, are in the highest portion of the adoption score range.

A further analysis of grouped data from the Des Moines civil defense study is presented by two tables indicating the zero-order correlations of variables associated with symbolic adoption of the idea of using a public fallout shelter in the event of a nuclear attack. The standard matrix form is given in Table 3. The diagram form is given in Table 4.

The tubular value of the correlational coefficient significant at the .01 level of probability, with a sample
Table 1. Three typeologies and combined typeologies by adoption score:

<table>
<thead>
<tr>
<th>Adoption Score</th>
<th>Low adoption potential</th>
<th>Medium adoption potential</th>
<th>High adoption potential</th>
<th>Combined Typeologies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n) %&lt;9</td>
<td>(n) %&lt;106</td>
<td>(n) %&lt;16</td>
<td>Percent of 151</td>
</tr>
<tr>
<td>0</td>
<td>16</td>
<td>7</td>
<td>6.6</td>
<td>15.2</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>15</td>
<td>14.2</td>
<td>15.2</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>21</td>
<td>19.8</td>
<td>15.2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>21</td>
<td>19.8</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>25</td>
<td>6</td>
<td>37.5</td>
<td>20.5</td>
</tr>
<tr>
<td>5</td>
<td>17</td>
<td>8</td>
<td>50.0</td>
<td>16.6</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>106</td>
<td>100%</td>
<td>16</td>
</tr>
</tbody>
</table>

Table 2. Number of individuals above and below median by typeology:

<table>
<thead>
<tr>
<th>Low adoption potential</th>
<th>Medium adoption potential</th>
<th>High adoption potential</th>
<th>Combined Typeologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Median</td>
<td>27</td>
<td>49</td>
<td>1</td>
</tr>
<tr>
<td>Above Median</td>
<td>2</td>
<td>57</td>
<td>15</td>
</tr>
</tbody>
</table>
Table 3. Zero-order correlations, matrix form:

<table>
<thead>
<tr>
<th>Adoption</th>
<th>Social Class</th>
<th>Knowledge</th>
<th>Technical Competence</th>
<th>Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x_1$</td>
<td>$x_2$</td>
<td>$x_3$</td>
<td>$x_4$</td>
<td>$x_5$</td>
</tr>
<tr>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>$x_2$</td>
<td>1.000</td>
<td>0.2875</td>
<td>0.3665</td>
<td>0.0908</td>
</tr>
<tr>
<td>$x_3$</td>
<td>1.000</td>
<td>0.3277</td>
<td>0.3346</td>
<td></td>
</tr>
<tr>
<td>$x_4$</td>
<td>0.1647</td>
<td>0.5851</td>
<td>0.4322</td>
<td>0.4408</td>
</tr>
<tr>
<td>$x_5$</td>
<td>0.1647</td>
<td>0.5851</td>
<td>0.4322</td>
<td>0.4408</td>
</tr>
</tbody>
</table>

Table 4. Zero-order correlations, diagram form:
size of 246, and a one-sided test of significance is .1490.

All of the calculated zero-order correlational coefficients in Tables 1 and 2 are significant at the .01 level, except the correlational coefficient for social class and attitude. In Table 4, the significant relationships are indicated by a solid line, the one relationship that is not significant is indicated by a broken line.
DISCUSSION

An adoption diffusion model has been used in this dissertation as a frame of reference for studying a specific case of symbolic adoption. The model focuses upon the relation of three general level variables, social class, attitude and knowledge, and their relation to symbolic adoption.

Each of these general level variables will now be considered, and certain of the sub-concepts related to these main general level factors will be evaluated. The hypotheses related to these main general level factors will be evaluated. The hypotheses related to these general level factors will be discussed. In the course of this discussion, suggestions for additional research will be integrated into the discussion.

Social class

The relation of occupation of head of household, family income, and formal education, as measured by scores for each of these dimensions, supports the general hypotheses that social class has a definite relationship to symbolic adoption of a new idea, practice or product through the process of individual decision making.

Probably the most suspect of the criteria used to determine the empirical measure of social class was that used for occupation of head of the household, the North-Hatt scale. The North-Hatt scale was developed several years ago, and it
is known from several small samples taken over the past few years that several of the occupations in the initial North-
Hatt instrument have gained or lost in rank. However, because these samples were taken from small populations they cannot be generalized to the larger universe of the U. S. population as a whole. For example, in an unpublished M.S. thesis directed by Robert Ripley, of the Education Department at Iowa State University, it was found that college students rated some of the occupations as much as twenty points higher or lower than their original ranking on the North-Hatt scale. Further research to bring the North-Hatt research instrument up to date might provide additional data of significance in determining the relationship of occupation to social class, and thereby occupation to adoptive behavior.

Attitude

Data obtained on the attitude of the respondents as measured by the scores given to the sub-concepts used to measure the general concept attitude, support the hypotheses that attitude has a definite relationship to the symbolic adoption of a new idea, practice or product.

Of the three general concepts, attitude is the most difficult to determine with exactness. A part of the difficulty stems from the problem of finding operational measures that are representative of attitude components. It is recognized for example, that one can never study an attitude, but
only the behavior or action that is demonstrated by the individual actor. Inferences are at best subject to a range of interpretations and different evaluation by research workers.

A research problem of precise conceptualization and evaluation is present because respondents in this study were asked to respond in an "if-then" frame of reference, completely outside the possibility of previous experience. In other words, in most situations the individual may evaluate previous action in reference to the new situation he believes similar. The fallout shelter program is unique, and for most individuals there is no comparable kind of previous activity that exactly fits the hypothetical situation presented to the respondent.

In addition, all of the attitude questions presented to the respondent provided discrete categories of answers. The individual respondent then had to "fit" his response into one of these categories. While such ordering of responses makes it possible to categorize the response of the individual, the range of individual choice is limited when the respondent must choose a specific answer from among those alternatives presented. While considerable consensus may be generated for measurement on this basis for other more discrete concepts, the technique when applied to attitude produced certain inherent difficulties. In other words, a measurement for income may be considered too wide, too narrow, etc., but in the final analysis the argument is not with income, but the
manner by which operationalism has been accomplished. Atti-
titude, because it deals with phenomena not as objectively dis-
crete, then presents additional difficulty because the inter-
pretation is made in reference to some form of action, and the
question may be asked if the action follows as a result of the
inferred attitude, or is in fact the result of other factors
not measured or found.

It is recognized that "open-end" questions present great
difficulty in categorization. However, by allowing the indi-
vidual greater expression of opinion, and decision making, it
is assumed that a broader dimension of the concept attitude
could be analyzed. In essence, the above discussion focuses
upon the difficulties of operationalization of the concept
attitude. Future studies should attempt to present the
respondent with as much freedom as possible to be sure that
the response of the individual actually represents his atti-
tude, and not just a response limited or restricted by the
design of the research instrument.

In addition, the scope of the concept attitude is re-
stricted by the range or sphere of possible attitudes that
may be included in any one research instrument or study.
Further research is needed to include other attitudes, and the
dimensions of these attitudes that may influence symbolic
adoption of a new idea, practice or product.

In reference to this specific study, further research
might provide evidence of the potential shortcomings of single items used as measurements for attitudes, and indicate that the more usual attitude scale measurement methodology would improve conceptualization and evaluation of data. It is also possible that some of the data conceptualized as attitude(s) in this study are more representative of some other phenomena related to individual decision making. Further research would be helpful in delineating the dimensions and salience of this general level concept.

From the frame of reference of the O.C.D., one significant problem is that of funding the civil defense fallout shelter program. In the Des Moines study it was found that apparently many of the respondents were willing to submit to direct taxation to support public fallout shelter construction. Further research might be appropriate to explore this possible source for funding the national public fallout shelter program.

Knowledge

Data obtained on the knowledge of the respondents as measured by the scores given to the sub-concepts used to measure this general level concept, knowledge, support the hypotheses that knowledge has a definite relationship to the symbolic adoption of a new idea, practice or product.

In the Des Moines study, an extremely high correlational coefficient was found in the sub-concept that related to the respondents knowledge of the objective of civil defense. In
the initial research instrument, the three questions that preceded the one related to the objective of civil defense asked the respondent about civil defense, the civil defense program, nuclear fallout, and fallout shelters. It may be argued that these questions influenced the individual to choose public fallout shelters as an objective of civil defense. In addition, while some of the possible alternatives were not actually objectives of civil defense, the individual has no restrictions placed upon him in relation to his response (i.e., pick four out of the following list, pick the first, and second, etc.) thereby allowing the individual to pick at random, or to guess. While this rather non-discrete operationalism exists, in defense of the question, it would appear that from the point of view of the O.C.D. a significant number of public fallout shelter adopters do know that public fallout shelters are one objective of civil defense.

As was pointed out earlier, knowledge as a factor influencing individual decision making has been set aside in much of the recent adoption diffusion research. It would appear that a significant dimension of individual decision making is related to the general level concept, knowledge, and that future studies might be improved if this dimension were given more consideration as a potential aspect of research.

From the frame of reference of individual adoption of the use of a public fallout shelter in the event of a nuclear attack, it is strongly suspected that in the Des Moines study,
certain individuals were not receptive to the concept of public fallout shelters because they have a personal private family shelter, which they were unwilling to admit or disclose. If this suspicion is true, there then appears to be a threshold between the individual who favors public fallout shelters, and those who believe strongly enough in the need for protection from nuclear fallout that they provide a shelter for themselves and their family. It would appear that future research in the area of public fallout shelter adoption might seek to determine with more certainty the incidence of private shelter construction as a possible explanation of some non-adoption of public fallout shelters. In other words the individual with a family shelter might object to taxation for public fallout shelter construction, etc. even though the individual favors the use of a fallout shelter in the event of a nuclear attack.

In evaluation of the general level concepts related to symbolic adoption, social class was found to be the least significant. This may be because the criteria used to conceptualize and operationalize the concept was faulty, or because the idea of using a public fallout shelter in the event of a nuclear attack is general enough to cross class lines somewhat indiscriminately. If this second situation is the case, it would follow that the O.C.D. change agents would be justified in emphasizing other audiences or categories in their attempt
to obtain symbolic adoption and de-emphasizing efforts to reach certain social classes. Additional research would be justified to determine where the O.C.D. change agents might increase or decrease current efforts to influence individual decision making in relation to social class, attitude and knowledge, as these general level concepts relate to symbolic adoption.
SUMMARY

An adoption diffusion model has been used in this dissertation as the framework for studying a specific instance of symbolic adoption. The major specific objectives of this dissertation were: (1) to describe one specific adoption process/phenomenon, (2) to construct a possible rationale for the relationship of three general level concepts assumed to influence individual decision making and adoption, and (3) to test the validity of the constructed rationale by analyzing the relationship of these concepts to one specific instance of symbolic adoption or non-adoption by individual decision makers. In reference to part (2) above, the three general level concepts are: social class, attitude, and knowledge. The symbolic adoption studied was adoption of public fallout shelters in the event of a nuclear attack. Through the use of the adoption diffusion model, the research worker can more meaningfully evaluate the strengths and weaknesses of earlier adoption studies, as well as make appropriate use of earlier findings relevant to the current research.

A random sample of households, meeting specified criteria were selected in Des Moines, Iowa. A total of 246 personal interviews were conducted using a questionnaire type survey instrument designed to determine the extent and degree of individual acceptance, (or non-acceptance) of the idea of using a public fallout shelter in the event of a nuclear attack. The
survey was conducted by the research team at Iowa State University, Department of Sociology, under the auspices of the Office of Civil Defense.

Past empirical research, generalizations, and conceptual models from adoption diffusion studies were used to build an \textit{ex poste} rationale or logic that can be applied to future research under the rubric of individual decision making. Previous research has attempted to conceptualize the process of individual adoption in a systematically organized manner. On the basis of this past research, the adoption diffusion model seemed to present the most succinct and parsimonious procedure for operationalization of the dependent variable, adoption, through conceptualization of six adoptions stages which provide mutually exclusive categories of this general level concept.

The Office of Civil Defense was conceptualized as a change agent faced with the necessity of influencing a very large potential target audience, (in this case all citizens of the United States) to accept the idea of using a public fallout shelter in the event of a nuclear attack.

The methodology used in this dissertation reduced the general level concepts into lower level concepts for the purpose of analysis. The analytical components of social class were: (1) occupation of the head of the household, (2) family income, and (3) years of formal education. The analytical
components of attitude were: (1) perception of threat of nuclear fallout, (2) attitude about community responsibility in civil defense, (3) attitude about civil defense, (4) attitude about fallout shelters, and (5) attitude about taxation for public fallout shelter construction. The analytical components of the concept knowledge were operationalized by the following sub-concepts: (1) knowledge of a civil defense program in the United States, (2) knowledge of a civil defense program in this city, (Des Moines, Iowa), (3) knowledge of a civil defense director in this city, (Des Moines, Iowa), (4) knowledge of civil defense activity in this city, (Des Moines, Iowa) in the last few months, (5) knowledge of the building in which respondent worked being marked or stocked as a public fallout shelter, (6) knowledge seeking behavior; seeking additional information about civil defense, (7) knowledge of specific buildings selected as public fallout shelters, (8) participation in organizations which discussed civil defense, (9) knowledge of the public fallout shelter objective of civil defense, and (10) knowledge of technical data about nuclear fallout.

Three general hypotheses were generated. These hypotheses and the degree to which they were supported by the derived empirical hypotheses will now be presented.

General hypotheses 1: Social class is related to symbol-adoption. This general hypotheses was supported at a statistically significant level in all three of the empirical hypotheses.
General hypotheses 2: Attitudes are related to symbolic adoption. This general hypotheses was supported at a statistically significant level in all five of the empirical hypotheses.

General hypotheses 3: Knowledge is related to symbolic adoption. This general hypotheses was supported at a statistically significant level in all ten of the empirical hypotheses.

The findings were discussed and suggestions made for further research.


28. Hobbs, Daryl Jerome, Beal, George M. and Bohlen, Joe M. *The relation of farm operator values and attitudes to their economic performance.* Iowa Agricultural Experiment Station Rural Sociology Report 33. 1964.


ACKNOWLEDGEMENTS

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APPENDIX
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Supreme Court Justice</td>
<td>96</td>
</tr>
<tr>
<td>Physician</td>
<td>93</td>
</tr>
<tr>
<td>State Governor</td>
<td>93</td>
</tr>
<tr>
<td>Cabinet member in the federal government</td>
<td>92</td>
</tr>
<tr>
<td>Diplomat in the U.S. Foreign Service</td>
<td>92</td>
</tr>
<tr>
<td>Mayor in a large city</td>
<td>90</td>
</tr>
<tr>
<td>College professor</td>
<td>89</td>
</tr>
<tr>
<td>Scientist</td>
<td>89</td>
</tr>
<tr>
<td>United States Representative in Congress</td>
<td>89</td>
</tr>
<tr>
<td>Banker</td>
<td>88</td>
</tr>
<tr>
<td>Government scientist</td>
<td>88</td>
</tr>
<tr>
<td>County judge</td>
<td>87</td>
</tr>
<tr>
<td>Head of a department in state government</td>
<td>87</td>
</tr>
<tr>
<td>Minister</td>
<td>87</td>
</tr>
<tr>
<td>Architect</td>
<td>86</td>
</tr>
<tr>
<td>Chemist</td>
<td>86</td>
</tr>
<tr>
<td>Dentist</td>
<td>86</td>
</tr>
<tr>
<td>Lawyer</td>
<td>86</td>
</tr>
<tr>
<td>Member of the board of directors of a large corporation</td>
<td>86</td>
</tr>
<tr>
<td>Nuclear physicist</td>
<td>86</td>
</tr>
<tr>
<td>Priest</td>
<td>86</td>
</tr>
<tr>
<td>Psychologist</td>
<td>85</td>
</tr>
<tr>
<td>Occupation</td>
<td>Score</td>
</tr>
<tr>
<td>-----------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Civil engineer</td>
<td>84</td>
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<tr>
<td>Airline pilot</td>
<td>83</td>
</tr>
<tr>
<td>Artist (pictures exhibited in galleries)</td>
<td>83</td>
</tr>
<tr>
<td>Owner of factory that employs about 100 people</td>
<td>82</td>
</tr>
<tr>
<td>Sociologist</td>
<td>82</td>
</tr>
<tr>
<td>Accountant for a large business</td>
<td>81</td>
</tr>
<tr>
<td>Biologist</td>
<td>81</td>
</tr>
<tr>
<td>Musician in a symphony orchestra</td>
<td>81</td>
</tr>
<tr>
<td>Author of novels</td>
<td>80</td>
</tr>
<tr>
<td>Captain in the regular army</td>
<td>80</td>
</tr>
<tr>
<td>Building contractor</td>
<td>79</td>
</tr>
<tr>
<td>Economist</td>
<td>79</td>
</tr>
<tr>
<td>Instructor in the public schools</td>
<td>79</td>
</tr>
<tr>
<td>Public school teacher</td>
<td>78</td>
</tr>
<tr>
<td>County agricultural agent</td>
<td>77</td>
</tr>
<tr>
<td>Railroad engineer</td>
<td>77</td>
</tr>
<tr>
<td>Farm owner and operator</td>
<td>76</td>
</tr>
<tr>
<td>Official of an international labor union</td>
<td>75</td>
</tr>
<tr>
<td>Radio announcer</td>
<td>75</td>
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<tr>
<td>Newspaper columnist</td>
<td>74</td>
</tr>
<tr>
<td>Owner-operator of a printing shop</td>
<td>74</td>
</tr>
<tr>
<td>Electrician</td>
<td>73</td>
</tr>
<tr>
<td>Trained machinist</td>
<td>73</td>
</tr>
<tr>
<td>Welfare worker for a city government</td>
<td>73</td>
</tr>
<tr>
<td>Occupation</td>
<td>Score</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Undertaker</td>
<td>72</td>
</tr>
<tr>
<td>Reporter on a daily newspaper</td>
<td>71</td>
</tr>
<tr>
<td>Manager of a small store in a city</td>
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</tr>
<tr>
<td>Bookkeeper</td>
<td>68</td>
</tr>
<tr>
<td>Insurance agent</td>
<td>68</td>
</tr>
<tr>
<td>Tenant farmer (owns livestock, machinery, manages farm)</td>
<td>68</td>
</tr>
<tr>
<td>Traveling salesman for a wholesale concern</td>
<td>68</td>
</tr>
<tr>
<td>Playground director</td>
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<tr>
<td>Policeman</td>
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<td>Railroad conductor</td>
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<td>Mail carrier</td>
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<td>Carpenter</td>
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<tr>
<td>Automobile repairman</td>
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<td>Plumber</td>
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<td>Garage mechanic</td>
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<td>Local official of a labor union</td>
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<td>Owner-operator of a lunch stand</td>
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<tr>
<td>Corporal in the regular army</td>
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<tr>
<td>Machine operator in a factory</td>
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<tr>
<td>Barber</td>
<td>59</td>
</tr>
<tr>
<td>Clerk in a store</td>
<td>58</td>
</tr>
<tr>
<td>Fisherman who owns his own boat</td>
<td>58</td>
</tr>
<tr>
<td>Streetcar motorman</td>
<td>58</td>
</tr>
<tr>
<td>Occupation</td>
<td>Score</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Milk routeman</td>
<td>54</td>
</tr>
<tr>
<td>Restaurant cook</td>
<td>54</td>
</tr>
<tr>
<td>Truck driver</td>
<td>54</td>
</tr>
<tr>
<td>Lumberjack</td>
<td>53</td>
</tr>
<tr>
<td>Filling station attendant</td>
<td>52</td>
</tr>
<tr>
<td>Singer in a nightclub</td>
<td>52</td>
</tr>
<tr>
<td>Farmhand</td>
<td>50</td>
</tr>
<tr>
<td>Coal miner</td>
<td>49</td>
</tr>
<tr>
<td>Taxi driver</td>
<td>49</td>
</tr>
<tr>
<td>Railroad section hand</td>
<td>48</td>
</tr>
<tr>
<td>Restaurant waiter</td>
<td>48</td>
</tr>
<tr>
<td>Dock worker</td>
<td>47</td>
</tr>
<tr>
<td>Night watchman</td>
<td>47</td>
</tr>
<tr>
<td>Clothes presser in a laundry</td>
<td>46</td>
</tr>
<tr>
<td>Soda fountain clerk</td>
<td>45</td>
</tr>
<tr>
<td>Bartender</td>
<td>44</td>
</tr>
<tr>
<td>Janitor</td>
<td>44</td>
</tr>
<tr>
<td>Sharecropper (owns nothing, not the manager)</td>
<td>40</td>
</tr>
<tr>
<td>Garbage collector</td>
<td>35</td>
</tr>
<tr>
<td>Street sweeper</td>
<td>34</td>
</tr>
<tr>
<td>Shoe shiner</td>
<td>33</td>
</tr>
<tr>
<td>Average</td>
<td>69.8</td>
</tr>
</tbody>
</table>