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# FAMILY ADOPTION OF PUBLIC FALLOUT SHELTERS

A Study of Des Moines, Iowa



Gerald E. Klonglan  
George M. Beal  
Joe M. Bohlen

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Sociological Studies in Civil Defense      Project Directors: George M. Beal and Joe M. Bohlen . . . Associate Director: Gerald E. Klonglan  
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Project Directors: George M. Beal and Joe M. Bohlen

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## PREFACE

A frequent criticism of survey research is its failure to place findings in a meaningful framework. The mere gathering of facts has very limited value except for descriptive purposes. Unrelated facts cannot give answers to the questions that need to be answered by the Office of Civil Defense (OCD)-- namely, what OCD must do to obtain the acceptance of its ideas and programs. There is a need for analytical models and concepts to help order research results so that change agents, such as civil defense personnel, can make use of them. Both the operating change agent and the policy makers need analytical frameworks to help guide their decision-making. Such a need for analytical models (in the area of public policy decisions) has been recently expressed by a Department of Defense official.<sup>a</sup>

Both policy-makers and operators desire to understand more clearly the factors related to the adoption of new civil defense ideas and the acceptance of civil defense programs. They are also interested in the inter-relationships among factors and how these inter-relationships affect the acceptance of new ideas and programs.

There are three general objectives of the research presented in this report: (1) to develop an analytical frame of reference which can be used for planning, implementing, and evaluating civil defense programs which have as their primary objective the obtaining of the adoption of new ideas, innovations, or programs by individuals in specified target audiences; (2) to determine the extent to which a sample of people has adopted the idea of using public fallout shelters if there is a nuclear attack; (3) to determine the relationship between selected demographic, knowledge, attitude, and information variables and the adoption of the idea of using public fallout shelters if there is a nuclear attack.

Chapter 1 attempts to place the specific research study presented in this report in the general context of civil defense activities. In Chapter 2 a conceptual framework for analyzing how people accept new ideas and programs is presented. The conceptual framework is that of adopting new ideas.

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<sup>a</sup>Adam Yarmolinsky. Confessions of a non-user. Public Opinion Quarterly, Volume XXVII, No. 4, Winter 1963. Pages 543-548, especially page 548.

Of special relevance is the adoption model applied to individual decision-making.

In Chapter 3 the adoption model conceptualized in Chapter 2 is applied to the civil defense innovation of using public fallout shelters if there is a nuclear attack. In it the methodology used to determine an individual's adoption stage with respect to the idea of using public fallout shelters is described. (Readers who are responsible for implementing other civil defense ideas or innovations may want to attempt to apply the adoption model to their ideas or innovations to gain insights into how the adoption model may be operationalized for different civil defense situations.)

Chapter 4 is a general introduction to the research data and findings presented in this report. In Chapter 5 the study findings pertaining to an individual's stage of adoption, rate of adoption, and adoption period are presented. The relationships between four categories of factors (demographic, knowledge, attitudinal, and sources of information) and an individual's adoption of an innovation (using a public fallout shelter if there is a nuclear attack) are discussed in Chapters 6, 7, 8, and 9. In Chapter 6 the relationships of twelve demographic variables and adoption are discussed. The relationships of thirteen knowledge variables and adoption are analyzed in Chapter 7. The relationships of thirty-five attitudes and adoption are presented in Chapter 8. In Chapter 9 the relationship of source of information and adoption is discussed. These substantive data and findings may be used by OCD when planning, implementing, or evaluating activities related to the fallout shelter marking and stocking program. Also, the substantive data and findings may provide insights into adoption behavior related to civil defense which can be taken into account when planning other current and contemplated civil defense programs. Chapter 10 is a brief summary of the report.

The authors wish to acknowledge the research contribution of Elmer Schwieder in supervising the collection of data for this study, and that of Karla Allen in supervising the coding and data analysis necessary for this report. Special appreciation is expressed to Mr. Ralph Garrett of the Office of Civil Defense for many helpful suggestions and continuing interest and administration liaison during the course of this project.

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## Chapter 1

### INTRODUCTION

#### Background

The Berlin crisis of August 1961 gave a climactic impetus to expansion of the civil defense program in the United States. During the summer months of 1961 civil defense became a national concern. It became a concern for the highest levels of government and for the general public. The President gave a public speech on civil defense. Civil defense was considered in relation to foreign policy and defense policy. Civil defense became a topic of discussion throughout the general public as mass media information sources began to carry discussions of the perceived advantages and disadvantages of possible alternative civil defense programs for fallout shelters. Some individuals and groups were opposed to all programs. Others argued the need for an expanded fallout shelter program but disagreed on the means, for example, public versus private fallout shelters.

#### Planning an Expanded Civil Defense Program

The administration proposed an expanded civil defense program in 1961. The major components of the program were: a national fallout shelter survey, marking, and stocking program; a shelter incentive program (also called the Shelter Development Program); a program for building shelters in federal buildings; a program for developing warning and detection devices; a program for emergency operations; an expanded program of providing financial assistance to states and localities; and a greatly expanded research program. Congress did not appropriate funds for the proposed Shelter Development Program for fiscal years 1962, 1963, or 1964 but did allocate considerable funds (compared to pre-1961 allocations) for the other specified programs. There has been little change in program orientation in the administrative proposals of 1962, 1963, 1964 and 1965.

### Fallout Shelters as the Basic Concept

The primary concern of the civil defense program was that of providing fallout shelters for all of the nation's population as rapidly as possible and at the least possible cost. The new federal civil defense program's objective was to develop a fallout shelter space for every person in the United States by 1967. The projection made in 1962 was for 235 million shelter spaces to be developed as follows:

70 million spaces through the National Fallout Shelter Survey.

100 million spaces through the proposed 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 monetary grants for shelter construction.

Because funds were not allocated for the Shelter Development Program in fiscal years 1962, 1963, 1964, and because public, rather than private, fallout shelters became the immediate goal of the Office of Civil Defense (OCD), the cornerstone of the new civil defense program became the National Fallout Shelter Survey, Marking, and Stocking Program. The objective of this program was to locate, mark, and stock suitable fallout shelters for the largest portion of the nation's population as quickly and as economically as possible. These shelters would be used as public fallout shelters. Another goal of OCD was to make people aware of these buildings and to encourage people to make plans for utilizing these public fallout shelters in case of nuclear attack.

### Evaluating the Expanded Civil Defense Program

An evaluation of the expanded civil defense program can be done in many different ways. The programs and activities carried out by the Office of Civil Defense are numerous and complex. One source of data which can be used in evaluating some of the accomplishments of civil defense programs is the Annual Statistical Report of the Office of Civil Defense. This report presents a statistical description of the many civil defense activities and the changes which have occurred from previous years. Another and more specific source of data which can be used for evaluating civil defense activities is the monthly publication Selected Statistics on the Fallout Shelter Program. In this

publication the progress of the licensing, marking, and stocking program is described. Thus, there are data available as to the number of buildings licensed, marked, and stocked as public fallout shelters.

These publications, and others, present many relevant measures which may be used to evaluate civil defense activities. There are relevant data, however, which could be used to evaluate the current progress of the expanded civil defense program which are not currently available. One such evaluative criterion is the degree to which the general public has adopted the ideas (symbolic) and actions (behavior) desired by the Office of Civil Defense. This is a very important criterion. If a nuclear attack occurs, it is in the local community that lives will have to be saved. Master plans on paper at national, state, and local levels will not save lives in local communities in a nuclear attack. Only if citizens in each community respond to and carry out (adopt) the various Office of Civil Defense ideas and programs will realistic returns be possible from the total civil defense effort.

#### Adoption Desired by OCD

But what ideas and behavior do OCD officials want individual citizens in the general public to adopt? Before an evaluation can be made of how well people have adopted civil defense ideas or behavior one must ascertain what OCD wants people to adopt.

OCD has many different ideas and behaviors it desires to have individuals adopt. OCD desires to bring about the adoption of some ideas and behaviors by all people. For example, one OCD goal is to have all people develop basic favorable attitudes toward civil defense in general. Another goal is to have all people adopt the idea of using fallout shelters in the event of a nuclear attack. A primary OCD emphasis is to bring about the adoption of the idea of using a public fallout shelter, especially among those people who do not have access to adequate private (family or business) fallout shelters.

In other cases OCD wants ideas and behaviors to be adopted by only a portion of the general public. For example, OCD wants only a portion of the total U.S. population to:

1. Attend Medical Self-Help Training courses
2. Attend Civil Defense Adult Education courses
3. Become trained as radiological monitors
4. License their buildings
5. Train for fire fighting
6. Train for Shelter Management
7. Train as communication experts
8. And so on through the many civil defense tasks.

#### Idea Adoption and Behavior Adoption

The distinction between the adoption of ideas and the adoption of overt behavior patterns is important in delineating what OCD desires people to adopt. In some cases OCD may desire that people adopt an idea. For example, OCD is currently marking and stocking public fallout shelters across the nation. Current licensing contracts state that shelter space in buildings is not to be used unless there is an attack. Thus, OCD wants the general public to adopt the idea of using a public fallout shelter even though at present they cannot go through behavior adoption, that is, go to a public fallout shelter and try it out.

The adoption of an idea may be perceived as symbolic adoption. One concern of the Office of Civil Defense may be the extent to which the adoption of an idea, such as using public fallout shelters, will persist in the mind of an individual. Will individuals maintain their adoption framework over time or will they become non-adopters? There is a need for a periodic assessment of the state of people's idea adoption so trends and patterns of symbolic adoption may be delineated and analyzed.

In other cases OCD may desire that people adopt a behavior at the present time. For example, OCD wants a portion of the people to attend radiological monitor training schools. In this case people not only have to adopt the idea of being trained as a radiological monitor but also have to behave in order to become trained, that is, physically go to and attend classes.

## OCD as a Change Agent

In the above discussion the authors have implicitly assumed that OCD is a change agent. A change agent is a professional person (or group) who attempts to influence the adoption decisions of other individuals (or groups) in a direction that he believes is desirable. It is assumed that OCD as a change agent is interested in understanding and predicting how people will adopt new civil defense ideas. This involves a clear and detailed understanding of the factors related to the acceptance or rejection of these new ideas. OCD is also interested in the inter-relationships among the various factors related to adoption. The change agent can use insights about these factors in planning, implementing, and evaluating future adoption programs.

A change agent is also concerned with what has happened to his program in the past and where things stand now, so he can plan for the future. For example, OCD may ask the following questions:

1. What is the current level of public adoption of civil defense ideas and programs given our past level of resource inputs and methods?
2. How can these data be used as a basis for planning future activities?

Insights into the current adoption rate and factors affecting it will be helpful to both OCD policy-makers and operators. Policy-makers can use the information in setting goals and allocating resources. Operators can use the information to help analyze information methods used in the past and to help plan information programs for the future.

## Objectives of this Report

Three general objectives provide the framework for the civil defense research presented in this report. The chronology of these objectives is as follows. The first objective is of a theoretical and methodological nature: to develop an analytical frame of reference which can be used for planning, implementing, and evaluating civil defense programs which have as their primary objective the obtaining of the adoption of new ideas, innovations, or programs by individuals in specified target audiences. Within the analytical frame developed in objective one, the second objective of this research is to determine the extent to which a sample of people has adopted the idea of using

public fallout shelters if there is a nuclear attack. The third objective is to determine the relationship between selected demographic, knowledge, attitude, and information variables and the adoption of the idea of using public fallout shelters if there is a nuclear attack.

It is believed that the analytical framework developed under objective one is not limited in its use only to the adoption of the idea of public fallout shelters. Because of its general level of conceptualization, it is believed that the framework should be of value in planning, implementing, or evaluating many other types of civil defense ideas, innovations, or programs. The reader may desire to determine the degree to which the analytical framework and the findings of this report can be applied to other relevant civil defense activities with which he is familiar.

#### System Concepts and This Report

Some readers of this report will be accustomed to analyzing civil defense from a "systems" point of view. They may ask themselves how this report integrates into, or is related to a systems view of civil defense. Others will not have this orientation. The purpose of this section is to briefly relate the substance of the report to system concepts. It is hoped that this will aid the readers with a systems orientation to better understand the relevance of this study for civil defense. Also, it may help those not familiar with a systems framework to perceive how the data presented in this report may be related to a systems analysis.

The current study is easily conceptualized in a systems framework. The civil defense organization is perceived as a social system. An individual in the general public is perceived as one of the social objects in the environment of this system. The individual has certain attributes, such as personal characteristics, attitudes, and knowledge. An individual may also have certain relationships with the civil defense system. Thus in one sense an individual of the general public might be a possible environmental constraint on the civil defense system. If an individual does not respond to civil defense programs, the goals of the civil defense system cannot be met. On the other hand, an individual in the general public might be a very important asset to civil defense. With proper program strategy and motivation

individuals may rapidly adopt ideas and behavior that would assure civil defense the accomplishment of its ends. From a slightly different point of view it would also appear to be very valuable for civil defense to understand the environmental factors which affect the individual so civil defense can better plan its program strategy.

The research data presented in this report may be used as an input by several different categories of OCD personnel. The research should provide a clearer problem definition of the process of adoption and delineate many germane factors related to the process. The research is in part an evaluation of a civil defense program carried out during the past three years. It should be possible to derive implications from the findings which can be used in planning future activities related to public fallout shelters. Implications for planning and implementing other existing and contemplated civil defense programs may also be ascertained from research data presented in this report.



## Chapter 2

### FRAMEWORK FOR ANALYSIS

#### Introduction

Civil defense is a relatively new change agent in the United States. Only since 1950 has a civil defense organization been concerned with communicating information to various individuals and groups throughout the United States. And only since 1961 has the Department of Defense - Office of Civil Defense been the primary change agent for implementing civil defense ideas and programs.

Businesses, governmental agencies, educators, and many others, however, have been in change agent roles for many years. The rapid scientific development of new ideas, practices, and products since 1900 has generated considerable research dealing with the question of how people adopt new ideas. A large body of literature has been generated which focuses on the adoption and diffusion of new ideas, practices, and products. Adoption is a micro concept referring to an individual's acceptance of an idea, practice, or product. Diffusion is a macro concept referring to the spread of an idea, practice, or product through the whole of a potential audience, market, or social system. A number of different academic disciplines have conducted research on the adoption and diffusion processes. Rural sociologists, industrial sociologists, medical sociologists, anthropologists, educators, and mass communication researchers have studied adoption and diffusion.

The major goal of this research has been to better understand individual adoption behavior so social structures and communication programs might be more efficient and effective.

In this report only some of the concepts developed in this research tradition will be introduced. Specifically, this report will focus on the individual's adoption of new ideas rather than on the diffusion of new ideas among individuals.

#### Innovation

By innovation is meant an idea, practice, or product perceived as new by the individual or group for whom it is intended. OCD innovations include

such ideas, products, and practices as: public fallout shelters, private fallout shelters, medical self-help training, emergency hospitals, shelter management training, shelter utilization plans, licensing buildings, marking buildings, stocking buildings, establishing emergency operation centers, developing emergency operation plans, etc. Thus, civil defense officials have been developing many new ideas that they want to introduce into our society. From one point of view all the ideas civil defense wants to introduce into our society may be perceived as innovations. The civil defense innovation which is of central concern to this report is the idea of using public fallout shelters if there is a nuclear attack.

#### Adoption or Decision Units

Each civil defense innovation will have to be adopted by some portion of the population. Thus, it is important for OCD to delineate who is the adoption unit for each of its innovations. The adoption unit is the individual or group who has to make the decision to adopt or not adopt an innovation. The adoption unit for civil defense innovations varies by type of innovation. In some cases the adoption unit may be an individual, such as a building owner, a doctor, a housewife, a head of household, or a mayor. In other cases the adoption unit may be a group such as a school board, a county board of supervisors, a city council, or a hospital board. It is important to note, however, that even though the adoption unit is not an individual, it is still individuals who make decisions within these multiple-person units.

Some innovations can be adopted by an individual regardless of the decisions of others in his group or social system, e.g., purchase emergency supplies. In other cases, an innovation cannot be adopted without the consent of a majority of members in the social system, e.g., pass a bond issue for locally financed public fallout shelters. In these cases an individual may wish to adopt the innovation but cannot do so until others act coordinatively with him.

It is important to note that under the current joint federal-state-local civil defense structure that key adoption units for the Office of Civil Defense are state and local civil defense organizations. Communication

and persuasion must be used in many cases to get new innovations accepted by state and local civil defense personnel. Other key adoption units for OCD include Senators and Representatives as individuals and Senate and House committees as groups. Numerous other OCD adoption units could be delineated. The adoption unit which is the focus of study in this report is an individual (husband or wife) in a family household.

#### Adoption as a Process

The adoption process is the mental process through which an individual passes from first hearing about an innovation to its final adoption. A study of the adoption of an innovation is essentially a study of individual decision-making. It is also one example of how any type of learning takes place. When writers in the adoption-diffusion research tradition use the concept "Adoption Model" they are usually referring to the adoption process as described in this section of the report.

One may conceptualize an individual's decision to adopt an innovation as a process composed of stages. The adoption of a specific innovation is usually not the result of a single decision to act but rather the result of a series of actions prefaced by thought decisions. By dividing the adoption process into stages it is possible for the change agent (OCD in this case) to assess the extent to which an individual has proceeded in his decision-making about a specific innovation. It also makes it possible for the change agent to determine what kinds of appeals and information he needs to communicate, since individuals at different adoption stages usually need different kinds of information. Past researchers have most frequently divided the adoption process into five stages: (1) awareness, (2) information, (3) evaluation, (4) trial and (5) adoption. It may be noted that these five stages begin to analyze behavior only after a person is aware of an idea. It is obvious that if the change agent wants to account for all the people in a social system there is another category of people, those unaware of the idea. However, major concern here is with the five stages from awareness to adoption. Each of the stages is defined below.

### Awareness stage

At this stage the individual is initially exposed to the innovation. The individual knows of the innovation but lacks complete information about it. The individual may or may not be motivated to seek additional information about the innovation at this stage.

### Information stage

The individual becomes interested in the innovation and seeks more information about it. In this stage the individual mainly increases his information about the innovation. The individual is interested in getting both general and more specific information about the intrinsic qualities of the innovation and relating this information to his past experiences and knowledge. At this stage he is building up a data base which will help him to decide whether or not he wishes to become further involved with the innovation.

### Evaluation stage

The individual is concerned with applying the innovation to his own situation at this stage. The relative advantages and disadvantages of the innovation to other alternatives are considered. The individual makes a mental application of the innovation to his present and future situation and makes the decision either to try it or not. He is concerned with determining if adoption of this innovation will help him to maximize his goals to a greater degree than will any of the other alternatives which are perceived to be available to him.

### Trial stage

At this stage the individual is motivated to use the innovation on a small scale in order to determine its utility in his own situation. When possible, most potential adopters use an innovation on a small experimental scale to test its applicability and compatibility to their situations.

### Adoption stage

The individual adopts and decides to continue the full use of the innovation. At this stage and point in time the individual is satisfied that the course of action being pursued is best for him.

### The Adoption Period

The adoption period is the time required for an individual to pass through the adoption process from awareness to adoption. It is important to note that the adoption period is not the time between the change agent's initial introduction of the innovation and its ultimate adoption by an individual in the social system. This time period is called the availability or market period. The adoption period is usually measured in days, months, or years.

The average length of adoption period has been found to vary widely among innovations. For example, the length of the adoption period (from awareness to adoption) for the average Iowa farmer for hybrid seed corn was 9.0 years. It took North Carolina farmers 8.0 years to adopt improved pastures. For Warfarin rat poison the adoption period averaged 0.8 years; for "Miracle" fabrics (orlon and dacron) for housewives it averaged 0.5 years. Fifteen years are normally required for an educational innovation to be adopted by the first three percent of the public schools in the United States. Thus, one can see that the adoption period does vary by innovation. The differing, and often quite lengthy, adoption periods of innovations are data with which the adoption periods of OCD innovations may be compared. Perhaps it will be found that OCD innovations are being accepted as rapidly as one might expect from previous studies of non-civil defense innovations. In some cases OCD adoption may even be more rapid.

The above discussion of the adoption period may leave the reader with the impression that the five stage adoption process is linear in nature, that is, that each individual goes through the adoption process one stage at a time from awareness to adoption. A majority of research studies have found the adoption process does occur in a linear order; however, this need not be the case. The stages may not always occur in the same time sequence for all individuals. For example, some individuals may need additional information after the evaluation or trial stages. In other cases the individual may try

the product on a small scale before he has gathered much information about it. This is especially true when the product is divisible, is inexpensive, and when there is little chance of negative results.

#### Rate of Adoption

Rate of adoption (or the adoption rate) is the relative speed with which an innovation is adopted by the members of an audience, market or social system. Rate of adoption is usually measured by the percentage of members in the social system who have adopted the innovation at a given point in time. Thus, if 10 percent of the people in the United States had adopted a new toothpaste after its first year on the market the rate of adoption would be 10 percent. A similar concept often used in the field of marketing is the market penetration of a potential market at a given point in time.

#### Innovativeness

Innovativeness is the degree to which an individual is relatively earlier in adopting an innovation than the other members of his social system. If Housewife A adopted a new type of living room carpet in 1958, and the average housewife in her community had adopted it in 1955, she is less innovative than the average member in her social system.

#### Increasing the Rate of Adoption

Almost all change agents desire to increase the rate of adoption of their innovations. OCD likewise wants to speed up the adoption of its innovations. One method to speed up the adoption of innovations is to have the potential user of the innovation become aware of it as early as possible. Another method is to shorten the adoption period, that is, the time span between awareness of the idea and its final adoption. The problem most change agents face is how to facilitate the movement of individuals from the awareness stage to the adoption stage as rapidly as possible. This problem can be posed by the change agent in question form: What factors affect the decision-making (adoption) process? What factors are related to decisions people make about an innovation? How can knowledge of these factors help attain my desired adoption goals? Stating the problem in OCD terms: What factors are related to

decisions people make about civil defense innovations? If OCD knew what these factors were (or at least some of them) it could attempt to use its knowledge about these factors to attain its desired adoption goals.

Many research studies have sought to delineate factors related to the adoption of innovations. Some of the categories of factors which have been studied in relation to adoption include: (1) demographic factors, (2) knowledge factors, (3) attitudinal factors, and (4) sources of information (communication factors).

#### Demographic factors and stage of adoption

Demographic factors include personal characteristics such as age, education, income, and home ownership. Three of the most substantiated generalizations about the relationship of demographic factors and adoption from past studies are: (1) Earlier adopters of innovations are usually younger in age than later adopters. (2) Earlier adopters of innovations have had more education than later adopters. (3) Earlier adopters of innovations have had more income than later adopters.

In this report twelve demographic factors will be related to an individual's stage of adoption in an attempt to determine if such factors are related to the adoption of a civil defense innovation: the idea of using public fallout shelters if there is a nuclear attack.

#### Knowledge and stage of adoption

Research workers have also attempted to determine how knowledge is related to adoption. A basic question most change agents want to know is: How much specific knowledge about an innovation do individuals need before they will adopt it? The change agent is also usually concerned with how much general knowledge is needed by the individual to adopt an innovation, that is, information which helps set a context for the innovation to be more easily comprehended.

Past studies have found that a person with more technical knowledge in a product (innovation) area is more likely to adopt an innovation than those with less knowledge. In this report an individual's knowledge about civil defense will be related to his stage of adoption of public fallout shelters.

### Attitudes and stage of adoption

Research workers have also sought to determine how attitudes are related to adoption. An attitude is a predisposition to act. It is the state of readiness of an individual to deal with an object. Attitudes arise from the effects of personal experience and the pressures of personal need. Obviously, attitudes of individuals are very important factors for change agents to take into account when planning adoption programs.

An individual may have many attitudes that affect his adoption of an innovation. Two of the most important attitudes will probably be: (1) those toward the situation in which the innovation will be relevant, and (2) those toward the innovation itself. In this report individuals' perceptions of the threat of war, fallout, and other situational factors will be related to stage of adoption of public fallout shelters. Also, the individual's perception of fallout shelters will be related to stage of adoption. Other attitudes will also be related to an individual's stage of adoption of public fallout shelters.

Some change agents ask how a knowledge of people's attitudes can help the change agent speed up the adoption of his innovation. There are a number of ways the change agent may use his knowledge of the attitudes of his adoption unit. Let us assume that OCD change agents know the attitudinal frame of reference people have about certain aspects of civil defense. How will this knowledge aid OCD in planning and implementing the public fallout shelter program?

It is known that people will use their attitude framework as one basis for interpreting messages received about civil defense. A knowledge of current civil defense attitudes will give OCD officials some insight as to whether future messages should be primarily designed to reinforce existing attitudes (which may be the case if existing attitude frameworks are already structured as OCD desired) or to change existing attitudes from negative to positive. In some cases civil defense may find that people may have neither a positive nor negative attitude about a specific innovation. People may not have heard of the idea. In this case OCD may want to invest resources to introduce the idea to people. OCD may find that certain attitudinal ideas could be de-emphasized in future messages. Also, OCD may find it would be desirable to be more parsimonious in some of its messages. Too many atti-



tudinal ideas may make the general public ignore the problem because of its complexity. That the problem is complex is known. However, some of the complexities may not have to be communicated to people in some instances. The change agent may use his knowledge of people's attitudes in many other ways also. Some of these are discussed later in this report.

### Sources of information and stage of adoption

Many change agents have attempted to determine the relative importance of various information sources at different adoption stages. Researchers have categorized the various sources of information named by individuals on two general bases.

One categorization has been the grouping of sources of information into four general types: (1) mass media, including such media as newspapers, magazines, radio, and television; (2) government agencies, including colleges, extension services, and other government agencies; (3) commercial sources, including such sources as dealers and salesmen; and (4) informal sources, including relatives, neighbors, and friends.

The second method of categorization has been on the basis of personal and impersonal sources of information. Personal sources of information are those communication contacts which involve a direct face-to-face exchange between a sender of information and the receiver of that information. Impersonal sources of information are non-face-to-face exchanges between the communicator and the communicatee.

It has been found that communication media are used differentially at the different stages of adoption. A survey of 35 studies of agricultural innovation finds the following generalizations about communication media and the stages of adoption. At the awareness stage, when an individual first is about a new idea or practice, mass media were the most frequently used, followed by government agencies, informal sources, and commercial sources; at the information stage mass media were again most often mentioned, followed by government agencies, informal sources, and commercial sources. At the evaluation stage informal sources were most frequently mentioned, followed by government agencies, mass media, and commercial sources. The ordering of the information sources used at the trial and adoption stages was the same as for the evaluation stage.

It is also important to note that it is possible for an individual to use the same source of information in different ways at several stages in the adoption process. Also, the importance of each of the four general level media categories at each adoption process stage has been found to vary from innovation to innovation. In other words, the sources of information used at different adoption stages will, to some extent, depend upon the innovation.

When personal and impersonal sources of information are compared to stage of adoption the following generalizations are supported by past research:

1. At the awareness and information stages impersonal sources are used by a greater proportion of the people than personal sources.
2. At all other stages personal sources are somewhat (although not necessarily extremely) more important than impersonal sources.
3. Personal sources are most important in the evaluation stage.

Studies have also found that the importance of personal or impersonal source varies depending upon the type of innovation. Also, the use of personal and impersonal sources has been found to be related to innovativeness. A greater proportion of those first to adopt an idea use impersonal sources, mainly specialized mass media, or technically competent personal sources. Those last to adopt are more prone to use personal sources, especially neighbors and friends.

#### Change agents and factors related to adoption

Why do change agents want to know which factors are related to the adoption of innovations? An obvious answer is that they want to be able to control the rate at which their innovations are adopted. A knowledge of factors related to adoption may make it possible for the change agent to change these factors in order to increase the rate of adoption of his innovation. The change agent will thus not only want to know which factors are related to adoption, but also those factors which can be influenced by him in order to increase the rate of adoption of his innovation.

In the preceding four sections four general level factors which may be related to adoption were discussed. These factors were demographic, knowledge, attitudes, and sources of information.

If it is found that a positive relationship exists between a factor and an adoption decision desired by OCD, OCD could try to influence this factor

in order to obtain the same adoption decision from people who have not yet made the adoption decision. If it is found, for example, that the people who strongly believe that public fallout shelters are like insurance are the same people who have adopted the idea of using a public fallout shelter, OCD may want to try to develop messages for non-adopters which would stress the idea of the similarity of fallout shelters and insurance.

In the insurance example, OCD has an opportunity to try to change the factor which is related to adoption, i.e., an attitude. By a public information program, classes, etc., attempts can be made to bring about a change in the attitude which would result then, hopefully, in a change in adoption.

OCD also has the possibility of changing knowledge factors.

OCD will probably have only limited opportunity to change the sources of information people use. Thus OCD will probably not change TV viewing habits, radio listening patterns, magazine and newspaper reading habits, or personal interaction patterns. However, if OCD has knowledge of present communication sources used by individuals, they can use these channels to send relevant messages to their designated target audience. OCD may also change some sources of information. OCD may increase the number of contacts people have with OCD by holding classes, encouraging voluntary organizations to teach civil defense ideas, etc.

Demographic variables are one general level factor, however, which may be related to adoption which civil defense cannot change. OCD cannot change a person's age, number of years of formal schooling, family size, home ownership and so on.

However, even though OCD cannot change demographic variables, a knowledge of the relation of demographic variables to adoption may be helpful to OCD operators and policy-makers in a number of ways. Demographic factors may be helpful in differentiating the total population into meaningful audiences for which special designed information programs may be developed. For example, if older people have not adopted civil defense ideas or programs to the extent to which younger people have, OCD may decide to develop a special information campaign telling why older people should be concerned with civil defense. To implement the program OCD could use research data showing the sources of information used by older people. These information sources could then be selected as the media to carry a special designed message to the special category

of receivers (older people).

On the other hand, if one finds that demographic variables are not related to adoption then they may not be relevant variables to consider when planning OCD public information or education programs. The finding of no relationship between a demographic variable and desired decision or action may mean that so little adoption has taken place that people along a whole distribution of factors such as age or education are not differentiated by stage of adoption. Thus, many types of public information or education programs may be helpful to increase the adoption of civil defense ideas. However, even if demographic variables are found not to be differentiated by stage of adoption, it still may be relevant and desirable to develop different messages for different audiences and use specially selected media to reach these audiences.

#### Summary

The Office of Civil Defense is perceived as a change agent. As a change agent one of its goals is to obtain adoption of its innovations. By innovation is meant an idea, practice, or product perceived as new by the individual or group for whom it is intended. The civil defense innovation which is of central concern to this report is the idea of using public fallout shelters if there is a nuclear attack. The adoption unit is the individual or group who has to make the decision to adopt or not adopt an innovation. The adoption unit in this report is an individual (husband or wife) in a family household. The adoption process is the mental process through which an individual passes from first hearing about an innovation to its final adoption. Conceptually, the adoption process is usually referred to as an adoption model. The adoption process may be conceptually divided into five stages: (1) awareness, (2) information, (3) evaluation, (4) trial and (5) adoption. The adoption period is the time required for an individual to pass through the adoption process from awareness to adoption. The rate of adoption is the relative speed with which an innovation is adopted by members of a social system. One of the goals of the change agent is to increase the rate of adoption of his innovation. One way to attempt this is to shorten the adoption period. Four categories of factors whose relationship to adoption have been studied are: demographic, knowledge, attitudes, and sources of information. Knowledge of

these four factors can be used by a change agent to effectively and efficiently shorten the adoption period and increase the rate of adoption of his innovation.

## Chapter 3

## METHODOLOGY

## THE ADOPTION MODEL APPLIED TO A CIVIL DEFENSE INNOVATION

## Introduction

The purpose of this chapter is to operationalize the concepts of the adoption model introduced in Chapter 2. This chapter shows how the five stage adoption model will be applied to civil defense.

The first task of the change agent is to define the innovation which he wants adopted. The second task of the change agent is to define what he considers adoption to be.

The civil defense innovation under study in this report is the concept (idea) of using a public fallout shelter if there is a nuclear attack. This idea was selected because the marking and stocking public fallout shelter program has been the major civil defense program the past three years.

For purposes of this study adoption is defined as the adoption of the concept (idea) of using a public fallout shelter if there is a nuclear attack, specifically, a decision to use a public fallout shelter if there is a nuclear attack. Adoption in this study is therefore a symbolic adoption of an idea. Adoption is not purchasing a civil defense product or living in a shelter for one day or a week. Adoption does not consist of any final overt behavior or action which can take place at the present time. The overt behavior would take place if there was a nuclear attack and people actually went to public fallout shelters. It is important to recognize that at the present time it is a concept that individuals are adopting. Thus, the adoption being studied in this report is symbolic adoption.

The innovation being studied in this report is quite different from most innovations studied by previous adoption-diffusion researchers. For example, a majority of past adoption studies have been concerned with products or practices which require an economic investment or expense by the adoption unit. Many of the innovations have also offered a promise of immediate economic reward to the adoption units who adopted its use. Further, one characteristic of many innovations is its divisibility, that is, it is possible for the adoption unit to try out a small amount of a product, or try

a practice for a week or so before deciding to adopt its use over time. These aspects of most previous research studies are not present in the innovation being studied in this report. For example, there is no direct economic cost involved in making the decision to use a public fallout shelter if there is a nuclear attack. Also, there is no immediate economic return. The idea of using a public fallout shelter if there is a nuclear attack is a complex innovation. For example, to most people there are many unknowns or highly abstract ideas embodied in this concept. The probability of need for a public fallout shelter is not known. The consequences of using or not using public fallout shelters are not precisely understood. Most people have no past experience that will allow them to project what it would be like to live in a public fallout shelter. There are many variables which may affect an adoption unit's decision about using a public fallout shelter if there is a nuclear attack. The decision whether to adopt or reject this symbolic innovation may thus be very complex.

The change agent's third task is to determine the adoption unit for the innovation. The goal of civil defense is to have each individual adopt the idea of using a public fallout shelter if there is a nuclear attack. However, most individuals live in households and most households consist of families. Thus, the adoption unit selected for interviewing in this study is an individual (husband or wife) in a family household. In the case of knowledge, attitude, and communication attributes the individual was asked to respond to questions regarding his individual attributes. In certain cases individuals were asked to respond in terms of family variables. Examples of these family variables include: (1) certain demographic variables, such as number of children, home ownership, family income; and (2) adoption variables, such as a family decision to use public fallout shelters and a family plan for the use of public fallout shelters. There will be some individuals (and families) who will have private fallout shelters, but these individuals (and families) may not be in the vicinity of these shelters if there is a nuclear attack. In some circumstances they may also need to use a public fallout shelter. Thus, all people (and families) may need to use a public fallout shelter.

Having defined the innovation, the adoption desired, and the adoption unit, the change agent implements a program to promote the innovation. As the program is carried out the change agent is concerned with the rate of

adoption of his innovation. At selected points in time the change agent may desire to evaluate the extent to which people have accepted his innovation. One way of evaluating the change agent's program is to determine the number of adoption units who are at each stage in the adoption process.

One method for determining an individual's stage of adoption is to develop a series of questions which can be asked of individuals. The individuals' responses to the questions can be used to determine the adoption stage of the individual.

The following ten questions were designed as the means to determine the adoption stage of individuals with respect to the idea of using public fallout shelters. The questions are presented by stage of adoption.

### Awareness questions

Three different questions were designed to ascertain whether or not an individual was aware of public fallout shelters. The questions were:

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?

No  
Yes

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

No  
Yes

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?

No  
Yes

### Information question

One question was designed to determine if an individual had obtained any additional information about public fallout shelters:

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?

No  
Yes



### Evaluation questions

Three questions were designed to determine if an individual had evaluated public fallout shelters:

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

No  
Yes

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

No  
Yes

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

No  
Yes

### Trial questions

Questions pertaining to the trial stage were not included in the study for two reasons: First, the adoption idea being studied was a concept, i.e., was of a symbolic nature. Second, since licenses signed by building owners do not allow the use of public fallout shelters except in a nuclear attack, in most cases it is impossible for an individual to "try" a public fallout shelter.

### Adoption questions

Three different questions were designed to determine an individual's adoption of the idea of using public fallout shelters.

The first question sought to determine what the individual would do if he and his family were in the downtown business district when a nuclear attack occurred:

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?

No  
Don't know or undecided  
Yes

The second question sought to determine what an individual would do if a nuclear attack occurred while he and his family were at home when a nuclear attack occurred.

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?

- Have decided not to go to a public fallout shelter
- Have made no decision about going to a public fallout shelter
- Have decided to go to a public fallout shelter

The third question sought to determine if an individual had a specific plan of the steps he would take to get to a public fallout shelter if a nuclear attack occurred while he was at home with his family.

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)?

- No
- Undecided or don't know
- Yes

In the following section a research study designed to obtain the answers to these questions is described. Following the description of the field study a detailed explanation of how an individual's answers to the above questions were used to determine his stage of adoption is presented. In addition to these ten questions many other questions relating to civil defense and civil defense adoption were also asked. Many of these questions will be discussed and presented later in the report.

#### The Research Study

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 public fallout shelters if there is 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.<sup>a</sup>

2. Des Moines was one of the leading cities in stocking public fallout shelters at the time of the research study. Based on OCD data as of July 25, 1963, Des Moines had stocked 74,827 shelter spaces, capable to shelter 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 was one of these three.

The decision was made to only interview individuals in husband and wife households. Des Moines had 68,226 households according to the 1960 census. The Iowa State Statistical Laboratory estimates that approximately 80 percent of these households are husband and wife households. Thus the statistical population for this study is the approximately 54,000 husband and wife households in Des Moines. A probability sample of households was selected for 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 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 husband and wife were interviewed to determine their consensus about using a public fallout shelter if there is a nuclear attack. As will be noted in more detail later in the report a relatively high degree of consensus was found.)

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.

#### Public Fallout Shelter Adoption Stages

The methodology used to analyze an individual's responses to the ten adoption stage questions in order to determine his stage of adoption is presented

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<sup>a</sup>The Office of Civil Defense is planning to include a series of public fallout shelter adoption questions in its 1964 national survey. These questions will be an improved version of the questions originally asked in Des Moines in 1963.

In this section. The question numbers referred to below are the actual question numbers in the interview schedule. The reader who is not interested in the criteria used to empirically define the stages of adoption may proceed to Table 3.1, page 31 and Table 5.1, page 44, for a brief definition of the civil defense adoption stages and the number of individuals in each adoption stage.

### Awareness stage

Respondents who: (1) answered "yes" to one or more of the three awareness questions:

Q. 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?

No  
Yes

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

No  
Yes

Q. 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?

No  
Yes

but, (2) who answered "no" to the additional information question:

Q. 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?

No  
Yes

were considered to be at the Awareness stage of the adoption process.

Six, or 2.4 percent, of the 246 respondents answered the questions in this manner and were therefore classified as being in the Awareness stage.

There were 31 respondents, 12.6 percent of the total 246 respondents, who answered "no" to each of the three awareness questions. These individuals were considered to be unaware of the public fallout shelter program. They are perceived as composing an Unaware stage.

Information stage

Respondents who

- (1) answered "yes" to one or more of the three awareness questions;
- (2) answered "yes" to the one additional information question (see question 47, page 27);
- (3) did not answer "yes" to any of the three evaluation questions (see questions 62, 63, and 64 on this page); and
- (4) answered "no decision" or "undecided" to adoption questions 65 and 83 (see questions 65 and 83 on page 29)

were considered to be at the Information stage of the adoption process. Thirty-two, or 13.0 percent, of the 246 respondents answered the questions in this manner and were therefore classified as being in the Information stage.

Evaluation stage

Individuals could be in the Evaluation stage by answering questions in one of two ways:

First, a respondent could be in the Evaluation stage by answering "yes" to the questions that would put him in the Information stage but also (1) answering "yes" to one or more of the three evaluation questions:

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

No  
Yes

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

No  
Yes

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

No  
Yes

and (2) answering in question 65 that he had "decided not to go" or had "made no decision about going" to a public fallout shelter, while at the same time answering either "no" or "don't know or undecided" in question 83.

Q. 65: You have indicated that you know about public fallout shelters. Which of the statements below best describes your decision about the use of a public fallout shelter if a nuclear attack occurs while you are at home with your family?

Have decided not to go to a public fallout shelter

Have made no decision about going to a public fallout shelter

Have decided to go to a public fallout shelter

Q. 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?

No

Don't know or undecided

Yes

Twenty-two, or 8.9 percent, of the respondents answered the questions in this manner and were part of the respondents classified as being in the Evaluation stage.

The second way a respondent could be in the Evaluation stage was by answering "yes" to questions that would put him in the Information stage but also answering in question 65 that he had "decided not to go" or had made "no decision about going" to a public fallout shelter if he was at home when a nuclear attack occurred, while at the same time answering either "no" or "don't know or undecided" to question 83. Thus even though the respondent did not answer "yes" to any of the evaluation questions, his responses to questions 65 and 83 indicated that he had decided not to use a public fallout shelter. The decision not to use a public fallout shelter indicates the individual has evaluated the innovation. Individuals who have decided not to adopt an innovation are usually called rejectors. Thirteen, 5.3 percent, of the 246 respondents were rejectors in this study. For purposes of future analysis in this report the 13 rejectors are included in the Evaluation stage. Thus, a total of 35 respondents, or 14.2 percent of the total 246 respondents, are considered to be in the Evaluation stage.

#### Adoption stage

Three questions pertaining to adoption of public fallout shelters were asked:

Q. 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?

No  
Don't know or undecided  
Yes

Q. 65: You have indicated that you know about public fallout shelters. Which of the statements below best describes your decision about the use of a public fallout shelter if a nuclear attack occurs while you are at home with your family?

Have decided not to go to a public fallout shelter  
Have made no decision about going to a public fallout shelter  
Have decided to go to a public fallout shelter

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

No  
Don't know or undecided  
Yes

The above three questions are used in this report to delineate three different types of adoption within the adoption stage:

Adoption type 1: Downtown adoption only. To be in this adoption type a respondent had to answer "yes" to question 83, and in question 65 answer either that he had "decided not to go" or had "made no decision about going" to a public fallout shelter if a nuclear attack occurs while he is at home with his family. Forty-six, or 18.7 percent, of the 246 respondents were in adoption type 1.

Adoption type 2: Home adoption no plan. To be in this adoption type a respondent had to answer in question 65 that he had "decided to go to a public fallout shelter" if he is at home with his family when a nuclear attack occurs and answer "no" or "don't know" to question 66, that is, he did not have a specific plan for the steps he and his family would take to get to a public fallout shelter if there is a nuclear attack while they are at home. Fifty-four, or 22.0 percent, of the 246 respondents were in adoption type 2.

Adoption type 3: Home adoption, with a plan. To be in this adoption type respondents: (1) had to answer in question 65 that they "have decided to go to a public shelter" if a nuclear attack occurs while they are at home with their family, and (2) answered in question 66 that they did have a specific plan of the steps they would take to get to a public fallout shelter. Forty-two, or 17.1 percent, of the 246 respondents were in adoption type 3.

The number of respondents in the three adoption types total 142, or 57.8 percent of the 246 respondents. Thus, over one-half of all respondents are in the adoption stage as operationalized above.

In Table 3.1 the five adoption stages discussed above are briefly summarized.

Table 3.1. Public Fallout Shelter Stage of Adoption.

Adoption Stages	Number	Percent
1. Unaware	31	12.6
2. Awareness	6	2.4
3. Information	32	13.0
4. Evaluation	35	14.2
5. Adoption		
Adoption type 1: downtown adoption only	46	18.7
Adoption type 2: home adoption, no plan	54	22.0
Adoption type 3: home adoption with a plan	<u>42</u>	<u>17.1</u>
Totals	246	100.0

The three adoption types delineated above may be perceived as a continuum within the adoption stage. Perceiving the three adoption types as a continuum within the adoption stage may be done for two different reasons: (1) because the empirical data suggest such a continuum, and (2) because the change agent may assume, in a subjective frame of reference, that adoption type 3 is more desirable than adoption type 2 and adoption type 2 is more desirable than adoption type 1. This assumption is based upon the potential of saving lives in the event of nuclear attack. Both of these reasons are discussed below:

The empirical data suggest that the three adoption types may be considered as a continuum:

(1) Forty of the 54 respondents in adoption type 2 (home adoption, no plan) also said they would go to a public fallout shelter if an attack occurred while they were in the downtown business district, that is, they had also



adopted the idea that individuals in adoption type 1 had adopted. However, none of the individuals in adoption type 1 had adopted the idea that individuals in adoption type 2 had adopted, that is, the idea of going to a public fallout shelter if there is an attack while the respondent and his family are home. (Five of the 54 respondents in adoption type 2 said they "didn't know" if they would use a public fallout shelter if an attack occurred while they were in the downtown business district. Only nine of the 54 respondents in adoption type 2 said they would not use a shelter if an attack occurred while they were in the downtown business district.)

(2) Thirty-nine of the 42 individuals in adoption type 3 also said they would go to a public fallout shelter if an attack occurred while they were in the downtown business district, that is, they had also adopted the idea that those in adoption type 1 had adopted. However, none of the individuals in adoption type 1 had adopted the two ideas that individuals in adoption type 3 had adopted, that is, the use of a public fallout shelter if an attack occurs while the respondent and his family are home, and a specific plan of the steps to get to a public fallout shelter in this situation. Further, all 42 individuals in adoption type 3 had adopted the idea that individuals in adoption type 2 had adopted, that is, the use of a public fallout shelter if an attack occurs while the respondent and his family are home. None of the individuals in adoption type 2 had adopted the unique idea that individuals in adoption type 3 had adopted, that is, a specific plan to go to a public fallout shelter if there is a nuclear attack.

Thus, the empirical data show that none of the individuals in adoption type 1 had adopted the ideas (the use of a public shelter if at home with the family and/or a plan of the steps to go to a public fallout shelter) that individuals in adoption types 2 and 3 had adopted. Most individuals in adoption types 2 and 3 had also adopted the idea of using a public fallout shelter if downtown, which is characteristic of adoption type 1. Further, none of the individuals in adoption type 2 had adopted the idea of a plan that all individuals in adoption type 3 had adopted. All of the individuals in adoption type 3 had adopted the idea of using a public fallout shelter if at home that individuals in adoption type 2 had accepted, but in addition also had a plan of the steps they would take to get to a public fallout shelter.

The change agent may assume, in a subjective frame of reference, that adoption type 3 is more desirable than adoption type 2, and that adoption type 2 is more desirable than adoption type 1. Thus, the change agent may reason that having a specific plan is more desirable than not having a plan. The change agent may also reason that adopting the use of public fallout shelters if a nuclear attack occurs while a person is in his home is more important than adopting the idea of using a shelter if a nuclear attack occurs while a person is in the downtown business district. Ideally it would be assumed that the change agent would want a person to adopt the use of shelters in both situations: home and downtown. (In the preceding analysis of the three adoption types it was found that most respondents in adoption type 3, 39 of 42 respondents, had adopted the use of shelters in both situations.)

In the remainder of this report the three adoption types will be considered as a continuum of types within the adoption stage. Also, in the remainder of this report the three adoption types will be referred to as stages even though in a more precise sense they compose types within the adoption stage. Thus rather than distinguishing between the five stages of the adoption process (unaware, awareness, information, evaluation, and adoption) on one hand and the three adoption types (types 1, 2 and 3) on the other hand in the remainder of the report they will all be referred to as stages; seven "stages" in all. This is being done to facilitate analysis and communication of the findings in the remainder of the report.

The five adoption process stages and the three adoption types can thus be perceived as a continuum composed of seven stages. After presenting data showing the number and percent of people in each adoption stage, the remainder of the report will deal primarily with an analysis of the relationship between selected variables and an individual's public fallout shelter stage of adoption. Since there are only six respondents in the Awareness stage they will be combined with the 32 respondents in the Information stage when analytical comparisons are made among the stages. Thus, there will be six different analytical stages in the remainder of this report: Unaware, Aware-Information, Evaluation, Downtown Adoption Only, Home Adoption No Plan, and Home Adoption With a Plan. These six stages will be discussed in more detail in Chapter 5. They are briefly defined in Table 5.1.

In Chapter 2 reference was made to the following stages of the adoption process: awareness, information, evaluation, trial, and adoption. The possibility of an unaware stage was also discussed. The difference between the theoretical adoption process stages outlined in Chapter 2 and the six stages that will be used in the analytical comparisons in the remainder of this report are thus:

1. An unaware stage has been added to account for all individuals in the sample.
2. The awareness and information stages have been combined for analytical purposes because there were only six respondents in the awareness stage.
3. The trial stage has been omitted because of the symbolic nature of the adoption idea being studied. Also, since licenses signed by building owners do not allow the use of public fallout shelters except in a nuclear attack, in most cases it is impossible for an individual to try a public fallout shelter.
4. Rather than having only one adoption stage, three different adoption types have been delineated. These are based on two situations in which the person may find himself when a nuclear attack occurs (downtown and at home) and the plans he has made for himself and his family if they are at home when a nuclear attack occurs. These adoption types are referred to as separate stages in the remainder of the report.

The four categories of variables: demographic, knowledge, attitudes, and communication behavior must also be subjected to the same precise operational process for individual variable analysis. However, the operationalization of these concepts will be presented in the appropriate findings chapter in order to more clearly communicate the relationship between the concepts and their measures; to place the concepts and measures close to the study findings; and to reduce redundancy.

## Chapter 4

## FINDINGS: A GENERAL INTRODUCTION

## Introduction

The first general objective of this research project was of a theoretical nature: to develop an analytical frame of reference which could be used for planning, implementing, and evaluating civil defense programs which have as their primary objective the obtaining of the adoption of new ideas, innovations, or programs by individuals in specified target audiences. The previous chapters have presented both an analytical model and a methodology to operationalize and apply the model to the adoption of a specific civil defense innovation, the symbolic adoption of the use of public fallout shelters if there is a nuclear attack. The remainder of this report is devoted to the fulfillment of the remaining two general objectives of the research presented in this report. This chapter will provide an introduction to the presentation of the findings related to these general objectives.

The second general objective of this research was: to determine the extent to which a sample of people had adopted the civil defense innovation of using public fallout shelters if there is a nuclear attack. Within the framework of the model developed in Chapter 2 and operationalized in Chapter 3, data will be presented in Chapter 5 in an attempt to fulfill the second objective. Data will be presented on the percent of people in each of the adoption stages, the adoption rate, and the adoption period.

## Factors Related to Stage of Adoption

The third general objective of the research was: to determine the relationship between selected demographic, knowledge, attitude, and information variables and the adoption of the innovation of using public fallout shelters if there is a nuclear attack. Chapters 6, 7, 8, and 9 are concerned with this objective. One chapter will be devoted to the findings related to each of the four general level factors. Chapter 6 will present data and findings regarding the relationship of 12 demographic variables and stage of adoption. Chapter 7 will present data and findings on the relation of 13 selected knowledge variables and adoption. In Chapter 8 the relation of 35 attitude variables to adoption are

analyzed. The relationships of selected information behavior variables and adoption stages are analyzed in Chapter 9. Chapter 10 will provide a general summary of the research presented in this report.

The analysis presented in Chapters 6 through 9 is concerned with providing empirical data to help answer the question: What variables are related to decisions people make about civil defense innovations, and more specifically, what variables are related to people's decisions about using public fallout shelters if there is a nuclear attack? A slightly different way to frame this question is: What are the characteristics of people in each stage of adoption?<sup>a</sup>

This research is one of the first attempts to determine the variables related to this type of civil defense innovation. Because of its exploratory nature a large number of variables are used to determine their relationship, if any, to stage of adoption of public fallout shelters. In some cases generalizations and inferences from theories and past research findings lead to statements of probable relationships. In some cases logical inferences regarding expected relationships can be made from empirical observations. In other cases, there appears to be conflicting data or logical alternative inferences that can be made regarding expected relationships or differences. This is to be expected in exploratory research. One purpose served by this report is to begin the process of determining the variables that are related (or not related) to the adoption of this type of civil defense innovation. No claim is made that the variables analyzed are exhaustive.

This report is concerned only with single variable analysis. That is, only one demographic, knowledge, attitude, or information variable is compared to stage of adoption at a time. Future reports will investigate multiple-variable relationships and stages of adoption.

If some variables are related to public fallout shelter stage of adoption, OGD should be able to use this knowledge in helping to plan future programs

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<sup>a</sup>Readers who are familiar with the adoption-diffusion research tradition will note that this is the first time that personal characteristics have been analyzed by adoption stages. Previous adoption-diffusion studies have first determined the date of adoption for all people in the social system who have adopted an innovation and then categorized the adoption units (usually individuals) into adopter categories, such as innovators, early adopters, early majority, late majority, late adopters, and laggards based on their time of adoption. Personal characteristics were then related to adopter categories.

designed to increase the rate of adoption of public fallout shelters. Likewise, if variables are not related to stage of adoption, this knowledge may be used as an input in planning future OCD information, training, and educational programs. It may be as meaningful for OCD to know that certain variables are not related to stage of adoption as it is to know that other variables are related to stage of adoption. It is important, however, to exercise caution in attributing causal effects to respondents' knowledge, attitude, information, and demographic variables when they are found to be related to stage of public fallout shelter adoption. The data presented in this report show relationships and differences. The data are not derived from an experimental study of cause and effect. However, in many instances theory, past research or logical derivations do suggest a logic for inferring a causal relation.

Some readers may be interested in analyzing the data presented in the remainder of the report without focusing specifically on the relationships between specific variables and stage of adoption. For example, the reader may be interested in the percentage of respondents in the total sample who responded favorably to a specific attitude statement. Or the reader may be interested in the number of people who used a specific source of information. Also, the reader may want to know the total percentage of people who have knowledge about certain civil defense activities. This type of data is presented in the total column of the relationship tables in Chapters 6, 7, 8, and 9. Thus the total column shows the response distribution of the total sample for each variable analyzed.

#### A Statistical Note: Relationship Criteria

Each change agent must decide upon the criterion (or criteria) he will use in determining if a variable is related to stage of adoption. Some may want to use formal statistical criteria. They will do this because when a sample is taken from a population, the differences among the sample data, or values one calculates from these data, may be different from the true population values because of sampling error, i.e., that error which is due to the selection of a sample of individuals from the population being studied rather than taking a complete enumeration of the population. Statistical tests of significance take into account the possibility that the sampling data obtained

may be due to a unique selection of a sample of individuals from a population.

Others may not want to use formal statistical criteria. They will accept as a criterion of a meaningful relationship between two variables a difference in percentage trends or mean values without subjecting these values to formal statistical tests.

The change agent's selection of a criterion to decide if variables are related to stage of adoption is compounded by the fact that he must make day to day operating decisions. Thus, even though data are not statistically significant at a given probability level, the change agent may believe that the mean values or percentage trends are such that a decision based on them is better than a decision based on more limited data, feelings, or "hunches." Thus, the data may have practical significance even though they do not meet certain formal statistical significant levels.

In this report both criteria mentioned above are presented. Formal statistical tests are used to evaluate the relationship between stage of adoption and demographic, knowledge, attitude, and source of information variables. In addition, mean values and/or percentage trends are presented. Thus the reader may evaluate the relationships of variables and stage of adoption in either or both of these criterion frameworks.

Two different statistical tests are used in this report to analyze the relationships between stage of public fallout shelter adoption and the demographic, knowledge, attitude, and information source variables introduced in Chapters 6, 7, 8, and 9: These tests are chi-square and analysis of variance.

The chi-square statistical test is concerned with testing the existence of a relationship between two variables. The chi-square statistical test is used in this study to test the relationship of certain demographic, knowledge, attitude, and information source variables and stage of public fallout shelter adoption. Whenever the chi-square statistical test is used the hypothesis of independence is formulated. That is, it is hypothesized that there is no relationship between the two variables being analyzed; for example, stage of adoption and years of education. Saying that there is no difference among stages of adoption with respect to years of education is essentially saying there is no relationship between stage of adoption and years of education. For each comparison of stage of adoption and one other variable, such as years of education, a chi-square value is calculated. This calculated chi-square

value is then compared to a tabular (theoretical) value of chi-square. The tabular value to which the calculated value is compared depends upon the degrees of freedom (d.f.) in the comparison (in this report the degrees of freedom are usually five) and the significance level the change agent is willing to select, i.e., the probability that the selection of a sample of individuals from a population provides a reasonable explanation for the differences between the calculated value and the tabular value. With five degrees of freedom the following significant levels have the respective tabular chi-square values:

<u>Significance level</u>	<u>Tabular chi-square</u>
.01	15.086
.02	13.388
.05	11.070
.10	9.236
.20	7.289
.30	6.064

Thus, one would expect to obtain a calculated value of chi-square larger than 11.070 (which is the tabular value of chi-square at the .05 significance level) only 5 times in 100 samples when in the population being studied there is no relationship between the two variables being compared. Therefore, when one obtains a calculated value larger than 11.070, he is usually willing to conclude that there is a relationship between the two variables in the population being studied (although he knows a value larger than 11.070 may be expected to be found 5 times in 100 because of the sample selected from the population). One of the change agent's decision problems is to decide upon the significance level he is willing to use in deciding whether two variables may (or may not) be related in the population which he is studying. For example, if he selects the .10 significance level he will conclude that there is a relationship between two variables whenever he has a calculated chi-square larger than 9.236 (which is the tabular value of chi-square at the .10 level). In this report all the findings are statistically evaluated using the .05 significance level.

The analysis of variance statistical test is also used to study to relation of certain demographic, knowledge, attitude, and information source variables to stage of public fallout shelter adoption. One variable is compared to stage of public fallout shelter adoption at a time. The analysis of



variance test is used to test for differences among the means of the six adoption stages. Thus, when the analysis of variance test is used, the hypothesis being tested is that  $u_1 = u_2 = u_3 = u_4 = u_5 = u_6$  where the  $u$ 's refer to the mean values (for the specific variable being studied, such as family income) respectively for each public fallout shelter stage of adoption. For example, in Table 6.5 the mean values of family income for the individuals in each stage of adoption are presented. The distribution of family incomes within each stage of adoption is also presented in the table. To determine how closely the two variables (family income and stage of adoption) are related the amount of variability of family income within the adoption stages is compared to the variability of the means of the adoption stages. Thus to determine whether the means of the six adoption stages differ the variance among the six means is compared to the pooled within variance of the six adoption stages. This variance comparison results in a calculated F value. This calculated F value is then compared to a tabular F value to determine whether the actual sample differences found among the six adoption stages being compared may be due to the selection of the sample obtained from the population being studied. As with the chi-square test described above the tabular value of F depends upon the degrees of freedom and the significance level selected. In this study the degrees of freedom for the F test are 5 and 240. The significance level selected is the .05 level, that is, it can be expected that in one sample in 20 a calculated value of F will be larger than the tabular value of F when in the population there is no difference among the means of the groups being compared. The tabular value of F for this study is 2.25. Any calculated value larger than 2.25 will be considered as indicating that the sample differences among the six adoption stage means are not due to a unique selection of a sample, but rather to an actual difference among the six adoption stages in the population being studied. For any calculated value less than 2.25 it will be concluded that there is not sufficient statistical evidence for concluding that adoption stages actually differ with respect to the variable being studied.

### Notes on Reading the Tables

1. Each table number has two parts: the first part refers to the chapter; the second part refers to the table within the chapter.
2. In some cases the table title is the exact question asked the study respondents. In other cases the table title is a rephrasing of the question in order to better communicate the concept being analyzed.
3. All percents are rounded to the nearest tenth. For this reason table percent totals do not always add to 100 percent.

## Chapter 5

## ADOPTION OF THE USE OF PUBLIC FALLOUT SHELTERS

## Introduction

Data are presented in this chapter to fulfill the second general objective of this research project: to determine the extent to which a sample of people have adopted the civil defense idea of using public fallout shelters if there is a nuclear attack. The data in the first section below show the rate of adoption in Des Moines, Iowa, as of June, 1963. The second section deals with the adoption period in terms of the dates people became aware of public fallout shelters, the dates people decided on a plan to use public fallout shelters, and the length of time between an individual's awareness of public fallout shelters and his setting up a plan to use them.

## Rate of Adoption

When a change agent introduces a new innovation into a social system he is usually interested in determining the rate of adoption or acceptance of that innovation at different points in time after its introduction. Rate of adoption has been defined in this report as the relative speed with which an innovation is adopted by the members of an audience, potential market, or social system. The rate of adoption is usually measured by the percentage of members in the social system who have adopted the innovation at a given point in time. A similar concept often used in the field of marketing is market penetration in a potential market at a given point in time.

The major program of civil defense during the past three years has been the public fallout shelter licensing, marking, and stocking program. No major direct and specific program effort had been made at this time to secure shelter utilization by the general public. However, from both indirect effects and some limited effort, the general public has had an opportunity to become exposed to the idea of using public fallout shelters once they were marked and stocked. The obvious end in view of the licensing, marking, and stocking program is to prepare public facilities that could protect the greatest percentage of the American public in case of a nuclear attack. These facilities would be of little use unless the general public is aware of their existence

and has enough information upon which to base a decision to use them in case of a nuclear attack. As the change agent begins to make plans for intensifying public information and utilization programs, data regarding the present public state of awareness and symbolic adoption should be of great value to him.

Data in Table 5.1 show the number and percent of people in Des Moines, Iowa, who were in the various stages of adoption as of June, 1963. Approximately 13 percent of the sample respondents were not aware of public fallout shelters. There were approximately 15 percent of the respondents who were only aware and had additional information about public fallout shelters. Another 14 percent of the respondents were in the Evaluation stage. Approximately 19 percent of the respondents stated they would use a public fallout shelter if they were in a downtown business district and a nuclear attack occurred, but, they stated, they would not go to a public fallout shelter if they were at home when a nuclear attack occurred. Twenty-two percent of the respondents stated they were planning on using a public fallout shelter if they were at home and an attack occurred, but they stated they did not have a specific plan of the steps they would take to get to a public shelter. Approximately 17 percent of the respondents stated they had decided to use a public fallout shelter if they were at home with their family when an attack occurred and they also stated they have a specific plan of the steps they would take to get to a public fallout shelter if a nuclear attack occurred. Thus, as of June 1963 approximately 17 percent of the respondents in Des Moines had decided to use a public fallout shelter and had a plan of the steps to get to the shelter.

#### The Adoption Period

The adoption period is the time required for an individual to pass through the adoption process from awareness to adoption. Information as to the date individuals became aware of public fallout shelters and the length of time between awareness and adoption of a plan to use public fallout shelters is presented in this section.

Table 5.1. Stages in the Public Fallout Shelter Adoption Process: June 1963

Stages in the Adoption Process	Number	Percent
1. <u>Unaware</u> : The respondent was unaware of the marking and stocking public fallout shelter program.	31	12.6
2. <u>Aware-additional information</u> : The respondent was aware or was aware and had additional information about the marking and stocking public fallout shelter program.	38	15.4
A. Aware of program but had no additional information about it.      6		
B. Aware of program and had additional information about it.                      32		
3. <u>Evaluation</u> : The respondent was aware of and had additional information about the public fallout shelter program and said he had discussed the program with someone (family member or friend) <u>or</u> said he had decided <u>not to go</u> to a public fallout shelter if he was downtown and/or if he was at home with his family when a nuclear attack occurred.	35	14.2
4. <u>Downtown adoption only</u> : The respondent said he and his family had <u>decided to use</u> a public fallout shelter if the family was in the <u>downtown business district</u> when an attack occurred, <u>but</u> the respondent said he was <u>undecided about using</u> or had <u>decided not to use</u> a public fallout shelter if the family was <u>at home</u> at the time of an attack.	46	18.7
5. <u>Home adoption, no plan</u> : The respondent said he and his family had decided to use a public fallout shelter if they were at home when an attack occurred, <u>but</u> said the family had <u>no plan</u> of the steps it would take to get to a public fallout shelter.	54	22.0
6. <u>Home adoption with a plan</u> : The respondent said he and his family had <u>decided to use</u> a public fallout shelter if they were at home when an attack occurred, and said the family had <u>a plan of the steps</u> it would take to get to a public fallout shelter.	42	17.1
Total	246	100.0

Data of awareness of the idea of using public fallout shelters

Each respondent who said he was aware of public fallout shelters was asked to state the month and year that he first saw or heard about public fallout shelters. For purposes of analysis the dates of awareness have been grouped into five time periods. The five time periods and the number of respondents who stated they became aware of public fallout shelters in each time period are presented in Table 5.2.

Table 5.2. Date Became Aware of Public Fallout Shelters.

Time Period	Number	% of 246
Pre-July 1961	13	5.3
July-Dec. 1961	55	22.4
Jan.-June 1962	20	8.1
July-Dec. 1962	96	39.0
Jan.-June 1963	31	12.6
Unaware	<u>31</u>	<u>12.6</u>
Total	246	100.0

Approximately 5 percent of the respondents said they became aware of public fallout shelters prior to July 1961. Approximately 23 percent of the respondents said they became aware of public fallout shelters during the last six months of 1961. This period included the Berlin crisis. A small number of respondents (8.1 percent) said they became aware of public fallout shelters during the first six months of 1962. During this time period shelter surveying and licensing were major OCD activities in the nation and in Des Moines.

Almost 40 percent of the respondents said they became aware of public fallout shelters during the last half of 1962. During this time period the first stocking of shelters was undertaken in Des Moines. There was local television coverage of the stocking of the first buildings. There was also radio coverage telling of the licensing, marking and stocking of public fallout shelters. Newspapers carried feature articles about buildings eligible for marking and stocking as public fallout shelters. One newspaper

feature on October 17, 1962 (pre-Cuba crisis) was a three-quarter page map of the city showing the location of all buildings which had been licensed to that date. The same feature also listed the name and street address of each building licensed. On October 25 (during the height of the Cuban crisis) all three mass media sources (television, radio, and newspapers) carried news stories stating that 29 buildings with space for 27,000 people had been stocked with a five-day supply of food and water. The names and addresses of the 29 buildings stocked were printed in newspapers. A few other news stories of both a general and specific civil defense nature were carried by all three media in the last week of October and during November of 1962.

During the first half of 1963 another 12.6 percent of the respondents said they became aware of public fallout shelters. This was a period of continued marking and stocking of shelters in Des Moines.

#### Time of adoption

Each respondent who said he had a specific plan for the steps he and his family would take to get to a public fallout shelter if there was a nuclear attack while he and his family were at home was asked to state the year and month they had set up the plan. Thus, the date of adoption was ascertained from the 42 individuals in the Home Adoption Plan stage. For analysis purposes the dates were categorized into the same five time periods used to categorize the respondents' dates of awareness. The number of individuals in each of the time periods is presented in Table 5.3. There are three different percentage columns in Table 5.3. Each provides a different frame of reference to analyze the adoption distribution presented. The base for the percentages in column 1 is the 42 individuals who have a plan (Home Adoption Plan stage). From this column it can be seen that approximately two-thirds of the 42 people who have a plan developed it during the last half of 1962. Approximately 17 percent developed a plan in the last half of 1961.

The base for the percentages in columns 2 and 3 is the total sample of 246 individuals. In column 2 the percentage of individuals in the total sample who developed a plan in each time period is presented. From this it can be seen that 11 percent of the individuals in the total sample adopted

their plan in the last half of 1962. In column 3 the cumulative percentage of individuals in the total sample is shown. This column shows the rate at which people have adopted a plan to go to a public fallout shelter if an attack occurs while the family is at home. By the end of 1961, 3.2 percent had adopted a plan. By the end of 1962 15.1 percent of all respondents had adopted a plan. At the time of the interviews in June and July of 1963 approximately 17 percent of the sample had adopted a plan to go to a public fallout shelter if there is a nuclear attack while the family is at home.

Table 5.3. Time of Adoption, if at Home and With Plan.

Date of Adoption	No.	(1) Percent of 42	(2) Percent of 246	(3) Total Cumulative Percent
Pre-July 1961	1	2.4	.4	.4
July-Dec. 1961	7	16.7	2.8	3.2
Jan.-June 1962	2	4.8	.8	4.1
July-Dec. 1962	27	64.3	11.0	15.1
Jan.-June 1963	<u>5</u>	11.9	<u>2.0</u>	17.1
Totals	42		17.1	

#### Length of adoption period

The length of the adoption period for the 42 individuals who have adopted a plan to go to a public fallout shelter is presented in Table 5.4. The unit of measurement is months. Slightly over one-third (35.7 percent) of the 42 respondents who had a plan became aware of public fallout shelters and adopted a plan to go to a public fallout shelter within a one-month period. Another 24 percent became aware of public fallout shelters and adopted a plan to use one within a three-month period. Two individuals had been aware of public fallout shelters over two years before they adopted a plan to use one in case of attack.

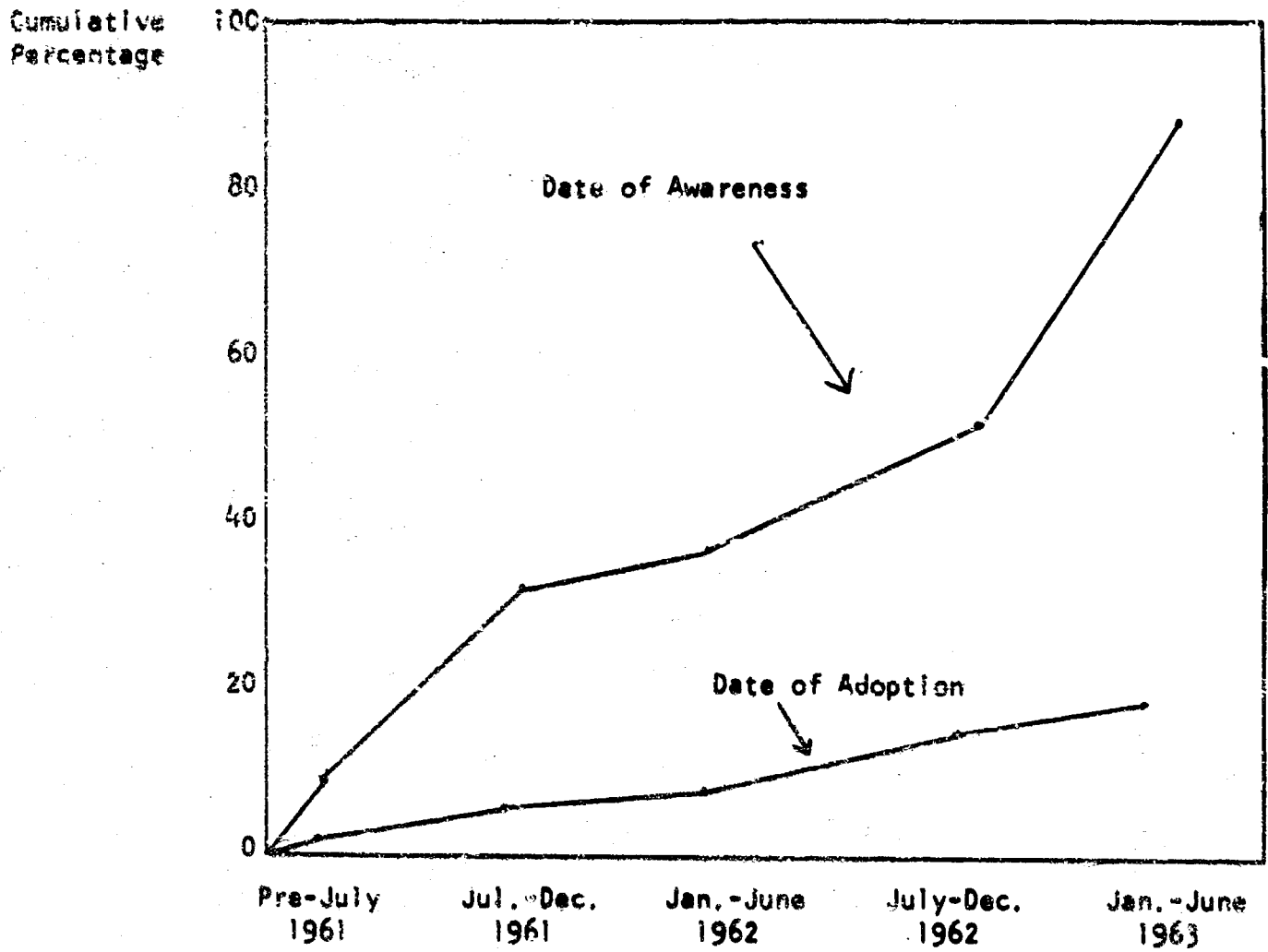


Table 5.4. Length of Adoption Period. Time Between Awareness and Adoption in Months for 42 Respondents in the Home Adoption Plan Stage.

Length of Adoption Period	No.	% of 42
Less than 1 month	15	35.7
1-3 months	10	23.8
4-6 months	1	2.4
7-9 months	5	11.9
10-12 months	3	7.1
13-18 months	5	11.9
19-24 months	1	2.4
25-36 months	2	4.8
Total	42	
Mean length of adoption period	6.6	

Figure 5.1 shows: (1) the cumulative percentage of individuals who were aware of public fallout shelters at each of the five time periods and (2) the cumulative percentage of individuals who have adopted a plan of the steps they will take to go to a public fallout shelter if there is a nuclear attack while they are at home with their family, also at each of the five time periods. Thus, Figure 5.1 summarizes the data presented in Table 5.2 and Table 5.3.

Figure 5.1. Date of Public Fallout Shelter Awareness and Date Established an Adoption Plan for Public Fallout Shelter Use.



## Chapter 6

## DEMOGRAPHIC FACTORS AND STAGE OF ADOPTION

## Introduction

The relationships between certain demographic variables and public fallout shelter stage of adoption are analyzed in this chapter. The personal characteristics of an individual and the family situation in which the individual finds himself may be important factors in understanding an individual's stage of public fallout shelter adoption. Persons possessing certain personal characteristics or being in a certain family situation may be more receptive to civil defense ideas and innovations than persons not possessing these characteristics. In the following series of tables the following demographic variables are compared to an individual's stage of public fallout shelter adoption: (1) number of children in household under 15 years of age, (2) total number of people in household, (3) age of respondent, (4) years of formal education, (5) family income, (6) home ownership, (7) active military service, (8) combat duty, (9) service in national guard, (10) religious preference, (11) political affiliation, and (12) sex.

For some of the demographic variables a statement is made as to what one might expect the relationship to be between the variable and stage of adoption. Each statement is based on past research findings. In a sense each statement is a hypothesis to be tested. Following each statement, the study findings pertaining to the statement are presented.

A knowledge of these relationships, or differences among individuals who are at different stages in the adoption process, may have at least three main uses:

1. It allows the change agent to characterize, in concrete terms, the individuals at each stage of adoption. Using this knowledge the change agent should be in a better position to attempt to account for the 'why' of their being in their respective adoption stage and to plan strategy in an attempt to motivate people not yet at the desired adoption stage to reach that stage.
2. It provides a test for existing propositions or hypotheses about expected relationships between characteristics and stage of adoption.
3. An analysis of the data may generate new propositions and hypotheses about relationships that should be of value in continuing the fallout shelter program and developing strategy for future civil defense programs.

Number of Children in Household Under 15 Years of Age

One might hypothesize that parents with young children in their household would be farther along in their decision-making process of adopting public fallout shelters than those with no young children in their family. Other civil defense studies (4) have found that families with young children are more receptive to civil defense ideas than families without children. Table 6.1 shows the distribution of children under 15 years of age in each household by stage of adoption. Using a chi-square statistical test no significant relationship was found between stage of adoption and families with young children when a comparison was made between families with children under 15 years of age and those having no children under 15. However, the test approached the significance level. More than 70 percent of the individuals in the Home Adoption Plan stage had children under 15. Conclusion: Having children in the household under 15 years of age is not statistically related to stage of adoption. However, the Home Adoption Plan stage had a larger portion of families with children under 15 years of age than any other adoption stage.

Table 6.1. Number of children in household under 15 years of age by stage of adoption

Number of children under 15 years of age in household	Stage of Adoption								TOTAL % of No. 246					
	(1)		(2)		(3)		(4)			(5)		(6)		
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	HOME ADOPTION, PLAN % of No. 42	HOME ADOPTION, PLAN % of No. 42						
None under 15 years	15	48.4	16	42.1	14	40.0	24	52.2	32	59.3	12	28.6	113	45.9
1 under 15	4	12.9	6	15.8	5	14.3	8	17.4	6	11.1	12	28.6	41	16.7
2 under 15	4	12.9	7	18.4	6	17.1	10	21.7	8	14.8	10	23.8	45	18.3
3 under 15	5	16.1	5	13.2	3	8.6	3	6.5	2	3.7	1	2.4	19	7.7
4 under 15	2	6.5	3	7.9	7	20.0	1	2.2	2	3.7	2	4.8	17	6.9
5 under 15	-	-	1	2.6	-	-	-	-	3	5.6	2	4.8	6	2.4
6 under 15	1	3.2	-	-	-	-	-	-	1	1.9	2	4.8	4	1.6
7 under 15	-	-	-	-	-	-	-	-	-	-	1	2.4	1	.4
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
Mean	1.3	1.4	1.5	.9	1.1	1.7								

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 10.51.

**Total Number of People in Household**

Table 6.2 shows the distribution of the total number of household members by stage of adoption. Using an analysis of variance statistical test no significant difference was found among the means of the six adoption stages. Percentage trends indicate a somewhat larger portion of individuals in the Home Adoption Plan stage were from larger households than were individuals in other stages. Conclusion: The total number of people in the household is not statistically related to stage of adoption.

Table 6.2. Total number of people in household by stage of adoption.

Total number of people in household	Stage of Adoption						TOTAL % of 246							
	(1) UNAWARE % of 31	(2) AWARE INFORMATION % of 38	(3) EVALUATION % of 35	(4) FAMILY DOWNTOWN ADOPTION % of 46	(5) HOME ADOPTION, NO PLAN % of 54	(6) HOME ADOPTION, PLAN % of 42								
2 in household	12	38.7	11	28.9	10	28.6	12	26.1	21	38.9	9	21.4	75	30.5
3 in household	7	22.6	5	13.2	6	17.1	11	23.9	9	17.0	8	19.0	46	18.7
4 in household	1	3.2	7	18.4	7	20.0	15	32.6	13	24.1	13	31.0	56	22.8
5 in household	5	16.1	8	21.1	3	8.8	4	8.7	4	7.4	4	9.5	28	11.4
6 in household	2	6.5	6	15.8	8	22.9	3	6.5	2	3.7	2	4.8	23	9.3
7 in household	1	3.2	1	2.6	1	2.9	1	2.2	3	5.6	2	4.8	9	3.7
8 in household	3	9.7	-	-	-	-	-	-	2	3.7	2	4.8	7	2.8
9 in household	-	-	-	-	-	-	-	-	-	-	2	4.8	2	.8
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
Mean	3.8		3.9		3.9		3.5		3.5		4.1		3.8	

With 5 and 240 d. f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .92.

Age

Past studies (4) have found that respondents who were under 50 years of age were more aware of and more concerned about civil defense matters than those over 50 years of age. From this one would hypothesize that younger individuals would be more likely to be in the later stages of the adoption process than older people. Table 6.3 shows the age distribution of each adoption stage. Using an analysis of variance statistical test no significant difference was found among the means of the six adoption stages. However, individuals in the Home Adoption Plan stage had the youngest mean age (39.3 years) while individuals in the Unaware stage had the oldest (48.5 years). When the median age of the total sample (42 years) is used as a basis for analyzing the relationship of age and stage of adoption, almost three-fourths of the individuals in the Home Adoption Plan stage were below the median. Conclusion: Age is not statistically related to stage of adoption. However, individuals in the Home Adoption Plan stage are younger than individuals in any other stage while the Unaware stage has more older people than any other stage.

Table 6.3. Age by stage of adoption.

Age	Stage of Adoption						TOTAL / of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE / of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
24 years or less	4 12.9	2 5.3	2 5.7	3 6.5	6 11.1	3 7.1	20 8.1
25-34 years	5 16.1	6 15.8	11 31.4	12 26.1	10 18.5	14 33.3	58 23.6
35-44 years	4 12.9	13 34.2	5 14.3	10 21.7	13 24.1	14 33.3	59 24.0
45-54 years	5 16.1	5 13.2	9 25.7	9 19.6	10 18.5	3 7.1	41 16.7
55-64 years	7 22.6	7 18.4	5 14.3	11 23.9	11 20.4	6 14.3	47 19.1
65 years and over	6 19.4	5 13.2	3 8.6	1 2.2	4 7.4	2 4.8	21 8.5
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246
Mean	48.5	46.1	42.6	42.9	43.2	39.3	43.3

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 1.48.

### Years of Formal Education

Past studies have found that the higher the educational level of a person the more informed he is as to developments in the world around him. Past studies, in general, have also found that the higher the educational level of a person the more favorable he is to civil defense. Some studies, however, have found no relationship between education and the acceptance or rejection of civil defense ideas (6). One might hypothesize that individuals with more education would be farther along the adoption process than those with less education. Table 6.4 shows the years of formal education distribution by adoption stage. The table also shows two educational level sub-totals; (1) education through high school graduation, and (2) education beyond high school. Using a chi-square statistical test a significant relationship was found between stage of adoption and education when a comparison was made between the two sub-total groups. Less than one-fifth (19 percent) of the individuals in the Unaware stage had gone beyond high school, while almost two-thirds (64 percent) of those in the Home Adoption Plan stage had more than high school training. Conclusion: Number of years of formal education is statistically related to stage of adoption. A larger portion of individuals in the latter stages of adoption had more years of education than individuals in the first two stages of adoption.

Table 6.4. Years of education by stage of adoption.

Years of education	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
8th grade or less	9 29.0	4 10.5	4 11.4	6 13.0	6 11.1	-	29 11.8
Some high school; 9-11 years	2 6.5	5 13.2	3 8.6	3 6.5	9 16.7	4 9.5	26 10.6
High school grad; 12 years	14 45.2	17 44.7	14 40.0	19 41.3	20 37.0	11 26.2	95 38.6
(Sub-total, through high school)	(25 80.7)	(26 68.4)	(21 60.0)	(28 60.8)	(35 64.8)	(15 35.7)	(150 61.0)
Some college; 13-15 years	4 12.9	8 21.1	7 20.0	11 23.9	11 20.4	17 40.5	58 23.6
College graduate; 16 years	1 3.2	4 10.5	5 14.3	5 10.9	6 11.1	8 19.0	29 11.8
Graduate work; 17-20 years	1 3.2	-	2 5.7	2 4.3	2 3.7	2 4.8	9 3.7
(Sub-total, years beyond high school)	( 6 19.3)	(12 31.6)	(14 40.0)	(18 39.1)	(19 35.2)	(27 64.3)	( 96 39.1)
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246
Mean	11.3	12.0	12.7	12.5	12.4	13.7	12.5

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 17.51.



Family Income

Table 6.5 shows the family income distribution and mean income for each adoption stage. Using an analysis of variance statistical test no significant difference was found among the mean incomes of the six adoption stages. The two sub-total rows in the table show the percentage of each adoption stage below and above the median income for the entire sample, which was \$7,000. Using these percentage indicators, almost three-fourths of the individuals in the Unaware stage had incomes below the median. A larger portion of individuals in the Home Adoption Plan stage were above the median (60 percent) than any other stage. Conclusion: Family income is not statistically related to stage of adoption; however, individuals in the Unaware stage had the lowest average family incomes.

Table 6.5. Average family income by stage of adoption.

Average family income	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
No answer	-	3	3	2	3	1	12
1 - 4,999	18	8	10	6	14	6	62
5,000 - 6,999	5	8	9	14	14	10	60
(Sub-total, 1-6,999)	(23	(16	(19	(20	(38	(16	(122
7,000 - 9,999	3	12	5	14	15	20	69
10,000 - 11,999	1	7	4	4	5	2	23
12,000 and up	4	-	4	6	3	3	20
(Sub-total, 7,000 and up)	( 8	(19	(13	(24	(23	(25	(112
Number and % of Total	31	38	35	46	54	42	246
Mean	\$5924	\$7314	\$8172	\$8102	\$7000	\$7927	\$7438

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .26.

### Home Ownership

It has been found in other studies (4) that individuals owning their own home or those in the process of buying their home are more interested in finding out about civil defense and determining what they can do about it than those who rent a home or an apartment. From this one might hypothesize that homeowners might also be more likely to adopt the idea of using a public fallout shelter than those who do not own their own home. Table 6.6 shows the distribution of home owners and renters by stage of adoption. Using a chi-square statistical test, a significant relationship was found between stage of adoption and home ownership. Conclusion: Home ownership is statistically related to stage of adoption. Renters are more frequent in the Unaware stage. However, the Aware-Information and Evaluation stages had slightly more owners than other stages.

Table 6.6. Home ownership by stage of adoption.

Home ownership	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
No	13 41.9	5 13.2	4 11.4	10 21.7	11 20.4	10 23.8	53 21.5
Yes	18 58.1	33 86.8	31 88.6	36 78.3	43 79.6	32 76.2	193 78.5
No. and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d. f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 11.38.

## Military Service

One might hypothesize that households in which husbands had had military service would be more aware of and concerned about civil defense. Table 6.7 shows the percentage of individuals in each adoption stage who: (1) have been in active military service, (2) who have seen combat, and (3) who have been in the National Guard. See Table 6.7 for the response distributions for each of these three variables. Using a chi-square statistical test no statistical relationship was found between active military service and stage of adoption. An analysis of percentage trends, however, indicates that a greater proportion of individuals in the latter stages of adoption had active military service. Using a chi-square statistical test no statistical relationship was found between combat duty and stage of adoption. Using a chi-square test no statistical relationship was found between membership in the National Guard and stage of adoption. Conclusion: There is no statistical relationship between military service and stage of public fallout shelter adoption. However, percentage trends indicate that a greater proportion of the individuals in the latter stages of adoption had had active military service and had been in the National Guard.

Table 6.7. Three measures of military service by stage of adoption.

Military Service	Stage of Adoption						GRAND TOTAL % of No. 246
	(1) UNAWARE % of No. 31	(2) AWARE INFORMATION % of No. 38	(3) EVALUATION % of No. 35	(4) FAMILY DOWNTOWN ADOPTION % of No. 46	(5) HOME ADOPTION, NO PLAN % of No. 54	(6) HOME ADOPTION, PLAN % of No. 42	
No	17 54.8	24 63.2	20 57.1	19 41.3	26 48.1	14 33.3	120 48.8
Yes	14 45.2	14 36.8	15 42.9	27 58.7	28 51.9	28 66.7	126 51.2

**Active military service**

No	17 54.8	24 63.2	20 57.1	19 41.3	26 48.1	14 33.3	120 48.8
Yes	14 45.2	14 36.8	15 42.9	27 58.7	28 51.9	28 66.7	126 51.2

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 9.64.

\*\*\*\*\*

**Combat duty (of those in service)**

No	7 22.6	7 18.4	8 22.9	16 34.8	17 31.5	19 45.2	74 30.1
Yes	7 22.6	7 18.4	7 20.0	11 23.9	11 20.4	9 21.4	52 21.1

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 2.05.

\*\*\*\*\*

**National Guard**

No	29 93.5	35 92.1	33 94.3	35 76.1	43 79.6	35 83.3	210 85.4
Yes	2 6.5	3 7.9	2 5.7	11 23.9	11 20.4	7 16.7	36 14.6

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 10.04.

\*\*\*\*\*

### Religious Preference

The relationship between religious preference and stage of adoption is presented in Table 6.8. The percentage of individuals in each adoption stage who are protestant, Roman Catholic, and Jewish are presented. When protestants and Catholics are compared using a chi-square statistical test no significant difference was found by stage of adoption. Also there is little percentage difference among the different protestant denominations and stage of adoption. Conclusion: Religious preference does not differ by stage of adoption.

Table 6.8. Religious preference by stage of adoption.

Religious preference	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
Protestant sub-total	23 74.2	30 78.9	31 88.6	36 78.3	42 77.8	31 73.8	193 78.5
Baptist	1 3.2	1 2.6	-	3 6.5	3 5.6	3 7.1	11 4.5
Congregational	-	2 5.3	2 5.7	1 2.2	2 3.7	2 4.8	9 3.7
Episcopalians	-	-	2 5.7	1 2.2	1 1.9	2 4.8	6 2.4
Lutheran	3 9.7	4 10.5	4 11.4	5 10.9	7 13.0	8 19.0	31 12.6
Methodist	5 16.1	11 28.9	10 28.6	13 28.3	10 18.5	8 19.0	57 23.2
Presbyterian	3 9.7	1 2.6	8 22.9	4 8.7	7 13.0	3 7.1	26 10.6
Other Protestant	11 35.5	11 28.9	5 14.3	9 19.5	12 22.2	5 11.9	53 21.5
Roman Catholic	7 22.6	7 18.4	3 8.6	10 21.7	11 20.4	11 26.2	49 19.9
Jewish	-	1 2.6	-	-	-	-	1 .4
Other	-	-	1 2.9	-	1 1.9	-	2 .8
None	1 3.2	-	-	-	-	-	1 .4
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d. f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 3.96.

Political Orientation

Table 6.9 shows the political orientation of individuals by stage of adoption. Each respondent was asked to select one of the nine responses listed in the table. Using an analysis of variance statistical test no significant difference was found among the political orientations of the individuals in the six adoption stages. There is a sub-total row showing the number of individuals oriented to Republicanism and a sub-total row showing the number of individuals oriented to Democratism. Approximately one-third are Republican oriented and one-half Democrat oriented, with the remaining one-fifth independent. Proportionally there were more independents in the Home Adoption Plan stage than any other stage. Conclusion: Political orientation does not differ by stage of adoption.

Table 6.9. Political orientation by stage of adoption.

Code <sup>a</sup>	Political orientation	Stage of Adoption						TOTAL % of No. 246
		(1)	(2)	(3)	(4)	(5)	(6)	
		UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
1	Conservative Republican	3 9.7	5 13.2	7 20.0	7 15.2	11 20.4	3 7.1	36 14.6
2	Liberal Republican	1 3.2	4 10.5	3 8.6	6 13.0	6 11.1	5 11.9	25 10.2
3	Independent, close to Con. Rep.	1 3.2	1 2.6	1 2.9	3 6.5	2 3.7	4 9.5	12 4.9
4	Independent, close to Lib. Rep.	1 3.2	2 5.3	-	1 2.2	-	2 4.8	6 2.4
	(Oriented to Republicanism)	(6 19.3)	12 31.6	(11 31.5)	(17 36.9)	(19 35.2)	(14 33.3)	(79 32.1)
5	Independent	4 12.9	7 18.4	7 20.0	8 17.4	7 13.0	12 28.6	45 18.3
6	Independent, close to Con. Dem.	3 9.7	3 7.9	2 5.7	6 13.0	5 9.3	5 11.9	24 9.8
7	Independent, close to Lib. Dem.	-	7 18.4	3 8.6	2 4.3	2 3.7	2 4.8	16 6.5
8	Conservative Democrat	7 22.6	2 5.3	5 14.3	6 13.0	10 18.5	4 9.5	34 13.8
9	Liberal Democrat	11 35.5	7 18.4	7 20.0	7 15.2	11 20.4	5 11.9	48 19.5
	(Oriented to Democratism)	(21 67.8)	(19 50.0)	(17 48.6)	(21 45.5)	(28 51.9)	(16 38.1)	(122 49.6)
	Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246
	Mean	6.6	5.4	5.3	5.1	5.3	5.1	5.4

<sup>a</sup> With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 1.3783.

<sup>b</sup> Analysis of variance was calculated using code values assigned to the nine response choices.

Sex of Respondent

As was stated in the previous chapter approximately one-half of the interviews were with husbands and one-half with wives. Table 6.10 shows the distribution of husbands and wives by stage of adoption. Using a chi-square statistical test no significant relationship was found between sex of respondent and stage of adoption. Conclusion: Sex of respondents did not differ statistically by stage of adoption.

Table 6.10. Sex of respondent by stage of adoption.

Sex of respondent	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
Wife	20 64.5	24 63.2	21 60.0	20 43.5	31 57.4	21 50.0	137 55.7
Husband	11 35.5	14 36.8	14 40.0	26 56.5	23 42.6	21 50.0	109 44.3
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 5.43.

The decision as to which person in a household should be interviewed to ascertain what the family might do if there is a nuclear attack creates a methodological dilemma: Who in a family (husband, wife, or both) should be interviewed to obtain the perception of what the family would do in a nuclear attack? Should only the wife's perception be obtained? Or only the husband's? Or both separately? Or both together so they could reach a "joint decision"? Any way one approaches the selection procedure he is faced with possible problems.

If just the husband or wife is interviewed, the researcher does not know if the spouse would agree with the position stated.

If both husband and wife are interviewed separately, there may be differences in their responses. Which should be taken as the correct perception of the family's possible action?

If both husband and wife are interviewed together their views may differ but such difference may or may not be brought into the interview situation since one of the two may dominate the other.

In an attempt to shed some light on the methodological dilemma described above, the decision was made to interview both the husband and wife in a very small number of households. Therefore, in 13 of the 246 households, both husband and wife were interviewed. They were interviewed separately. When the perceptions of these 13 husband-wife pairs were compared on selected questions pertaining to public fallout shelter adoption, the following results were obtained. Eight (62 percent) of the husband and wife pairs were in almost unanimous agreement on their family decision about using, not using, or being undecided about using a public fallout shelter if there is a nuclear attack. The remaining five husband-wife pairs had somewhat different perceptions about their family plans for using public fallout shelters. In two cases the husband perceived the family as being farther in its decision-making process of using public fallout shelters than the wife. In three cases the wife perceived the family as being farther along than did the husband. Thus, in this small sample there was no obvious sex bias, that is, the wives did not overwhelmingly perceive the family as being farther along in decision making than did husbands, or vice-versa. Further study is needed on intra-household family decision-making with respect to civil defense innovations.



## Summary of Chapter 6

A knowledge of the relationship or lack of relationship between a demographic variable and stage of adoption should be helpful to civil defense change agents. Such an analysis makes it possible for the change agent to develop a profile of the people who have been motivated to adopt civil defense innovations and also to compare these people to those who have not yet been motivated to adopt civil defense ideas. These data can be used in planning and implementing future civil defense programs. Two of the twelve demographic variables, years of formal education and home ownership, were related to stage of adoption when formal statistical tests were used as the decision criteria of relationship. Three other variables approached a statistical significant relationship level. These were the number of people in the household under 15 years of age, active military service of husband, and membership in the National Guard. A weak percentage trend of a positive relationship was found between stage of adoption and higher family income. A weak percentage trend of a negative relationship was found between stage of adoption and age of the respondent. The remaining variables had no apparent percentage relationship to stage of adoption: total number of people in household, combat duty, religious preference, political orientation, and sex of the respondent.

When one analyzes the 42 respondents in the Home Adoption Plan stage the following "profile" of the "adopter" is obtained. Eight out of ten "adopters" will have more than two people in their household. Seven out of ten "adopters" will have at least one child under 15 years of age. The "adopter" is younger than the rest of the adult population. Two out of three "adopters" will have had some type of formal training beyond high school. The "adopter's" family income is only slightly above the average income. Three of every four "adopters" are home owners or in the process of buying a home. In two of every three "adopter" homes the husband has been in active military duty. One husband in five has been in combat. Approximately one husband in five has been a member of the National Guard. About three of four "adopters" are protestant. Politically, one "adopter" in five is an Independent, two are Republican oriented and two are Democratic oriented.

Table 6.11. Summary: Demographic Variables and Stage of Adoption.

Characteristics	Relationship to Stage of Adoption			<u>Percentage Trend</u> Positive relation to adoption
	<u>Statistical at .05 level</u> <u>Test</u>	<u>Tabular</u> <u>Value</u>	<u>Calculated</u> <u>Value</u>	
1. Number children in household under 15 years of age	$\chi^2$	11.07	10.51	Some positive tendency
2. Total number of people in household	F	2.25	.92	None apparent
3. Age of respondent	F	2.25	1.48	Negative tendency
4. Years of formal education	$\chi^2$	11.07	17.51 <sup>b</sup>	Strong positive
5. Family income	F	2.25	.26	Some positive tendency
6. Home ownership	$\chi^2$	11.07	11.38 <sup>b</sup>	Some positive tendency
7. Active military service	$\chi^2$	11.07	9.14	Strong positive
8. Combat duty	$\chi^2$	11.07	2.05	None apparent
9. Member of National Guard	$\chi^2$	11.07	10.04	Strong positive
10. Religious preference	$\chi^2$	11.07	3.96	None apparent
11. Political orientation	F	2.25	1.38	None apparent
12. Sex of respondent	$\chi^2$	11.07	5.43	Wife very slightly more

<sup>a</sup>Means that a calculated value larger than the tabular value would be expected to occur only 5 times out of 100 because of the selection of the sample from the population being studied.

<sup>b</sup>Statistically significant value.

## Chapter 7

## KNOWLEDGE AND STAGE OF ADOPTION

## Introduction

The relationship between an individual's civil defense knowledge and his public fallout shelter stage of adoption is analyzed in this chapter. Most change agents are interested in determining how much knowledge an individual needs before he will adopt a new idea. Past non-civil defense studies have found that a person with more technical knowledge about an innovation is more likely to adopt it than those that have less knowledge about it (1, 5, 8). Civil defense studies have found that there is a relationship between interest in fallout shelters and knowledge about fallout shelters, radiation, and other factors: the greater the interest the higher the degree of knowledge. There are no data, however, specifically focusing on the relationship between civil defense knowledge and an individual's decision-making process.

In the remainder of this chapter the following civil defense knowledge factors are compared to an individual's stage of public fallout shelter adoption: (1) knowledge of a civil defense program in the United States; (2) knowledge of a local civil defense program; (3) knowledge of a local city civil defense director; and (4) knowledge about nine specific technical knowledge statements pertaining to fallout shelter and nuclear radiation.

A Civil Defense Program in the United States

To determine an individual's knowledge of a civil defense program in the United States each respondent was asked: "At the present time is there a civil defense program in the United States?" The percentage of individuals in each stage of adoption saying "yes" is recorded in Table 7.1. Using a chi-square statistical test a significant difference was found among adoption stages when individuals saying "yes" were compared to those saying "no" and "don't know." The test results were highly significant. Less than one-half (45.2 percent) of the individuals in the Unaware stage said there was a civil defense program in the United States at the present time. In the last three stages of adoption almost all of the respondents (95.7 percent, 100.0 percent, and 97.6 percent respectively) said they knew about a United States civil defense program. Conclusion: Knowledge of the existence of a civil defense program in the United States is statistically related to stage of adoption. A greater proportion of individuals in the latter stages of adoption were aware of a United States civil defense program.

Table 7.1. At the present time is there a civil defense program in the United States?

Civil defense program, U.S.?	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
No	1 3.2	1 2.6	-	-	-	-	2 .8
Don't know	16 51.6	6 15.8	4 11.4	1 2.2	-	1 2.4	28 11.4
Yes	14 45.2	31 81.6	31 88.6	45 95.7	54 100.0	41 97.6	216 87.8
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01  $\geq 15.09$ . Calculated chi-square = 70.13.

Knowledge of a City (Local) Civil Defense Program

To determine an individual's knowledge about the local civil defense program the following question was asked: "Is there a civil defense program (training, education, etc.) in this city?" The percentage of individuals in each adoption stage saying "yes" is recorded in Table 7.2. Using a chi-square statistical test, a significant difference was found among adoption stages when individuals saying "yes" were compared to those saying "no" and "don't know." The test results were highly significant. Approximately one-third of the individuals in the Unaware stage were aware of a city civil defense program. A little over two-thirds of the individuals in the Aware-Information stage were aware of a city civil defense program. In each of the remaining stages a larger portion of the people was aware of a local civil defense program. Conclusion: Knowledge of the existence of a city civil defense program is statistically related to stage of public fallout shelter adoption. A large proportion of individuals in the latter stages of adoption knew of a city civil defense program.

Table 7.2. Is there a civil defense program (education, training, etc.) in this city?

	Stage of Adoption											
	(1)		(2)		(3)		(4)		(5)		(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	TOTAL % of No. 246					
No	1 3.2	-	1 2.9	2 4.3	2 3.7	-	6 2.4					
Don't know	19 61.3	12 31.6	8 22.9	6 13.0	4 7.4	2 4.8	51 20.4					
Yes	11 35.5	26 68.4	26 74.3	38 82.6	48 88.9	40 95.2	189 76.8					
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246					

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 44.50.

Knowledge of the Local Civil Defense Director

To ascertain a more specific knowledge about civil defense each respondent was asked: "Does this city have a civil defense director?" The percentage of individuals in each stage of adoption saying "yes" is recorded in the top half of Table 7.3. Using a chi-square statistical test a significant difference was found among adoption stages when individuals saying "yes" were compared to those saying "no" and "don't know." The test results were highly significant. Only one-fourth of the individuals in the Unaware stage said "yes" while approximately one-half of the individuals in the Aware-Information and Evaluation stages said "yes." Over 80 percent of the Home Adoption Plan stage said there was a city director. Conclusion: Knowledge of a local civil defense director is statistically related to stage of adoption. A larger portion of individuals in the latter adoption stages knew about a local civil defense director.

Each of the respondents who said there was a local civil defense director was then asked to give the name of the local director. The categories of answers are recorded in the bottom half of Table 7.3. Only seven people correctly named the local civil defense director. All of these were in the last three adoption stages.

Table 7.3. Does this city have a civil defense director?

	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
City civil defense director	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	No. 246
No	2 6.5	-	2 5.7	3 6.5	3 5.6	1 2.4	11 4.5
Don't know	21 67.7	18 47.4	16 45.7	5 10.9	13 24.1	6 14.3	79 32.1
Yes	8 25.8	20 52.6	17 48.6	38 82.6	38 70.4	35 83.3	156 63.4
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246
With 5 d.f., chi-square significant at .05 level if $\chi^2 \geq 11.07$ , at .01 $\chi^2 \geq 15.09$ . Calculated chi-square = 39.98.							
*****							
<u>Knows name (Asked of those who said "yes" above)</u>							
Name given, not right name	-	3 7.9	-	4 8.7	6 11.1	-	13 5.3
Forgot or don't know right name	8 25.8	17 44.7	17 48.6	32 69.6	30 55.6	32 76.2	126 51.2
Right name given	-	-	-	2 4.3	2 3.7	3 7.1	7 2.8

### Civil Defense Technical Knowledge

Each respondent was asked nine specific technical questions about fallout shelters and nuclear radiation. These nine statements were originally part of 14 public knowledge questions developed by Michigan State University in 1961 to measure public knowledge about fallout shelters and nuclear radiation. The statements were developed by the research workers at Michigan State University from material presented in the Fallout Protection booklet published by the Office of Civil Defense (2). Each respondent was asked if he "agreed" or "disagreed" with each statement. In Table 7.4 each of the nine statements is listed and the total number of respondents agreeing and disagreeing with each statement recorded. The answer considered to be "correct" for each statement is the answer corresponding to information presented in Fallout Protection. The scoring is identical to that used by Michigan State University in their original study. Each of the correct answers is underlined in the table. There is a high degree of similarity between the percentage distribution of answers in the Des Moines study and Michigan State's civil defense study of eight cities in the United States.

A civil defense technical knowledge score was obtained for each individual by giving him one point for each "correct" answer. A "don't know" answer was considered to be an "incorrect" answer in the scoring. Thus, an individual's civil defense technical knowledge score could range from 0 to 9. In Table 7.5 the distribution of civil defense technical knowledge scores by stage of adoption is presented. The mean technical knowledge score by stage of adoption is also presented. Using an analysis of variance statistical test a significant difference was found among the mean technical knowledge scores by stage of adoption. The test results were highly significant. The Unaware stage technical knowledge mean score was lowest at 2.7 items correct. The Home Adoption Plan stage average score was 4.7. Conclusion: Technical knowledge of civil defense is statistically related to stage of public fallout shelter adoption. In general the more technical knowledge about fallout shelters and nuclear radiation the farther an individual is in his decision-making process with respect to public fallout shelter adoption.

In Tables 7.6 to 7.14 each of the nine technical knowledge statements is recorded separately and the percentage of individuals in each stage of adoption who answered each statement correct is recorded. The data presented in these tables will show the reader which of the individual knowledge statements are related to stage of adoption and which statements are not related to stage of adoption.

Table 7.15 summarizes Tables 7.6 to 7.14. In Table 7.15 the percentage of individuals in each adoption stage answering each of the nine statements correctly is presented. This table makes possible a quick comparison of each statement with every other statement.



Table 7.4. Total Frequency of Nine Civil Defense Technical Knowledge Items.

Nine Technical Items	Responses (in percentages) <sup>a</sup>			Total
	Agree	Dis- Agree	Don't Know	
1. If you get exposed to radiation at all, you are sure to die.	17.1	<u>67.9</u> <sup>b</sup>	15.0	100.0
2. If someone has radiation sickness, you should avoid getting near him so you won't catch it yourself.	25.6	<u>52.9</u> <sup>b</sup>	21.5	100.0
3. A plastic suit with filtering mask is plenty of protection against fallout.	13.4	<u>55.7</u> <sup>b</sup>	30.9	100.0
4. You cannot see fallout.	80.1	<u>7.7</u> <sup>b</sup>	12.2	100.0
5. After a nuclear attack, if you filter the dust out of the air, the air will be safe to breathe.	<u>31.7</u> <sup>b</sup>	40.3	28.0	100.0
6. There is a new pill you can take that will protect you against radioactive fallout.	1.6	<u>71.1</u> <sup>b</sup>	27.3	100.0
7. A fallout shelter should have an air-tight door to guard against radiation.	66.7	<u>22.0</u> <sup>b</sup>	11.3	100.0
8. Fallout from just one bomb may cover thousands of square miles.	<u>81.7</u> <sup>b</sup>	9.3	8.9	100.0
9. Most fallout rapidly loses its power to harm people.	<u>23.6</u> <sup>b</sup>	58.9	17.5	100.0

<sup>a</sup>Percents are based on a total N of 246.

<sup>b</sup>"Correct" responses.

Table 7.5. Number of correct answers to technical civil defense questions pertaining to fallout shelters and nuclear radiation by stage of adoption.

Number of technical knowledge items answered correctly	Stage of Adoption						TOTAL % of No. 246						
	(1)	(2)	(3)	(4)	(5)	(6)							
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42							
None	2	6.5	-	-	-	-	2	.8					
One	4	12.9	2	5.3	1	2.2	1	1.9					
Two	8	25.8	6	15.8	2	5.7	8	14.8					
Three	8	25.8	9	23.7	9	25.7	8	14.8					
Four	6	19.4	9	23.7	7	20.0	10	21.7					
Five	3	9.7	7	18.4	7	20.0	7	15.2					
Six	-	-	5	13.2	5	14.3	8	17.4					
Seven	-	-	3	8.6	3	8.6	7	15.2					
Eight	-	-	1	2.9	1	2.9	2	4.3					
Nine	-	-	-	-	-	-	-	-					
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246
Mean Number Correct	2.7	3.7	4.3	4.7	4.2	4.7	4.2	4.2					

With 5 and 240 d.f., F is significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 7.90.

**Statement 1. If you get exposed to radiation at all, you are sure to die.**

In Table 7.6 the number of respondents agreeing and disagreeing with statement one is presented by stage of adoption. Using a chi-square statistical test a significant difference was found among the stages of adoption when individuals answering correctly (disagree) were compared to those answering incorrectly (don't know and agree). Those in the first two stages had the fewest correct responses, while the remaining stages were all similar in the proportion of individuals responding correctly. Conclusion: The perception of any exposure to radiation being fatal is statistically related to stage of public fallout shelter adoption. A larger proportion of the individuals in the latter adoption stage disagreed with the idea that any radiation is fatal.

Table 7.6. If you get exposed to radiation at all, you are sure to die.

Any radiation exposure means death	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
<u>Correct</u> Disagree	5 16.1	24 63.2	29 82.9	37 80.4	41 75.9	31 73.8	167 67.9
<u>Incorrect</u> Agree	14 45.2	5 13.2	2 5.7	6 13.0	7 13.0	8 19.0	42 17.1
Don't know	12 38.7	9 23.7	4 11.4	3 6.5	6 11.1	3 7.1	37 15.0
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 47.37.

Statement 2. If someone has radiation sickness, you should avoid getting near him so you won't catch it yourself.

In Table 7.7 the number of respondents agreeing and disagreeing with this statement is presented by stage of adoption. Using a chi-square statistical test a significant difference was found among the stages of adoption when individuals answering correctly (disagree) were compared to those answering incorrectly (don't know and agree). A larger portion of individuals in the latter stages of adoption answered the statement correctly than did individuals in the earlier stages of adoption. However, only approximately 60 percent of the individuals in each of the last three stages of adoption answered the statement correctly. Conclusion: The perception of radiation being contagious is statistically related to stage of adoption. A larger proportion of individuals in the latter stages of adoption disagreed with the idea of radiation being contagious.

Table 7.7. If someone has radiation sickness, you should avoid getting near him so you won't catch it yourself.

	Stage of Adoption						TOTAL % of No. 246							
	(1)	(2)	(3)	(4)	(5)	(6)								
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42								
<u>Correct</u> Disagree	9	29.0	17	44.7	18	51.4	29	63.0	32	59.3	25	59.5	130	52.8
<u>Incorrect</u> Agree	8	25.8	11	28.9	7	20.0	10	21.7	13	24.1	14	33.3	63	25.6
Don't know	14	45.2	10	26.3	10	28.6	7	15.2	9	16.7	3	7.1	53	21.5
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 11.72.

**Statement 3. A plastic suit with filtering mask is plenty of protection against fallout.**

In Table 7.8 the number of respondents agreeing and disagreeing with this statement is presented by stage of adoption. Using a chi-square statistical test no significant difference was found among the stages of adoption when individuals answering correctly (disagree) were compared to those answering incorrectly (don't know and agree). There is little percentage differential among stages of adoption. Approximately one-half the individuals in each of the first five stages correctly disagreed with the statement. Almost two-thirds of the individuals in the Home Adoption Plan stage correctly disagreed with the statement. Conclusion: The perception of a plastic suit with filtering mask being able to protect an individual from fallout is not statistically related to stage of adoption.

Table 7.8. A plastic suit with filtering mask is plenty of protection against fallout.

	Stage of Adoption						TOTAL % of No. 246							
	(1)	(2)	(3)	(4)	(5)	(6)								
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42								
<u>Correct</u> Disagree	18	58.1	17	44.7	19	54.3	26	56.5	30	55.6	27	64.3	137	55.7
<u>Incorrect</u> Agree	2	6.5	6	15.8	3	8.6	7	15.2	7	13.0	8	19.0	33	13.4
Don't know	11	35.5	15	39.5	13	37.1	13	28.3	17	31.5	7	16.7	76	30.9
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 3.24.

**Statement 4. You cannot see fallout.**

In Table 7.9 the number of respondents agreeing and disagreeing with this statement is presented by stage of adoption. Using a chi-square statistical test no significant difference was found among the stages of adoption when individuals answering correctly (disagree) were compared to those answering incorrectly (don't know and agree). Only 7.7 percent of the total sample correctly answered the statement. About 15 percent of the individuals in the Home Adoption Plan stage indicated fallout could be seen. Eleven percent of the individuals in the Evaluation stage said it could be seen. In each of the remaining stages less than 10 percent of the individuals in each stage said it could be seen. Conclusion: Knowing that you can see fallout is not statistically related to stage of adoption.

Table 7.9. You cannot see fallout.

	Stage of adoption						TOTAL % of No. 246							
	(1)	(2)	(3)	(4)	(5)	(6)								
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42								
<u>Correct</u> Disagree	1	3.2	1	2.6	4	11.4	4	8.7	3	5.6	6	14.3	19	7.7
<u>Incorrect</u> Agree	17	54.8	35	92.1	26	74.3	39	84.8	46	85.2	34	81.0	197	80.1
Don't know	13	41.9	2	5.3	5	14.3	3	6.5	5	9.3	2	4.8	30	12.2
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 5.99.

Statement 5. After a nuclear attack, if you filter the dust out of the air, the air will be safe to breathe.

In Table 7.10 the number of respondents agreeing and disagreeing with this statement is presented by stage of adoption. Using a chi-square statistical test a significant difference was found among the stages of adoption when individuals answering correctly (agree) were compared to those answering incorrectly (don't know and disagree). More individuals in the latter stages of adoption answered the statement correctly than did individuals in the earlier stages of adoption. However, only approximately 40 percent of the individuals in the last three stages of adoption answered the statement correctly. Conclusion: Knowing that you can filter dust out of the air is statistically related to stage of adoption. A greater proportion of individuals in the latter stages of adoption agreed with the idea that you can filter dust out of the air to make it safe to breathe.

Table 7.10. After a nuclear attack, if you filter the dust out of the air, the air will be safe to breathe.

Filtering dust from air makes air safe to breathe	Stage of Adoption						TOTAL % of No. 246							
	(1)	(2)	(3)	(4)	(5)	(6)								
	JUNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42								
Correct Agree	2	6.5	10	26.3	12	34.3	18	39.1	20	37.0	16	38.1	78	31.7
Incorrect Disagree	11	35.5	18	47.4	14	40.0	15	32.6	21	38.9	20	47.6	99	40.2
Don't know	18	58.1	10	26.3	9	25.7	13	28.3	13	24.1	6	14.3	69	28.0
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 12.35.

Statement 6. There is a new pill you can take that will protect you against radioactive fallout.

In Table 7.11 the number of respondents agreeing and disagreeing with this statement is presented by stage of adoption. Using a chi-square statistical test a significant difference was found among the stages of adoption when individuals answering correctly (disagree) were compared to those answering incorrectly (don't know and agree). A larger portion of individuals in the Home Adoption Plan stage answered the statement correctly than any other stage. Individuals in the Unaware stage gave the fewest correct responses to the statement. Approximately 70 percent of each of the middle four stages answered the statement correctly. Conclusion: The idea of taking a pill to protect yourself against fallout is statistically related to stage of adoption. A greater proportion of individuals in the Unaware stage gave incorrect answers, while a greater proportion of individuals in the Home Adoption Plan stage gave correct answers.

Table 7.11. There is a new pill you can take that will protect you against radioactive fallout.

A pill offers fallout protection	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
<u>Correct</u> Disagree	15 48.4	27 71.1	26 74.3	34 73.9	38 70.4	35 83.3	175 71.1
<u>Incorrect</u> Agree	- -	- -	1 2.9	- -	2 3.7	1 2.4	4 1.6
Don't know	16 51.5	11 28.9	8 22.9	12 26.1	14 25.9	6 14.3	67 27.2
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d.f., chi-square significant at .05 level if  $\chi^2 \geq 11.07$ , at .01 if  $\chi^2 \geq 15.09$ . Calculated chi-square = 11.34.



**Statement 7. A fallout shelter should have an air-tight door to guard against radiation.**

In Table 7.12 the number of respondents agreeing and disagreeing with this statement is presented by stage of adoption. Using a chi-square statistical test no significant difference was found among the stages of adoption when individuals answering correctly (disagree) were compared to those answering incorrectly (don't know and agree). Only approximately 30 percent or less of the individuals in each adoption stage answered the statement correctly. There was little percentage difference between the first two and last two adoption stages. Individuals in the two middle stages were slightly more informed. Conclusion: Knowing that a fallout shelter does not have to have an air-tight door in order to guard people from radiation is not statistically related to public fallout shelter stage of adoption.

Table 7.12. A fallout shelter should have an air-tight door to guard against radiation.

	Stage of Adoption						TOTAL
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
<u>Correct</u> Disagree	4 12.9	7 18.4	11 31.4	13 28.3	11 20.4	8 19.0	54 22.0
<u>Incorrect</u> Agree	18 58.1	23 60.5	22 62.9	29 63.0	40 74.1	32 76.2	164 66.7
Don't know	9 29.0	8 21.1	2 5.7	4 8.7	3 5.6	2 4.8	28 11.4
Number and % of Total	31 100.0	38 100.0	35 100.0	46 100.0	54 100.0	42 100.0	246 100.0

With d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 4.92.

**Statement 8. Fallout from just one bomb may cover thousands of square miles.**

In Table 7.13 the number of respondents agreeing and disagreeing with this statement is presented by stage of adoption. Using a chi-square statistical test no significant difference was found among the stages of adoption when individuals answering correctly (agree) were compared to those answering incorrectly (don't know and disagree). There is little percentage differential among the stages of adoption. Approximately 80 percent of the individuals in each of the adoption stages agreed with the statement that fallout from one bomb may cover thousands of square miles. Conclusion: Knowing that fallout from one bomb may cover thousands of square miles is not statistically related to stage of adoption.

Table 7.13. Fallout from just one bomb may cover thousands of square miles.

Fallout may cover many square miles	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
<u>Correct</u> Agree	24 77.4	33 86.8	25 71.4	38 82.6	45 83.3	36 85.7	201 81.7
<u>Incorrect</u> Disagree	3 9.7	2 5.3	5 14.3	3 6.5	7 13.0	3 7.1	23 9.3
Don't know	4 12.9	3 7.9	5 14.3	5 10.9	2 3.7	3 7.1	22 8.9
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 3.85.

**Statement 2. Most fallout rapidly loses its power to harm people.**

In Table 7.14 the number of respondents agreeing and disagreeing with this statement is presented by stage of adoption. Using a chi-square test a significant difference was found among the stages of adoption when individuals answering correctly (agree) were compared to those answering incorrectly (don't know or disagree). A larger portion of individuals in the Family Downtown Adoption and Home Adoption Plan stages answered the statement correctly than did individuals in the earlier stages of adoption. Less than 10 percent of the individuals in the Unaware stage correctly agreed with the statement. Conclusion: Knowing that most fallout rapidly loses its power to harm people is statistically related to stage of public fallout shelter adoption. A larger proportion of individuals in the Family Downtown Adoption stage agreed that fallout rapidly loses its power to harm people than individuals in any other stage. The Home Adoption Plan stage had the next largest proportion of individuals agreeing with the statement.

Table 7.14. Most fallout rapidly loses its power to harm people.

Fallout rapidly loses its power to harm people	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
Correct Agree	3 9.7	6 15.8	8 22.9	19 41.3	9 16.7	13 31.0	58 23.6
Incorrect Disagree	15 48.4	24 63.2	21 60.0	23 50.0	36 66.7	26 61.9	145 58.9
Don't know	13 41.9	8 21.1	6 17.1	4 8.7	9 16.7	3 7.1	43 17.5
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 15.44.

Table 7.15. Summary of nine civil defense technical knowledge items. Percentage of respondents in each stage of adoption responding correctly to each technical statement.

Technical knowledge statements	Stage of Adoption						TOTAL % of No. 246							
	(1)	(2)	(3)	(4)	(5)	(6)								
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADoption % of No. 46	HOME ADoption, MC PLAN % of No. 54	HOME ADoption, PLAN % of No. 42								
1. If you get exposed to radiation at all, you are sure to die. (D)	5	16.1	24	63.2	29	82.9	37	80.4	41	75.9	31	73.8	167	67.9
2. If someone has radiation sickness, you should avoid getting near him so you won't catch it yourself. (D)	9	29.0	17	44.7	18	51.4	29	63.0	32	59.3	25	59.5	130	52.8
3. A plastic suit with filtering mask is plenty of protection against fallout. (D)	18	58.1	17	44.7	19	54.3	26	56.5	30	55.6	27	64.3	137	55.7
4. You cannot see fallout. (D)	1	3.2	1	2.6	4	11.4	4	8.7	3	5.6	0	14.3	19	7.7
5. After a nuclear attack, if you filter the dust out of the air, the air will be safe to breathe. (A)	2	6.5	10	26.3	12	34.3	18	39.1	20	37.0	16	38.1	76	31.7
6. There is a new pill you can take that will protect you against radioactive fallout. (D)	15	48.4	27	71.1	26	74.3	34	73.9	38	70.4	35	53.3	175	71.1
7. A fallout shelter should have an air-tight door to guard against radiation. (D)	4	12.9	7	18.4	11	31.4	13	28.3	11	20.4	8	19.0	54	22.0
8. Fallout from just one bomb may cover thousands of square miles. (A)	24	77.4	33	86.8	25	71.4	38	82.6	45	83.3	36	85.7	201	81.7
9. Most fallout rapidly loses its power to harm people. (A)	3	9.7	6	15.8	8	22.9	19	41.3	9	16.7	13	31.0	58	23.6

<sup>a</sup>The letter D in parentheses following a statement means disagree is the correct response. The letter A means agree is the correct response.

## Summary of Chapter 7

In this chapter relationships between an individual's knowledge of civil defense and his stage of public fallout shelter adoption have been analyzed. A number of types of knowledge were found to be statistically related to stage of public fallout shelter adoption. In general the more knowledge an individual had about civil defense the farther along he was in his adoption process with respect to public fallout shelters. Four knowledge variables statistically related (in a positive direction) to stage of adoption are: knowledge of a civil defense program in the United States; knowledge of a city (local) civil defense program; knowledge of the local civil defense director; and technical knowledge about fallout shelter and nuclear radiation. The last measure consisted of nine specific knowledge items. When each of these items was compared to stage of adoption, five were found to be statistically related to stage of adoption. These five items are an individual's knowledge: (1) of a person's ability to survive exposure to radiation; (2) that radiation is not contagious; (3) that you can filter dust out of the air to make the air safe to breathe; (4) that a pill will not protect you from fallout; and (5) that most fallout rapidly loses its power to harm people.

Table 7.16. Summary: Knowledge Variables and Stage of Adoption

Knowledge Variable	Relationship to Stage of Adoption			
	Statistical Test	at .05 level	Percentage Trend	
	Test	Tabular Value	Calculated Value	Positive relation to Adoption <sup>a</sup>
1. CD program in U.S.	$\chi^2$	11.07	70.13 <sup>b</sup>	Strong positive
2. Local CD program	$\chi^2$	11.07	44.50 <sup>b</sup>	Strong positive
3. City civil defense director	$\chi^2$	11.07	39.98 <sup>b</sup>	Strong positive
4. Nine knowledge items	F	2.25	7.90 <sup>b</sup>	Strong positive
5. Radiation does not necessarily mean death	$\chi^2$	11.07	47.37 <sup>b</sup>	Strong positive
6. Radiation is not contagious	$\chi^2$	11.07	11.72 <sup>b</sup>	Strong positive
7. Filtering mask is protection	$\chi^2$	11.07	3.24	None apparent
8. Cannot see fallout	$\chi^2$	11.07	5.99	None apparent
9. Filtered air safe to breathe	$\chi^2$	11.07	12.35 <sup>b</sup>	Strong positive
10. Pill does not offer fallout protection	$\chi^2$	11.07	11.34 <sup>b</sup>	Some positive
11. Air-tight shelter door needed	$\chi^2$	11.07	4.92	None apparent
12. Fallout covers many miles	$\chi^2$	11.07	3.85	None apparent
13. Fallout loses power to harm people	$\chi^2$	11.07	15.44 <sup>b</sup>	Some positive

<sup>a</sup>Positive relation to adoption means that people who answered "yes" to knowledge variables as stated in this table were in later stages of adoption than those answering "no" or "don't know." For example, the statement of a strong positive percentage trend between CD program in U.S. and stage of adoption means that a larger proportion of individuals in the later stages of adoption have said "Yes, there is a CD program in the U.S.," than have individuals in the earlier stages of adoption.

<sup>b</sup>Statistically significant value.

## Chapter 8

## ATTITUDES AND STAGE OF ADOPTION

## Introduction

The relationship between an individual's civil defense related attitudes and his public fallout shelter stage of adoption is presented in this chapter. As was discussed in Chapter 2, an individual's attitude framework, that is, the way an individual perceives the world, is important in understanding an individual's decision-making processes, such as the process of deciding to use a public fallout shelter if there is a nuclear attack. Past non-civil defense studies of innovation adoption have found that certain attitudes are often important variables in determining adoption behavior (1, 5, 8).

Since mid-1961, a rather extensive civil defense dialogue has been carried on in the United States. Proponents of civil defense have offered numerous ideas and arguments to support various types of civil defense programs (such as a public fallout shelter program). On the other hand, opponents of civil defense have offered numerous ideas and arguments as to why certain types of civil defense programs should not be implemented. Other writers have debated both the pros and cons of civil defense under different sets of assumptions such as type of war, and size of weapons used.

In this chapter a number of the ideas and arguments that have been introduced into the civil defense dialogue are presented and the respondent's attitude position on the idea or argument is related to his stage of public fallout shelter adoption. The purpose of this chapter is to determine which attitudes are related to which stages of public fallout shelter adoption. Hypothesized relationships between attitudes and stages of adoption are not stated since there are no previous studies to suggest clear-cut hypothesized relationships between these civil defense related attitudes and adoption decision. For most of the attitudes presented in this chapter a logic or rationale could be built to hypothesize different expected relationships. Rather than to develop all the possible hypotheses in this report, data will be presented to determine what relationship, if any, is found between specific attitudes and stage of public fallout shelter adoption.

One of the important ideas to keep in mind when evaluating the attitude findings presented in this report is that attitudes have different dimensions. Four of these dimensions are discussed below. One dimension of an attitude is its direction, that is, whether a person agrees or disagrees with the idea or object being studied. A second dimension is the degree of an attitude. For example, two people may agree about an idea but one may strongly agree with the idea while the other may weakly agree with the idea. For almost all of the attitudes presented in this report both direction and degree are recorded. A few of the attitudes have only direction measured.

A third dimension of attitude is intensity. Intensity is the degree of conviction with which an attitude is held by a person. Intensity is related to the degree dimension of an attitude, but it differs from degree. Two individuals may have the same attitude but hold it with different intensities. Also, two people may hold different attitudes but the intensity with which they hold the attitudes may be the same. The intensity dimension is not focused upon in this study.

A fourth dimension of an attitude is salience. By salience is meant the relative importance of any given attitude for an individual. An individual usually has an attitude about almost everything of which he is aware. And most individuals usually have a hierarchy of attitudes, that is, some attitudes are more important than others in affecting behavior in different situations. For example, a person will have attitudes about his wife, his work, his home, his car, and so on. He will structure these and other attitudes in a hierarchy when he makes decision involving these items. Of importance to a study of civil defense attitudes is the place of civil defense attitudes in an individual's hierarchy of attitudes. How salient is civil defense to an individual? Do attitudes about the specific elements of civil defense have high salience and thus affect behavior, or do specific civil defense attitudes have low salience and thus have little effect on behavior such as the adoption of public fallout shelters?

The idea of salience is important when interpreting the findings presented in this report. For example, a person may indicate a very favorable attitude toward civil defense as measured by direction and degree but it may be of low



saliency, that is, the attitude may be low on his attitude hierarchy. On the other hand it may be high on his attitude hierarchy. Although the saliency of civil defense attitudes is not measured in this report the authors believe an awareness of the idea of saliency is important when evaluating the relation between attitudes and fallout shelter adoption behavior.

A distinction should also be made between the attitudes salient to individuals in the general public and attitudes salient to the change agent (in this case civil defense personnel). The change agent may have developed a set of logical relations among attitudes which may or may not be constructed by individuals in the general public. The logical relations among attitudes developed by an individual may depend in part upon the saliency of the attitudes.

It is important to exercise caution in attributing causal effects to the attitudinal and stage of adoption findings presented in this report. The data presented are relationship and difference data, and are not necessarily cause and effect. It is quite possible, however, that specific attitudes may influence behavior. Further, in some cases specific attitudes may be related to other attitudes and that attitude complex (or more general level attitude) may be causally related to behavior. It is also possible that specific attitudes may not in themselves affect behavior but they may be related to a highly salient attitude that does affect behavior.

The attitudes presented below are discussed in the following sections: (1) an individual's perception of the situation, i.e., his perception of threat; (2) an individual's perception of the innovation, i.e., of private and public fallout shelters; (3) the adequacy of civil defense today; (4) the role the government should play in civil defense; (5) some general civil defense attitudes, and (6) government policy and the use of nuclear weapons. In each section a number of specific attitudes are analyzed. As each specific attitude idea or argument is introduced the question used to ascertain the respondent's attitude is presented.

### An Individual's Perception of the Situation: Perception of Threat

In this section attitudes pertaining to how an individual perceives the threat of possible nuclear war are related to stage of public fallout shelter adoption. The following perception of threat attitudes are compared to stage of adoption in this section: (1) likelihood of war, (2) timing of war, (3) likelihood of conventional war, (4) likelihood of war escalation, (5) likelihood of fallout danger and destruction in time of war, (7) thermonuclear war and the end of democracy as a political system, and (8) concern about protection from nuclear fallout.

## Likelihood of war

To determine an individual's perception of the likelihood of war each respondent was asked: "How likely do you think it is that we're in for another big world war?" The respondent was asked to select one of five choices: very unlikely, unlikely, even chances, likely, or very likely. The relationship between an individual's perception of the likelihood of war and stage of public fallout shelter adoption is discussed below and summarized in Table 8.1. Using an analysis of variance test no significant difference was found among the likelihood of war responses by stage of adoption. The distribution of responses of each stage of adoption is very similar. For example, approximately 30 percent of the individuals in each stage indicated "even chances" for a future war. The small percentage difference there is shows a larger portion of individuals in the first three stages of adoption think war "more likely" than do individuals in the latter three stages. When mean values are considered the first three stages of adoption have slightly higher means than the latter three stages (the higher the mean, war is seen as more likely). Conclusion: Perception of the likelihood of war is not statistically related to stage of adoption. However, percentage trends indicate a larger portion of individuals in the earlier stages perceive war somewhat more likely than do individuals in the latter stages.

Table 8.1. How likely do you think it is that we're in for another big world war?

Code	Stage of Adoption										TOTAL			
	(1)		(2)		(3)		(4)		(5)			(6)		
	UNAWARE % of	AWARE INFORMATION % of	EVALUATION % of	FAMILY DOWNTOWN ADOPTION % of	HOME ADOPTION, NO PLAN % of	HOME ADOPTION, PLAN % of	HOME ADOPTION, PLAN % of	HOME ADOPTION, PLAN % of	HOME ADOPTION, PLAN % of	HOME ADOPTION, PLAN % of	No.	% of		
0	3	9.7	1	2.6	-	7	15.2	2	3.7	3	7.1	16	6.5	
2	4	12.9	11	28.9	10	28.6	10	21.7	19	35.2	13	31.0	67	27.2
3	9	29.0	10	26.3	8	22.9	13	28.3	17	31.5	13	31.0	70	28.5
4	9	29.0	8	21.1	10	28.6	8	17.4	7	13.0	8	19.5	50	20.3
6	6	19.4	8	21.1	7	20.0	8	17.4	9	16.7	5	12.2	43	17.5
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
Mean <sup>a</sup>	3.5		3.5		3.6		3.0		3.2		3.0		3.3	

With 5 and 240 d.f.,  $F_{\alpha}$  significant at .01 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated  $F = .9572$ .

<sup>a</sup>Mean values and analysis of variance values (F values) are calculated from code values assigned to each response choice. The method used to assign code values to response choices is explained in reference 10.

Timing of war

To determine an individual's perception of the timing of war each respondent was asked: "If a world war does come, do you think it is most likely to happen in the next six months, the next year or two, or when?" The response choices presented to the respondent are listed in Table 8.2. Using an analysis of variance test a significant difference was found among the timing of war responses by stage of adoption. A larger portion of individuals in the Unaware and Aware-Information stages thought war would occur sooner than individuals in the latter stages of adoption. This is supported both by the response distribution in each stage as well as by the mean values of each stage. Conclusion: Perception of timing of war is statistically related to stage of adoption. The relationship is a negative one. that is, a larger proportion of individuals in the earlier adoption stages think there will soon be a war (e.g., 1-2 years).

Table 8.2. "If a world war does come, do you think it is most likely to happen in the next six months, the next year or two, or when?"

Code	Timing of War	Stage of Adoption										TOTAL			
		(1)		(2)		(3)		(4)		(5)			(6)		
		No.	% of	No.	% of	No.	% of	No.	% of	No.	% of		No.	% of	
0	Never	3	9.7	3	7.9	4	11.4	4	8.7	4	7.4	5	11.9	23	9.3
2	21 or more years	1	3.2	-	-	1	2.9	3	6.5	4	7.4	4	9.5	13	5.3
3	6 - 20 years	6	19.4	14	36.8	14	40.0	25	54.3	25	46.3	16	38.1	190	40.7
4	3 - 5 years	7	22.4	8	21.1	6	17.1	8	17.4	13	24.1	13	31.0	55	22.4
5	1 - 2 years	11	35.5	10	26.3	6	17.1	2	4.3	4	7.4	1	2.4	34	13.8
6	Under 1 year	3	9.7	2	5.3	1	2.9	-	-	-	-	2	4.8	8	3.3
4	Don't know	-	-	1	2.6	3	8.6	4	8.7	4	7.4	1	2.4	13	5.3
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	3.9		3.7		3.3		3.0		3.2		3.1			

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 2.52.

Likelihood of conventional war

To determine an individual's perception of the likelihood of conventional war each respondent was asked: "If we do get into a war with Russia, how likely do you think it is that it could be an ordinary kind of war without rockets or atomic bombs being used?" The response choices presented to the respondent are listed in Table 8.3. The higher the code value the more likely the individual perceives a nuclear war. Using an analysis of variance test no significant difference was found among stages of adoption when likelihood of conventional war responses were compared. Individuals in the Unaware stage had the lowest mean value. Conclusion: Perception of the likelihood of conventional war is not statistically related to stage of adoption.

Table 8.3. If we do get into a war with Russia, how likely do you think it is that it could be an ordinary kind of war without rockets or atomic bombs being used?

Code	Likelihood of Conventional War	Stage of Adoption						TOTAL % of No. 246							
		(1)		(2)		(3)			(4)		(5)		(6)		
		UNAWARE % of No. 31	INFORMATION % of No. 38	AWARE	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54		HOME ADOPTION, PLAN % of No. 42	ADOPTION, NO PLAN % of No. 46	ADOPTION, PLAN % of No. 42	ADOPTION, PLAN % of No. 42	ADOPTION, PLAN % of No. 42		
0	Very likely	5	16.1	-	-	1	2.9	3	6.5	4	7.4	5	11.9	18	7.3
2	Likely	3	9.7	3	7.9	1	2.9	4	8.7	4	7.4	3	7.1	18	7.3
3	Even chances	4	12.9	5	13.2	1	2.9	7	15.2	6	11.1	5	11.9	27	11.4
4	Unlikely	7	22.6	7	18.4	15	42.9	13	28.3	14	25.9	10	23.8	66	26.8
6	Very unlikely	12	38.7	23	60.5	17	48.6	19	41.3	26	48.1	19	45.2	116	47.2
Number and % of Total		31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
Mean		3.8		4.9		4.7		4.2		4.4		4.2		4.2	

With 5 and 240 d.f., F significant at .05 level if  $> 2.25$ , at .01 level if  $> 3.10$ . Calculated F = 1.81.

Likelihood of war escalation

To determine an individual's perception of a small, local war escalating into a world war each respondent was asked: "If we do get into some small, local war in one country how likely do you think it is that things might get out of hand and lead to a big world war?" The response choices presented to the respondent are listed in Table 8.4. Using an analysis of variance statistical test no significant difference was found among the likelihood of war escalation responses by stage of adoption. About the same percentage (45 to 55 percent) of individuals in each adoption stage perceive that a small war will lead to a world war. There is also little difference among the actual means of each adoption stage. Conclusion: Perception of the likelihood of war escalation is not statistically related to stage of adoption.

Table 8.4. If we do get into some small, local war in one country how likely do you think it is that things might get out of hand and lead to a big world war?

Code	Likelihood of War Escalation	Stage of Adoption						TOTAL % of No. 246							
		(1)		(2)		(3)			(4)		(5)		(6)		
		No.	% of	No.	% of	No.	% of		No.	% of	No.	% of	No.	% of	
0	Very unlikely	2	6.5	2	5.3	5	14.3	3	6.5	5	9.3	3	7.1	20	8.1
2	Unlikely	4	12.9	9	23.7	10	28.6	9	19.6	9	16.7	7	16.7	48	19.5
3	Even chances	8	25.8	4	10.5	4	11.4	10	21.7	8	14.8	9	21.4	43	17.5
4	Likely	8	25.8	10	26.3	5	14.3	14	30.4	23	42.6	13	31.0	73	29.7
6	Very likely	9	29.0	13	34.2	11	31.4	10	21.7	9	16.7	10	23.8	62	25.2
Number and % of Total		31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
Mean		3.5		4.0		3.4		3.7		3.5		3.7		3.6	

With 5 and 240 d.f., F significant at .01 level if  $> 2.25$ , at .01 level if  $> 3.10$ . Calculated F = .5354.

Likelihood of fallout danger to local community in time of war

To determine an individual's perception of the likelihood of fallout danger to his community in time of war each respondent was asked: "How likely do you think it is that this community would be in danger from fallout if this country were attacked?" The response choices presented to the respondent are listed in Table 8.5. Using an analysis of variance test no significant difference was found among the fallout danger to local community responses by stage of adoption. Approximately 60 to 70 percent of the individuals in each stage of adoption perceived that it was "likely" or "very likely" that their community would be in danger from fallout. Less than 10 percent of the individuals in each adoption stage perceived it was "very unlikely" that their community would be in danger from fallout if this country were attacked. The mean values of the adoption stages are almost identical. Conclusion: Perception of fallout danger to their local community in time of war is not statistically related to stage of adoption.

Table 8.5. How likely do you think it is that this community would be in danger from fallout if this country were attacked?

Code	Fallout Danger In Local Community	Stage of Adoption						TOTAL % of No. 246							
		(1)	(2)	(3)	(4)	(5)	(6)								
		UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42								
0	Very unlikely	2	6.5	2	5.3	2	5.7	1	2.2	2	3.7	3	7.1	12	4.9
2	Unlikely	2	6.5	5	13.2	2	5.7	2	4.3	4	7.4	3	7.1	18	7.3
3	Even chances	9	29.0	7	18.4	6	17.1	9	19.6	13	24.1	9	21.4	53	21.5
4	Likely	7	22.6	11	28.9	10	28.6	19	41.3	18	33.3	9	21.4	74	30.1
6	Very likely	11	35.5	13	34.2	15	42.9	15	32.6	17	31.5	18	42.9	89	36.2
Number and % of Total		31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
Mean			4.0		4.0		4.3		4.3		4.1		4.2		4.2

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .2466.

Likelihood of local community death and destruction in time of war

To determine an individual's perception of the likelihood of local community death and destruction in time of war each respondent was asked: "If there were an attack on the United States with H-bombs, rockets, and so forth, what do you really think things would be like around here right after the attack?" The response choices presented to the respondent are listed in Table 8.6. Using an analysis of variance test no significant difference was found among the local community death and destruction responses by stage of adoption. However, a larger percentage of individuals in the first three stages of adoption (approximately 40 percent of each stage) perceived there would be more local community death and destruction in time of war (responses coded 6 and 8) than the latter stages of adoption (ranging from approximately 10 to 20 percent of each stage). Conclusion: Perception of likelihood of local community death and destruction in time of war is not statistically related to stage of adoption. However, a larger portion of individuals in the earlier stages perceived local community death and destruction as being more likely than did individuals in the latter stages.

Table 8.6. If there were an attack on the United States with H-bombs, rockets, and so forth, what do you really think things would be like around here right after the attack?

Code	Local Community Death and Destruction	Stage of Adoption						TOTAL
		(1)	(2)	(3)	(5)	(6)	(6)	
		UNAWARE % of	AWARE INFORMATION % of	EVALUATION % of	FAMILY DOWNTOWN ADOPTION % of	HOME ADOPTION, NO PLAN % of	HOME ADOPTION, PLAN % of	TOTAL % of
		No. 31	No. 38	No. 35	No. 46	No. 54	No. 42	No. 246
0	No damage or confusion, life normal	1	0.2	-	-	-	-	1
2	Little damage, much confusion	2	6.5	3	7.9	2	5.7	12
3	Damage, most survive	-	-	3	8.6	-	-	3
4	Damage, many survivors	2	6.5	1	2.6	5	10.9	8
5	Destruction, but survivors	12	38.7	15	39.5	10	28.6	22
6	Few survivors	11	35.5	15	39.5	10	28.6	4
8	Annihilation	1	3.2	-	-	4	11.4	2
3	Don't know	2	6.5	2	5.3	4	11.4	1
Number and % of Total		31	12.6	38	15.4	35	14.2	46
Mean		4.9	4.9	5.0	4.3	4.9	4.5	4.7

With 5 and 240 d.f., F significant at .05 level  $\geq 2.25$ , at .01 level  $\geq 3.10$ . Calculated F = 1.6680..



### Thermonuclear war and the end of democracy as a political system

One of the ideas often posed in discussions of nuclear war and civil defense is the possibility that thermonuclear war may mean the end of democracy as a political system. The relationship between this attitude and stage of adoption is discussed below and summarized in Table 8.7.

To determine the degree to which an individual believed a nuclear war would mean the end of democracy as a political system each respondent was asked whether he "agreed" or "disagreed" with the following statement: "A thermonuclear war would mean the end of democracy as a political system." After the respondent indicated he "agreed" or "disagreed" with the statement, he was asked to further indicate the degree to which he "agreed" or "disagreed" with the statement by circling a number on a continuum ranging from 1 to 5. The respondent was to circle 1 if it didn't make much difference to him whether he agreed or disagreed with the statement. He was to circle 5 if he felt very strongly about the statement, that is, it was very important to him. Thus, if a respondent said he "agreed" with the statement and then circles 1, it would indicate that the respondent weakly agreed with the statement. Circling 5 would indicate the respondent strongly agreed with the statement. Circling 2, 3, or 4 would mean his attitude was somewhere between weakly and strongly agree. If the respondent "disagreed" with the statement he would likewise circle a number between 1 (weakly disagree) to 5 (strongly disagree). If the respondent could not say "disagree" or "agree" when first asked the statement he was coded as "don't know" or "undecided." Thus, there were 11 possible responses to the statement. These 11 responses are listed in Table 8.7.

In Table 8.7 code numbers have been assigned to each of the 11 possible responses for purposes of calculating mean values and for calculating the analysis of variance statistical test used to determine if the mean scores differ by stage of adoption. It is important to note how the code numbers are assigned to the verbal responses. Higher code values are assigned to the "disagree" responses than the "agree" responses. Thus, an individual who said a thermonuclear war would mean the end of democracy as a political system (agree with the statement) gets a lower score than a person who said war would not mean the end of democracy as a political system (disagree with the statement).

The distribution of responses by stage of adoption is presented in Table 8.7. Using an analysis of variance statistical test a significant difference was found among the stages of adoption. A larger proportion of individuals in the last three stages of adoption more often disagreed with the statement, that is, thought thermo-

nuclear was would not mean the end of democracy as a political system, then did individuals in the first three stages of adoption.

Conclusion: The perception that nuclear war may mean the end of democracy as a political system is statistically related to stage of adoption. A larger proportion of individuals in the earlier stages perceived that nuclear war will mean the end of democracy.

Table 8.7. A thermonuclear war would mean the end of democracy as a political system.

Code	Thermonuclear War Means the End of Democracy	Stage of Adoption						TOTAL % of No. 246
		(1) UNAWARE % of No. 31	(2) AWARE INFORMATION % of No. 38	(3) EVALUATION % of No. 35	(4) FAMILY ADOPTION % of No. 46	(5) HOME ADOPTION, NO PLAN % of No. 54	(6) HOME ADOPTION, PLAN % of No. 42	
0	Agree 5 (Strongly)	5 16.1	6 15.8	6 17.1	4 8.7	9 16.7	3 7.1	33 13.4
3	Agree 4	2 6.5	2 5.3	3 8.6	1 2.2	2 3.7	1 2.4	11 4.5
5	Agree 3	4 12.9	5 13.2	1 2.9	3 6.5	3 5.6	2 4.8	18 7.3
6	Agree 2	2 6.5	-	-	1 2.2	-	-	3 1.2
7	Agree 1 (Weakly)	1 3.2	1 2.6	-	2 4.3	-	-	4 1.6
	(Agree sub-total)	(14 46.7)	(14 36.8)	(10 28.6)	(11 23.9)	(14 25.9)	(6 14.3)	(69 28.0)
8	Undecided or don't know	7 22.6	-	6 17.1	4 8.7	4 7.4	3 7.1	24 9.8
9	Disagree 1 (Weakly)	2 6.5	1 2.6	2 5.7	-	4 7.4	3 7.1	12 4.9
10	Disagree 2	1 3.2	4 10.5	1 2.9	1 2.2	1 1.9	-	8 3.3
11	Disagree 3	2 6.5	5 13.2	5 14.3	8 17.4	6 11.1	9 21.4	35 14.2
13	Disagree 4	1 3.2	7 18.4	2 5.7	5 10.9	6 11.1	6 14.3	27 11.0
16	Disagree 5 (Strongly)	4 12.9	7 18.4	9 25.7	17 37.0	19 35.2	15 35.7	71 28.9
	(Disagree sub-total)	(10 32.3)	(24 63.2)	(19 54.3)	(31 67.4)	(36 66.7)	(33 78.6)	(153 62.2)
	Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246
	Mean	7.5	7.4	9.1	11.0	10.1	11.4	9.6

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 3.9130.

### Concern about fallout

To determine an individual's general concern about fallout each respondent was asked: "At the present time, how concerned are you about protection from nuclear fallout?" The response choices presented to the respondent are listed in Table 8.8. Using an analysis of variance statistical test no significant difference was found among different levels of concern about fallout responses and stage of adoption. However, the Home Adoption Plan stage had the highest mean value (indicating a greater concern about fallout) and the first two stages had the lowest mean values (indicating less concern about fallout). Conclusion: Perception of concern about fallout is not statistically related to stage of adoption. However, percentage trends show individuals in the latter adoption stages indicating somewhat more concern about fallout than individuals in the earlier stages.

Table 8.8. At the present time, how concerned are you about protection from nuclear fallout?

Code	Concern about fallout	Stage of Adoption						TOTAL % of No. 246							
		(1)		(2)		(3)			(4)		(5)		(6)		
		UNAWARE % of No. 31	INFORMATION % of No. 38	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54		HOME ADOPTION, PLAN % of No. 42	TOTAL % of No. 246					
0	Have almost no concern	11	35.5	12	31.6	9	25.7	9	19.6	14	25.9	5	11.9	60	24.4
2	Have a little concern	12	38.7	17	44.7	14	40.0	28	60.9	24	44.4	19	45.2	114	46.3
4	Have strong concern	7	22.6	8	21.1	9	25.7	8	17.4	9	16.7	14	33.3	55	22.4
6	Have a very strong concern	1	3.2	1	2.6	3	8.6	1	2.2	7	13.0	4	9.5	17	6.9
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	1.9		1.9		2.3		2.0		2.3		2.8		2.2	

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 1.7299.

## Fallout Shelters: A Perception of the Innovation

### Introduction

The way in which an individual perceives the utility of fallout shelters and the possible implications resulting from shelters being established may affect his decisions about using them. Thus, a person who believes in the use of fallout shelters may be more likely to decide to use one if there was a nuclear attack than those who do not believe in the use of fallout shelters. Likewise, a person who perceives positive consequences resulting from the establishment and use of fallout shelters may be more likely to decide to use a fallout shelter than individuals who perceive negative consequences resulting from the establishment and use of fallout shelters. In this section of the report a number of different attitudes related to the possible consequences of the establishment and use of fallout shelters are discussed in relation to stage of public fallout shelter adoption. Some of the attitudes will be about fallout shelters in general, that is, not distinguishing between private and public fallout shelters. Other attitudes will focus on public fallout shelters only. Thus, this section will explore the ways in which individuals "see" the innovation which is the focus of this study.

Specific attitudes analyzed in this section include: an individual's general feeling about fallout shelters, the extent to which people think public fallout shelters are like "insurance," the extent to which people think the shelter program should be abandoned because surviving a nuclear war is impossible, the idea that a shelter program is worth its cost, the idea that shelter measures taken today will soon be obsolete, the emphasis that should be placed on public fallout shelters as compared to public highways, the need for a one-year city sales tax to provide funds for public fallout shelters, and the need for public shelters in all future school buildings.

Feelings about fallout shelters

To determine the general attitudes people had about fallout shelters each respondent was asked, "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?" It should be noted that this question does not distinguish between public or private shelters. Thus a respondent may have interpreted the question reference to fallout shelters as meaning only private shelters, only public shelters, or both public and private shelters. In Table 8.9 the distribution of responses by stage of adoption is recorded. Using an analysis of variance statistical test no significant difference was found among stages of adoption. However, percentage trends show a larger proportion of individuals in the last three stages being favorable to shelters than individuals in the first three stages. Conclusion: Feelings about fallout shelters are not statistically related to stage of adoption. However, percentage trends show some tendency for those people farther along in their adoption process to have a more favorable attitude about shelters than individuals in the early stages of adoption.

Table 8.9. 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?

Code	Stage of Adoption						TOTAL % of No. 246							
	(1) UNAWARE % of No. 31	(2) AWARE INFORMATION % of No. 38	(3) EVALUATION % of No. 35	(4) FAMILY DOWNTOWN ADOPTION % of No. 46	(5) HOME ADOPTION, NO PLAN % of No. 54	(6) HOME ADOPTION, PLAN % of No. 42								
0	2	6.5	2	5.3	8	22.9	3	6.5	3	5.6	3	7.1	21	8.5
2	6	19.4	8	21.1	5	14.3	4	8.7	6	11.1	3	7.1	32	13.0
	(8)	(25.9)	(10)	(26.4)	(13)	(37.2)	(7)	(15.2)	(9)	(16.7)	(6)	(14.2)	(53)	(21.5)
3	5	16.1	4	10.5	2	5.7	1	2.2	2	3.7	-	-	14	5.7
4	14	45.2	19	50.0	16	45.7	29	63.0	24	44.4	17	40.5	119	48.4
6	4	12.9	5	13.2	4	11.4	9	19.6	19	35.2	19	45.2	60	24.4
	(18)	(58.1)	(24)	(63.2)	(20)	(57.1)	(38)	(82.6)	(43)	(79.6)	(36)	(85.7)	(179)	(72.8)
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
Mean	3.5	3.5	3.0	3.9	4.2	3.8								

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.75$ , at .01 level if  $\geq 3.10$ . Calculated F = .4433.

Public fallout shelters are like insurance

Some people have argued that public fallout shelters are like insurance in that you don't know if you will ever need them, but if you do, they are good to have available. Other people have argued that this is not so, i.e., that public fallout shelters are not like insurance. Neither position is debated in this report. The concern here is to determine to what extent, if any, the perception that public fallout shelters are like insurance is related to stage of public fallout shelter adoption. To determine an individual's perception of public fallout shelters as insurance each respondent was asked whether he "agreed" or "disagreed" with the following statement: "Public fallout shelters are like insurance in that you don't know if you'll ever need them, but if you do, they sure are good to have around." Each respondent was also asked the extent to which he agreed or disagreed with the statement. The distribution of responses by stage of adoption is presented in Table 8.10. (The method for recording an individual's response to this statement is the same as that discussed in the analysis of Table 8.7.) Using an analysis of variance statistical test a significant difference was found among the stages of adoption. A larger proportion of individuals in the last three stages of adoption more frequently agreed with the statement than individuals in the first three adoption stages. That is, a larger percentage of individuals in the latter three adoption stages perceived fallout shelters to be more like insurance than individuals in the first three adoption stages.

Conclusion: The perception of public fallout shelters being like insurance is statistically related to stage of adoption. Individuals in the later stages of adoption more strongly believe public fallout shelters are like insurance.

Table 8.10. Public fallout shelters are like insurance in that you don't know if you'll ever need them, but if you do, they sure are good to have around.

Code	Public fallout shelters are like insurance	Stage of Adoption													
		(1)		(2)		(3)		(4)		(5)		(6)			
		UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	TOTAL % of No. 246							
0	Disagree 5 (Strongly)	4	12.9	3	7.9	5	14.3	1	2.2	1	1.9	1	2.4	15	6.1
3	Disagree 4	-	-	-	-	-	-	1	2.2	-	-	-	-	1	.4
5	Disagree 3	1	3.2	1	2.6	3	8.6	3	6.5	-	-	1	2.4	9	3.7
6	Disagree 2	2	6.5	1	2.6	3	8.6	-	-	-	-	-	-	6	2.4
7	Disagree 1 (Weakly)	-	-	2	5.3	2	5.7	1	2.2	-	-	-	-	5	2.0
	(Wisagree sub-total)	(7	22.6)	(7	18.4)	(13	37.2)	(6	13.1)	(1	1.9)	(2	4.8)	(36	14.6)
8	Undecided or don't know	2	6.5	-	-	1	2.9	1	2.2	-	-	-	-	4	1.6
9	Agree 1 (Weakly)	1	3.2	1	2.6	3	8.6	2	4.3	2	3.7	5	11.9	14	5.7
10	Agree 2	6	19.4	1	2.6	1	2.9	5	10.9	4	7.4	3	7.1	20	8.1
11	Agree 3	4	12.9	11	28.9	4	11.4	9	19.6	14	25.9	5	11.9	47	19.1
13	Agree 4	5	16.1	8	21.1	2	5.7	11	23.9	10	18.5	9	21.4	45	18.3
16	Agree 5 (Strongly)	6	19.4	10	26.3	11	31.4	12	26.1	23	42.6	18	42.9	80	32.5
	(Agree sub-total)	(24	77.5)	(31	81.5)	(22	62.9)	(40	87.0)	(53	98.1)	(40	95.2)	(210	85.3)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	10.1		11.2		9.7		11.6		12.9		12.9		11.6	

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 3.9791.



A fallout shelter program should be abandoned

Some opponents of civil defense have argued that a fallout shelter program should be abandoned because even if civil defense measures were effective in saving some lives, a thermonuclear war would make living on earth impossible for the survivors. The relationship between a person's position (attitude) on this argument and stage of public fallout shelter adoption is discussed below and summarized in Table 8.11.

To determine an individual's attitude on this argument each respondent was asked whether he "agreed" or "disagreed" with the following statement: "A fallout shelter program should be abandoned because even if civil defense measures were effective in saving some lives, a thermonuclear war would make living on earth impossible for the survivors." Each respondent was also asked the extent to which he agreed or disagreed with the statement.

Using an analysis of variance statistical test a significant difference was found among the stages of adoption. Individuals in the last three adoption stages more frequently disagreed with the statement than individuals in the first three stages. That is, individuals in the latter three stages more often perceived that civil defense measures could be effective and living on earth would be possible for the survivors of an attack. Individuals in the Home Adoption Plan stage more strongly disagreed with the statement than did individuals in any other stage.

Conclusion: The perception that a fallout shelter program should be abandoned, even if effective, because living on earth after a thermonuclear war would be impossible for survivors is statistically related to stage of public fallout shelter adoption. In general, individuals who believe the program should be abandoned are not as far along in their public fallout shelter decision-making process.

Table 8.11. A fallout shelter program should be abandoned because even if civil defense measures were effective in saving some lives, a thermonuclear war would make living on earth impossible for the survivors.

Code	A fallout shelter program should be abandoned	Stage of Adoption						TOTAL % of 246							
		(1) UNAWARE % of 31	(2) AWARE INFORMATION % of 38	(3) EVALUATION % of 35	(4) FAMILY DOWNTOWN ADOPTION % of 46	(5) HOME ADOPTION, NO PLAN % of 54	(6) HOME ADOPTION, PLAN % of 42								
0	Agree 5 (Strongly)	7	22.6	5	13.2	8	22.9	8	17.4	5	9.3	2	4.8	28	11.4
3	Agree 4	2	6.5	2	5.3	4	11.4	2	4.3	4	7.4	1	2.4	15	6.1
5	Agree 3	1	3.2	-	-	2	5.7	1	2.2	2	3.7	1	2.4	8	3.3
6	Agree 2	3	9.7	1	2.6	1	2.9	3	6.5	-	-	1	2.4	9	3.7
7	Agree 1 (Weakly)	1	3.2	3	7.9	-	-	2	4.3	3	5.6	1	2.4	10	4.1
	(Agree sub-total)	(14)	(45.2)	(11)	(29.0)	(15)	(42.9)	(16)	(34.7)	(14)	(26.0)	(6)	(14.4)	(70)	(28.6)
8	Undecided or don't know	3	9.7	4	10.5	3	8.6	3	6.5	3	5.6	1	2.4	19	7.7
9	Disagree 1 (Weakly)	1	3.2	6	15.8	-	-	-	-	2	3.7	2	4.8	12	4.9
10	Disagree 2	3	9.7	5	13.2	6	17.1	4	8.7	2	3.7	3	7.1	17	6.9
11	Disagree 3	2	6.5	5	13.2	2	5.7	6	13.0	6	11.1	9	21.4	32	13.0
13	Disagree 4	-	-	4	10.5	5	14.3	6	13.0	9	16.7	2	4.8	24	9.8
16	Disagree 5 (Strongly)	8	25.8	3	7.9	4	11.4	11	23.9	18	33.3	19	45.2	72	29.3
	(Disagree sub-total)	(14)	(45.2)	(23)	(60.6)	(17)	(48.5)	(27)	(58.6)	(37)	(68.5)	(35)	(83.3)	(157)	(63.9)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	8.2	8.5	7.7	9.3	10.6	12.0	9.6							

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 3.8656.

### Shelter Program Worth Cost

One of the ideas often analyzed in discussions of nuclear war and civil defense is the possible returns that may be expected from a given level of investment in a shelter program. Some argue that no returns could be expected from any program. Others argue varying levels of investment are desirable. The relationship between a person's attitude as to whether costs for a shelter program are worth the protection obtained and stage of adoption is discussed below and summarized in Table 8.12.

To determine an individual's attitude on this argument each respondent was asked whether he "agreed" or "disagreed" with the following statement: "What a national shelter program will cost the taxpayer is very little in comparison to the amount of protection it will provide." Each respondent was also asked the extent to which he agreed or disagreed with the statement.

Using an analysis of variance statistical test no significant difference was found among the stages of adoption. Individuals in the Home Adoption Plan stage more strongly agreed with the statement than any other stage. However, there was little difference in the percentage distribution of the other five adoption stages.

Conclusion: The perception that the costs for a national shelter program are worth the protection provided is not statistically related to stage of adoption.

Table 8.12. What a national shelter program will cost the taxpayer is very little in comparison to the amount of protection it will provide.

Code	Shelter program worth cost	Stage of Adoption										TOTAL % of No. 246			
		(1)		(2)		(3)		(4)		(5)			(6)		
		UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42								
0	Disagree 5 (Strongly)	3	9.7	4	10.5	6	17.1	6	13.0	6	11.1	3	7.1	28	11.4
3	Disagree 4	1	3.2	1	2.6	2	5.7	2	4.3	2	3.7	1	2.4	9	3.7
5	Disagree 3	2	6.5	-	-	1	2.9	4	8.7	5	9.3	2	4.8	14	5.7
6	Disagree 2	1	3.2	2	5.3	2	5.7	-	-	2	3.7	2	4.8	9	3.7
7	Disagree 1 (Weakly)	1	3.2	1	2.6	1	2.9	-	-	1	1.9	-	-	4	1.6
	(Disagree sub-total)	( 8	25.8)	( 8	21.0)	(12	34.3)	(12	26.0)	(16	29.7)	( 8	19.1)	( 64	26.1)
8	Undecided or don't know	5	16.1	5	13.2	4	11.4	4	8.7	5	9.3	-	-	23	9.3
9	Agree 1 (Weakly)	-	-	2	5.3	2	5.7	3	6.5	3	5.6	3	7.1	13	5.3
10	Agree 2	3	9.7	4	10.5	3	8.6	4	8.7	2	3.7	5	11.9	21	8.5
11	Agree 3	5	16.1	10	26.3	3	8.6	10	21.7	9	16.7	3	7.1	40	16.3
13	Agree 4	4	12.9	3	7.9	3	8.6	6	13.0	9	16.7	6	14.3	31	12.6
16	Agree 5 (Strongly)	6	19.4	6	15.8	8	22.9	7	15.2	10	18.5	17	40.5	54	22.0
	(Agree sub-total)	(18	58.1)	(25	65.8)	(19	54.4)	(30	65.1)	(33	61.2)	(34	80.9)	(159	64.7)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	10.1	9.3	8.9	9.2	9.4	11.4	9.7							

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 1.3913.

### Public fallout shelter obsolescence for costs involved

One of the arguments often posed by opponents of civil defense is that any public fallout shelter measures taken today will soon be obsolete and cannot be effective long enough to justify their cost. The relationship between a person's attitude on this discussion point and stage of public fallout shelter adoption is discussed below and summarized in Table 8.13.

To determine the degree to which an individual perceived public fallout shelters as soon being obsolete each respondent was asked whether he "agreed" or "disagreed" with the following statement, "Any public fallout shelter measures we take today will soon be obsolete and cannot be effective long enough to justify their cost." Each respondent was also asked the extent to which he agreed or disagreed with the statement.

Using an analysis of variance statistical test a significant difference was found among the stages of adoption. Individuals in the last two adoption stages more frequently "disagreed" with the statement than individuals in the first four stages. That is, individuals in the latter two stages more often perceived that public fallout shelter measures taken today would not soon be obsolete, but would be effective long enough to justify their cost. Individuals in the Home Adoption Plan stage more strongly disagreed with the statement than individuals in any other stage.

Conclusion: The perception that public fallout shelter measures taken today will soon be obsolete and too ineffective to justify their cost is statistically related to stage of adoption. A larger proportion of individuals in the earlier adoption stages believe public fallout shelters will become obsolete than do individuals in the latter stages of their public fallout shelter decision making process.

Table 8.13. Any public fallout shelter measures we take today will soon be obsolete and cannot be effective long enough to justify their cost.

Code	Public fallout shelter obsolescence for costs involved	Stage of Adoption										TOTAL % of No. 246			
		(1)		(2)		(3)		(4)		(5)			(6)		
		UNAWARE % of No. 31	INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 42	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42								
0	Agree 5 (Strongly)	6	19.4	4	10.5	8	22.9	7	15.2	3	5.6	2	4.8	30	12.2
3	Agree 4	-	-	1	2.6	-	-	4	8.7	5	9.3	1	2.4	11	4.5
5	Agree 3	1	3.2	6	15.8	2	5.7	4	8.7	4	7.4	2	4.8	19	7.7
6	Agree 2	3	9.7	-	-	3	8.6	3	6.5	-	-	2	4.8	11	4.5
7	Agree 1 (Weakly)	1	3.2	3	7.9	1	2.9	1	2.2	2	3.7	1	2.4	9	3.7
	(Agree sub-total)	(11)	(35.5)	(14)	(36.8)	(14)	(40.1)	(19)	(41.3)	(14)	(26.0)	(8)	(19.2)	(80)	(32.6)
8	Undecided or don't know	6	19.4	2	5.3	3	8.6	5	10.9	6	11.1	1	2.4	23	9.3
9	Disagree 1 (Weakly)	3	9.7	1	2.6	3	8.6	3	6.5	2	3.7	6	14.3	18	7.3
10	Disagree 2	6	19.4	5	13.2	-	-	2	4.3	4	7.4	2	4.8	19	7.7
11	Disagree 3	-	-	3	7.9	3	8.6	3	6.5	9	16.7	6	14.3	24	9.8
13	Disagree 4	1	3.2	7	18.4	6	17.1	5	10.9	4	7.4	5	11.9	28	11.4
16	Disagree 5 (Strongly)	4	12.9	6	15.8	6	17.1	9	19.6	15	27.8	14	33.3	54	22.0
	(Disagree sub-total)	(14)	(45.2)	(22)	(57.9)	(18)	(51.4)	(22)	(47.8)	(34)	(63.0)	(33)	(78.6)	(143)	(58.2)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	8.0	9.0	8.4	8.4	8.4	10.1	11.1	9.5						

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 2.2791.

### Taxes for public fallout shelter use

One of the ideas often analyzed in discussions of civil defense and fallout shelters is that there won't be enough fallout shelter space for all our people if there is a nuclear attack. That is, some people will have adequate shelter space while others will not have space. Proponents of public fallout shelter programs note that the long-run goal is to have adequate fallout shelter space for all the people. Proponents note that only in the short run will there not be a sufficient number of public fallout shelters. One means possible to help provide public fallout shelters for all the people is to expend public funds for public fallout shelters. In the short run this would mean public funds being expended for public fallout shelters even though there would not be enough space for all people if there was an attack.

To determine the degree to which an individual believes that tax monies should be spent on public fallout shelters even though all people could not use them in the short run each respondent was asked whether he "agreed" or "disagreed" with the following statement: "We should all pay taxes on public fallout shelters even if we know that we could not possibly get into them in case of an attack." Responses are recorded in Table 8.14.

Using an analysis of variance statistical test a significant difference was found among the stages of adoption. Individuals in the last three stages of adoption more frequently agreed with the statement than individuals in the first three stages. That is, a greater proportion of individuals in the latter three stages perceived that we should all pay taxes on public fallout shelters even though everyone could not get into them in case of attack. More individuals in the Home Adoption Plan stage agreed with the statement than individuals in any other stage.

Conclusion: The perception that we should all pay taxes on public fallout shelters even though we know all people could get into them is statistically related to stage of adoption. A greater proportion of the individuals in the later adoption stages believe this idea.

Table 8.14. We should all pay taxes on public fallout shelters even if we know that we could not possibly get into them in case of an attack.

Code	Taxes for public fallout shelter use	Stage of Adoption						TOTAL % of No. 246							
		(1)		(2)		(3)			(4)		(5)		(6)		
		No.	% of	No.	% of	No.	% of		No.	% of	No.	% of	No.	% of	
		UNAMARE	INFORMATION	EVALUATION	FAMILY	ADOPTION,	ADOPTION,	ADOPTION,	ADOPTION,	ADOPTION,	ADOPTION,	ADOPTION,	ADOPTION,		
		31	38	35	46	54	42	42	42	42	42	42	42		
		No.	% of	No.	% of	No.	% of	No.	% of	No.	% of	No.	% of		
0	Disagree 5 (Strongly)	4	12.9	13	37.1	5	10.9	7	13.0	4	9.5	38	15.4		
3	Disagree 4	3	9.7	2	5.7	4	8.7	1	1.9	1	2.4	13	5.3		
5	Disagree 3	1	3.2	4	11.4	1	2.2	6	11.1	2	4.8	16	6.5		
6	Disagree 2	3	9.7	1	2.9	-	-	1	1.9	-	-	11	4.5		
7	Disagree 1 (Weakly)	-	-	1	2.9	1	2.2	1	1.9	-	-	4	1.6		
	(Disagree sub-total)	(11	35.5)	(21	60.0)	(11	23.9)	(16	29.6)	(7	16.7)	(82	33.3)		
8	Undecided or don't know	3	9.7	1	2.9	3	6.5	1	1.9	-	-	9	3.7		
9	Agree 1 (Weakly)	2	6.5	2	5.7	3	6.5	2	3.7	1	2.4	10	4.1		
10	Agree 2	4	12.9	6	15.8	3	6.5	1	1.9	2	4.8	18	7.3		
11	Agree 3	3	9.7	7	18.4	9	19.6	7	13.0	8	19.0	37	15.0		
13	Agree 4	2	6.5	1	2.9	8	17.4	8	14.8	10	23.0	32	13.0		
16	Agree 5 (Strongly)	6	19.4	5	14.3	9	19.6	19	35.2	14	33.0	58	23.6		
	(Agree sub-total)	(17	54.8)	(21	55.3)	(13	37.1)	(32	69.6)	(37	68.5)	(35	83.3)	(155	63.0)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	9.1	8.2	6.0	9.6	10.5	11.6	10.5	11.6	10.5	11.6	9.3	9.3		

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 5.1653.



Curtail highway spending to provide public fallout shelters

To determine the perception of the relative importance of highway spending versus public fallout shelter spending, the following question was asked each respondent: "How would you vote on: Construction of interstate highways should be curtailed and these funds diverted to provide public fallout shelters." Responses are recorded in Table 8.15. Using a chi-square statistical test no significant relationship was found when "yes" and "no" responses were compared by stage of adoption. Over one-half the individuals in each stage voted "no." However, more individuals in the latter stages of adoption voted "no" than did individuals in the earlier stages. Conclusion: The perception that highway construction should be curtailed so public fallout shelters can be built is not statistically related to stage of adoption. However, there is a general tendency for those who voted "no" on the issue to be farther along in their adoption process.

Table 8.15. How would you vote on: Construction of interstate highways should be curtailed and these funds diverted to provide public fallout shelters.

	Stage of Adoption						TOTAL No. 246 % of
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
No	17 54.8	24 63.2	26 74.3	41 89.1	42 77.8	36 85.7	186 75.6
No opinion	9 29.0	9 23.7	6 17.1	2 4.3	1 1.9	3 7.1	30 12.2
Yes	5 16.1	5 13.2	3 8.6	3 6.5	11 20.4	3 7.1	30 12.2
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d. f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 7.22.

A one percent city sales tax is needed for public fallout shelters

To determine people's perception of the desirability of a city tax to provide funds for public fallout shelters the following question was asked: "How would you vote on: This city should levy a one percent sales tax for a period of one year to be used to build public fallout shelters." Responses are recorded in Table 8.16. Using a chi-square statistical test a significant relationship was found when "yes" and "no" responses were compared by stage of adoption. More individuals in the latter stages voted "yes" than did individuals in the earlier stages. Almost 60 percent of the individuals in the Home Adoption Plan stage voted "yes." Approximately 20 to 45 percent of the individuals in each of the other stages voted "yes." Conclusion: The perception that the city should levy a one percent sales tax for public fallout shelters is statistically related to stage of public fallout shelter adoption. A larger proportion of individuals in the latter adoption stages voted "yes" than did individuals in the earlier adoption stages.

Table 8.16. How would you vote on: This city should levy a one percent sales tax for a period of one year to be used to build public fallout shelters.

	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
No	15 48.4	19 50.0	24 68.6	25 54.3	27 50.0	15 35.7	125 50.8
No opinion	7 22.6	6 15.8	4 11.4	2 4.3	3 5.6	2 4.8	24 9.8
Yes	9 29.0	13 34.2	7 20.0	19 41.3	24 44.4	25 59.5	97 39.4
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246

With 5 d.f., chi-square significant at .05 level if  $\chi^2 > 11.07$ , at .01 if  $\chi^2 > 15.09$ . Calculated chi-square = 12.08.

Need for fallout shelters in new school buildings

To determine people's perception of the desirability of incorporating fallout shelter space in all future school buildings each respondent was asked: "How would you vote on: This city should build fallout shelters in all future school buildings with half the cost being paid by the federal government and the other half being paid by the local school taxes." Responses are recorded in Table 8.17. Using a chi-square statistical test a significant relationship was found when "yes" and "no" responses were compared by stage of adoption. More individuals in the Home Adoption Plan stage said "yes" than any other stage. Over 50 percent of the individuals in each adoption stage voted "yes." Conclusion: The perception that fallout shelters should be incorporated in future school buildings is statistically related to stage of adoption. However, there is no apparent linear percentage trend by stages of adoption.

Table 8.17. How would you vote on: This city should build fallout shelters in all future school buildings with half the cost being paid by the federal government and the other half being paid by the local school taxes.

	Stage of Adoption										TOTAL			
	(1)		(2)		(3)		(4)		(5)		No.	No.		
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	FAMILY EVALUATION % of No. 35	DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	ADOPTION, PLAN % of No. 42	ADOPTION, NO PLAN % of No. 54	ADOPTION, PLAN % of No. 42						
No	9	29.0	8	21.1	14	40.0	15	32.6	23	42.6	5	11.9	74	30.1
No opinion	5	16.1	3	7.9	2	5.7	1	2.2	1	1.9	1	2.4	13	5.3
Yes	17	54.8	27	71.1	19	54.3	30	65.2	30	55.6	36	85.7	159	64.6
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 13.68.

### Adequacy of the Civil Defense Program

The relationships between the perceived adequacy of civil defense programs at national and local levels and stage of public fallout shelter adoption are discussed in this section. Two "adequacy" attitudes are ascertained and compared to stage of adoption. These are: (1) the individual's perception of how adequate the total civil defense effort is at the present time, and (2) the individual's perception of how adequate the overall civil defense program is in his city.

Adequacy of the total civil defense effort

To determine an individual's perception of how adequate the total civil defense effort is, each respondent was asked: "In your opinion how adequate is the total civil defense effort: very inadequate, inadequate, adequate, or very adequate?" The distribution of responses for each stage of adoption is presented in Table 8.18. Using an analysis of variance statistical test no significant difference was found among the stages of adoption when mean response scores were compared. Approximately one-third of the individuals in each stage of adoption indicated the total civil defense effort was adequate or very adequate. Approximately one-half of the individuals in each of the last five adoption stages thought the total civil defense effort was inadequate or very inadequate. The Unaware stage had more "don't know" responses than any other stage. Conclusion: Perception of the adequacy of the total civil defense effort is not statistically related to stage of public fallout shelter adoption.

Table 8.18. In your opinion how adequate is the total civil defense effort?

Code	Adequacy of total civil defense effort	Stage of Adoption						TOTAL							
		(1)	(2)	(3)	(4)	(5)	(6)								
		UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	% of No. 246							
0	Very inadequate	1	3.2	6	15.8	7	20.0	3	6.5	6	11.1	3	7.1	26	10.6
2	Inadequate	6	19.4	14	36.8	10	28.6	18	39.1	17	31.5	21	50.0	86	35.0
	(Inadequate sub-total)	7	22.6	20	52.6	17	48.6	21	45.6	23	42.6	24	57.1	112	45.6
3	Don't know	13	41.9	6	15.8	5	14.3	8	17.4	10	18.5	3	7.1	45	18.3
4	Adequate	11	35.5	12	31.6	12	34.3	15	32.6	18	33.3	14	33.3	82	33.0
6	Very adequate	-	-	-	-	1	2.9	2	4.3	3	5.6	1	2.4	7	2.8
	(Adequate sub-total)	11	35.5	12	31.6	13	37.2	17	36.9	21	38.9	15	35.7	87	35.8
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	3.1	2.5	2.5	2.9	2.9	2.9	2.7	2.8						

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .9615.

### Adequacy of city civil defense program

To determine a person's perception of the adequacy of the local (city) civil defense program each respondent was asked: In your opinion, how adequate is the overall civil defense program in this city at the present time?" The response choices were: very inadequate, inadequate, adequate, and very adequate. In Table 8.19 it may be noted that two individuals did not choose these responses but rather indicated "we don't need a CD program." Some "don't know" responses were also recorded. Using an analysis of variance statistical test no significant difference was found among the stages of adoption when mean response scores were compared. However, individuals in the last two stages of adoption perceived the local program to be more adequate than individuals in the earlier stages. It should be noted, however, that over 35 percent of the individuals in each of the last two stages indicated the local program was inadequate. Conclusion: Perception of the adequacy of the city civil defense program is not statistically related to stage of public fallout shelter adoption. However percentage trends indicate that individuals in the latter stages of adoption perceive the local program as being somewhat more adequate than did individuals in the earlier stages of adoption.

Table 8.19. In your opinion, how adequate is the overall civil defense program in this city at the present time?

Code	Adequacy of city civil defense program	Stage of Adoption					TOTAL % of No. 246								
		(1) UNAWARE % of No. 31	(2) INFORMATION % of No. 38	(3) EVALUATION % of No. 35	(4) FAMILY DOWNTOWN ADOPTION % of No. 46	(5) HOME ADOPTION, NO PLAN % of No. 54		(6) HOME ADOPTION, PLAN % of No. 42							
0	Very inadequate	3	9.7	1	2.6	3	8.6	2	4.3	6	11.1	2	4.8	17	6.9
2	Inadequate	14	45.2	20	52.6	14	40.0	23	50.0	13	24.1	16	38.1	100	40.7
	(Inadequate sub-total)	(17)	(54.9)	(21)	(55.2)	(17)	(48.6)	(25)	(54.3)	(19)	(35.2)	(18)	(42.9)	(117)	(47.6)
3	Don't know	6	19.4	-	-	5	14.3	2	4.3	4	7.4	-	-	17	6.9
3	We don't need a CD program	-	-	1	2.6	1	2.9	-	-	-	-	-	-	2	.8
4	Adequate	6	19.4	15	39.5	12	34.3	19	41.3	29	53.7	23	54.8	104	42.3
6	Very adequate	2	6.5	1	2.6	-	-	-	-	2	3.7	1	2.4	6	2.4
	(Adequate sub-total)	(8)	(25.9)	(16)	(42.1)	(12)	(34.3)	(19)	(41.3)	(31)	(57.4)	(24)	(57.2)	(110)	(44.7)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	2.6	2.9	2.7	2.8	3.1	3.1	3.1	2.9	2.9	2.9	2.9	2.9	2.9	2.9

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .9185.

### Government's Role in Civil Defense

In this section four attitudes pertaining to an individual's perception of what role the federal government should play in developing a civil defense capability are compared to stage of public fallout shelter adoption. Attitudes assessed pertain to: (1) what role the government should play in relation to an individual citizens' preparation for a possible nuclear attack; (2) what the federal government should be doing about civil defense activities during the coming year; (3) whether civil defense activities should be handled by the military; and (4) if the best measure of the need for civil defense is action taken by the federal government.



### Government's role in preparing people for a possible nuclear attack

To determine a person's perception of the role the government should play in preparing people for nuclear attack each respondent was asked: "What do you think the government's role should be in relation to individual citizen's preparation for a possible nuclear attack?" The four possible responses are shown in Table 8.20. The responses form a continuum from "not influencing them" to "requiring them to prepare." Using an analysis of variance statistical test no significant difference was found among the stages of adoption when mean response scores were compared. Approximately one-half the individuals in each adoption stage stated the government should give information to people so they can decide what they want to do to prepare for an attack. Over one-fourth of the individuals in the Unaware stage said the government should require people to prepare for an attack. Approximately ten percent or less of the individuals in each of the other stages said the government should require people to prepare for an attack. Conclusion: The perception of the role the government should play in preparing people for attack is not statistically related to stage of public fallout shelter adoption.

Table 8.20. What do you think the government's role should be in relation to individual citizens' preparation for a possible nuclear attack? The federal government should . . .

Code	Government's role in preparing people for an attack	Stage of Adoption						TOTAL % of No. 246							
		(1) UNAWARE % of No. 31	(2) AWARE INFORMATION % of No. 38	(3) EVALUATION % of No. 35	(4) FAMILY DOWNTOWN ADOPTION % of No. 46	(5) HOME ADOPTION, NO PLAN % of No. 54	(6) HOME ADOPTION, PLAN % of No. 42								
0	Not try to influence them to prepare for nuclear attack	1	3.2	1	2.6	-	-	1	1.9	-	-	3	1.2		
2	Give them the information upon which they can decide what they want to do to prepare for nuclear attack	15	51.6	20	52.6	21	60.0	27	58.7	31	57.4	22	52.4	136	55.7
4	Tell them what they should do to prepare for nuclear attack	7	22.6	16	42.1	11	31.4	18	39.1	15	27.8	15	35.7	82	33.3
6	Require them to prepare for nuclear attack	7	22.6	1	2.6	3	8.6	1	2.2	7	20.0	5	11.0	24	9.8
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean		3.3		2.9		3.0		2.9		3.0		3.2		3.0

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .6042.

Need for future federal government civil defense activities

To determine a person's perception of the need for future federal government civil defense activities each respondent was asked: "What should the federal government be doing about our civil defense activities during the coming year?" Responses are recorded in Table 8.21. Using an analysis of variance statistical test no significant difference was found among the stages of adoption when mean response scores were compared. Approximately 40 percent of the individuals in each of the first five adoption stages thought civil defense should continue at its present rate. Approximately 15 percent or less of the individuals in each adoption stage thought civil defense activities should be decreased. Over 40 percent of the individuals in each stage thought civil defense activities should be increased. More individuals in the Home Adoption Plan stage thought civil defense activities should be increased than did individuals in any other stage of adoption. Conclusion: The perception of the need for future federal government civil defense activities is not statistically related to stage of public fallout shelter adoption.

Table 8.21. What should the federal government be doing about our civil defense activities during the coming year?

Code	Future federal government civil defense activities	Stage of Adoption						TOTAL % of	No.	246
		(1) % of	(2) % of	(3) % of	(4) % of	(5) % of	(6) % of			
		UN-AWARE	AWARE	EVALUATION	FAMILY DOWNTOWN ADOPTION	HOME ADOPTION, NO PLAN	HOME ADOPTION, PLAN			
		No. 31	No. 38	No. 35	No. 46	No. 54	No. 42			
0	Decreasing them very much	-	1 2.6	3 8.6	3 6.5	1 1.9	1 2.4		9 3.7	
2	Decreasing them some	5 16.1	1 2.6	2 5.7	1 2.2	3 5.6	2 4.8		14 5.7	
	(Decreasing sub-total)	( 5 16.1)	( 2 5.3)	( 5 14.3)	( 4 8.7)	( 4 7.5)	( 3 7.2)		( 23 9.4)	
3	Don't know	1 3.2	1 2.6	2 5.7	1 2.2	-	-		5 2.0	
3	Continue at the present rate	11 35.5	14 36.8	13 37.1	21 45.7	24 44.4	10 23.8		93 37.8	
4	Increasing them some	13 41.9	17 44.7	8 22.9	11 23.9	15 27.8	22 52.4		86 35.0	
6	Increasing them very much	1 3.2	4 10.5	7 20.0	9 19.6	11 20.4	7 16.7		39 15.9	
	(Increasing sub-total)	(14 45.1)	(21 55.2)	(15 42.9)	(20 43.5)	(26 48.2)	(29 69.1)		(125 50.9)	
	Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1		246	
	Mean	3.4	3.7	3.5	3.6	3.8	3.9		3.7	

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .8051.

Should civil defense be handled by the military

To determine a person's perception of whether civil defense should be handled by the military, each respondent was asked if he "agreed" or "disagreed" with the following statement: "Civil defense activities should be handled by the military." Each respondent was also asked the extent to which he agreed or disagreed with the statement. Responses are recorded in Table 8.22.

Using an analysis of variance statistical test no significant difference was found among the stages of adoption when mean response scores were compared. However, mean values indicate that individuals in the Home Adoption Plan stage disagreed more strongly with the statement than did individuals in any of the other stages of adoption. From one-half to two-thirds of the individuals in each of the first five adoption stages disagreed with the statement, while approximately three-fourths of the individuals in the Home Adoption Plan stage disagreed with the statement. Conclusion: The perception of the need for civil defense to be handled by the military is not statistically related to stage of public fallout shelter adoption. There is no apparent general trend by stage of adoption.

Table 8.22. Civil defense activities should be handled by the military.

Code	Military should handle civil defense	Stage of Adoption						TOTAL % of							
		(1)		(2)		(3)			(4)		(5)		(6)		
		No.	% of	No.	% of	No.	% of		No.	% of	No.	% of	No.	% of	
0	Agree 5 (Strongly)	3	9.7	6	15.8	6	17.1	6	13.0	8	14.8	5	11.9	34	13.8
3	Agree 4	2	6.5	2	5.3	3	8.6	3	6.5	3	5.6	1	2.4	14	5.7
5	Agree 3	3	9.7	5	13.2	2	5.7	5	10.9	4	7.4	3	7.1	22	8.9
6	Agree 2	2	6.5	-	-	-	-	3	6.5	2	3.7	-	-	7	2.8
7	Agree 1 (Weakly)	-	-	1	2.6	1	2.9	1	2.2	1	1.9	1	2.4	5	2.0
	(Agree sub-total)	(10	32.4)	(14	36.9)	(12	34.3)	(12	39.1)	(18	33.3)	(10	23.8)	(82	33.3)
8	Undecided or don't know	4	12.9	-	-	5	14.3	4	8.7	1	1.9	-	-	14	5.7
9	Disagree 1 (Weakly)	1	3.2	1	2.6	3	8.6	-	-	4	7.4	2	4.8	11	4.5
10	Disagree 2	3	9.7	4	10.5	-	-	1	2.2	2	3.7	5	11.9	15	6.1
11	Disagree 3	3	9.7	5	13.2	1	2.9	1	2.2	7	13.0	8	19.0	25	10.2
13	Disagree 4	1	3.2	7	18.4	4	11.4	9	19.6	3	5.6	6	14.3	30	12.2
16	Disagree 5 (Strongly)	9	29.0	7	18.4	10	28.6	13	28.3	19	35.2	11	26.2	69	28.0
	(Disagree sub-total)	(17	54.8)	(24	63.1)	(18	51.5)	(24	52.3)	(35	64.9)	(32	76.2)	(150	61.0)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	9.7		8.9		9.1		9.5		9.8		10.3		9.6	

With 5 and 240 d. f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .3507.

Federal government action indicated the importance of civil defense

To determine a person's perception of whether or not the importance of civil defense can be measured by the action taken by the federal government each respondent was asked whether he "agreed" or "disagreed" with the following statement: "The best measure of the importance of civil defense can be found in the amount of action taken by our federal government." Each respondent was also asked the extent to which he agreed or disagreed with the statement. The responses are recorded in Table 8.23.

Using an analysis of variance statistical test no significant difference was found among the mean scores of the six adoption stages. Approximately two-thirds to three-fourths of the individuals in each adoption stage agreed with the statement. Conclusion: The perception that federal government action is the best measure for civil defense is not statistically related to stage of public fallout shelter adoption.

Table 8.23. The best measure of the importance of civil defense can be found in the amount of action taken by our federal government.

Code	Government action indicates the importance of civil defense	Stage of Adoption													
		(1)		(2)		(3)		(4)		(5)		(6)			
		UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	TOTAL % of No. 246							
0	Disagree 5 (Strongly)	1	3.2	3	7.9	4	11.4	4	8.7	2	3.7	3	7.1	17	6.9
3	Disagree 4	2	6.5	1	2.6	-	-	1	2.2	1	1.9	1	2.4	6	2.4
5	Disagree 3	1	3.2	2	5.3	2	5.7	4	8.7	6	11.1	3	7.1	18	7.3
6	Disagree 2	1	3.2	1	2.6	2	5.7	1	2.2	1	1.9	2	4.8	8	3.3
7	Disagree 1 (Weakly)	1	3.2	-	-	3	8.6	-	-	1	1.9	3	7.1	8	3.3
	(Disagree sub-total)	(6	19.4)	(7	18.4)	(11	31.4)	(10	21.7)	(11	20.4)	(12	28.6)	(57	23.2)
8	Undecided or don't know	4	12.9	1	2.6	4	11.4	1	2.2	1	1.9	2	4.8	13	5.3
9	Agree 1 (Weakly)	-	-	2	5.3	-	-	1	2.2	-	-	2	4.8	5	2.0
10	Agree 2	6	19.4	6	15.8	1	2.9	6	13.0	3	5.6	4	9.5	26	10.6
11	Agree 3	8	25.8	6	15.8	4	11.4	8	17.4	13	24.1	7	16.7	46	18.7
13	Agree 4	3	9.7	10	26.3	7	20.0	10	21.7	11	20.4	4	9.5	45	18.3
16	Agree 5 (Strongly)	4	12.9	6	15.8	8	22.9	10	21.7	15	27.8	11	26.2	54	22.0
	(Agree sub-total)	(21	67.7)	(30	78.9)	(20	57.1)	(35	76.1)	(42	77.8)	(28	66.7)	(176	71.6)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	9.8	10.5	9.9	10.5	10.5	12.3	10.2	10.5			10.2	10.5		

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .6087.



### Some General Civil Defense Attitudes

In this section five attitudes pertaining to general civil defense statements are compared to stage of public fallout shelter adoption. Three of the attitudes are related to arguments that have often been discussed in the civil defense dialogue that has been carried out in the United States. These three arguments are: (1) that civil defense activities are a waste of money and human resources that could be better spent on working toward peace, (2) that effective civil defense measures will make people feel more secure and thus more willing to wage war, (3) that civil defense programs in the United States have been too neglected. The fourth attitude ascertained is an individual's perception of the role citizens should play in encouraging their Congressmen to support civil defense legislation. The fifth attitude explores the extent to which the respondent perceives himself as having community responsibility in the area of civil defense.

Civil defense activities are a waste of money and human energy

One of the ideas often debated in discussions of nuclear war and civil defense is the concern as to whether or not civil defense activities may be a waste of money which could better be spent on working towards peace. Neither position is debated in this report. The concern here is to determine to what extent, if any, a person's belief on this argument is related to stage of public fallout shelter adoption.

To determine the degree to which an individual perceived civil defense activities as a waste of money and human resources each respondent was asked whether he "agreed" or "disagreed" with the following statement: "Civil defense activities are nothing but a waste of money and human energy that could better be spent on working towards peace." Each respondent was also asked the extent to which he agreed or disagreed with the statement. Their responses are recorded in Table 8.24.

Using an analysis of variance statistical test a significant difference was found among mean response scores of the six stages of adoption. Individuals in the latter stages of adoption more frequently disagreed with the statement than did individuals in the earlier stages. The percentage of individuals disagreeing with the statement increases in each stage as one goes through the stages (see disagree subtotals). That is, individuals in the latter stages do not perceive civil defense activities as a waste of money and human energy that could better be spent on working towards peace while individuals in the earlier stages are more likely to perceive civil defense activities as a waste.

Conclusion: The perception of civil defense activities being a waste of money and human energy is statistically related to stage of adoption. Individuals who more strongly believe civil defense activities are a waste of money and human energy are in the earlier stages of adoption, while individuals who believe civil defense activities are not a waste of money and human energy are proportionately more frequent in the latter stages of adoption.

Table 8.24. Civil defense activities are nothing but a waste of money and human energy that could better be spent on working towards peace.

Code	Civil defense activities are a waste of money and human energy	Stage of Adoption													
		(1)		(2)		(3)		(4)		(5)		(6)			
		No.	% of	No.	% of	No.	% of	No.	% of	No.	% of	No.	% of		
0	Agree 5 (Strongly)	4	12.9	2	5.3	4	11.4	3	6.5	4	7.4	1	2.4	18	7.3
3	Agree 4	1	3.2	3	7.9	1	2.9	-	-	2	3.7	-	-	7	2.8
5	Agree 3	5	16.1	1	2.6	1	2.9	1	2.2	-	-	-	-	8	3.3
6	Agree 2	1	3.2	1	2.6	-	-	1	2.2	-	-	-	-	3	1.2
7	Agree 1 (Weakly)	3	9.7	3	7.9	-	-	1	2.2	-	-	-	-	7	2.8
	(Agree sub-total)	(14)	(45.1)	(10)	(26.3)	(6)	(17.2)	(6)	(13.1)	(6)	(11.1)	(1)	(2.4)	(43)	(17.4)
8	Undecided or don't know	3	9.7	-	-	2	5.7	3	6.5	1	1.9	1	2.4	10	4.1
9	Disagree 1 (Weakly)	1	3.2	-	-	3	8.6	-	-	2	3.7	5	11.9	11	4.5
10	Disagree 2	2	6.5	5	13.2	3	8.6	3	6.5	-	-	2	4.8	15	6.1
11	Disagree 3	3	9.7	4	10.5	2	5.7	3	6.5	5	9.5	7	16.7	24	9.8
13	Disagree 4	2	6.5	7	18.4	6	17.1	12	26.1	8	14.8	8	19.0	43	17.5
16	Disagree 5 (Strongly)	6	19.4	12	31.6	13	37.1	19	41.3	32	59.3	18	42.9	100	40.7
	(Disagree sub-total)	(14)	(45.1)	(28)	(73.1)	(27)	(77.1)	(37)	(80.4)	(47)	(87.1)	(40)	(95.3)	(193)	(78.6)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	7.8		10.8		11.1		12.2		13.0		13.0		11.7	

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 4.3076.

Civil defense measures make people willing to wage war

One of the arguments used against civil defense activities is the idea that the establishment of civil defense measures will make people feel more secure and thus more willing to wage war. The relationship between a person's belief on this argument and stage of adoption is discussed below and summarized in Table 8.25.

To determine the degree to which an individual believes civil defense measures make people more willing to wage war, each respondent was asked whether he "agreed" or "disagreed" with the following statement: "Effective civil defense measures will make the people feel more secure and thus more willing to wage war." Each respondent was also asked the extent to which he agreed or disagreed with the statement.

Using an analysis of variance statistical test no significant difference was found among the stages of adoption. Between 70 and 80 percent of the individuals in each stage disagreed with the statement.

Conclusion: The perception that effective civil defense measures will make people feel more secure and thus more willing to wage war is not statistically related to stage of adoption. Approximately three-fourths of the individuals in each adoption stage indicated civil defense measures would not make people more willing to wage war.

Table 8.25. Effective civil defense measures will make the people feel more secure and thus more willing to wage war.

Code	CD measures make people willing to wage war	Stage of Adoption										TOTAL % of No. 246			
		(1)		(2)		(3)		(4)		(5)			(6)		
		UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	No.	% of	No.	% of		No.	% of	
0	Agree 5 (Strongly)	3	9.7	1	2.6	3	8.6	2	4.3	2	3.7	-	-	11	4.5
3	Agree 4	1	3.2	1	2.6	-	-	1	2.2	4	7.4	-	-	7	2.8
5	Agree 3	1	3.2	3	7.9	2	5.7	4	8.7	4	7.4	1	2.4	15	6.1
6	Agree 2	-	-	2	5.3	-	-	4	8.7	-	-	2	4.8	8	3.3
7	Agree 1 (Weakly)	-	-	-	-	-	-	2	4.3	1	1.9	4	9.5	7	2.8
	(Agree sub-total)	( 5	16.1)	( 7	18.4)	( 5	14.3)	(13	28.2)	(11	20.4)	( 7	16.7)	( 48	19.5)
8	Undecided or don't know	4	12.9	1	2.6	2	5.7	-	-	1	1.9	1	2.4	9	3.7
9	Disagree 1 (Weakly)	1	3.2	2	5.3	1	2.9	1	2.2	1	1.9	1	2.4	7	2.8
10	Disagree 2	3	9.7	2	5.3	1	2.9	2	4.3	1	1.9	3	7.1	12	4.9
11	Disagree 3	3	9.7	6	15.8	5	14.3	3	6.5	8	14.8	4	9.5	29	11.8
13	Disagree 4	2	6.5	7	18.4	2	5.7	5	10.9	8	14.8	7	16.7	31	12.6
16	Disagree 5 (Strongly)	13	41.9	13	34.2	19	54.3	22	47.8	24	44.4	19	45.2	110	44.7
	(Disagree sub-total)	(22	71.0)	(30	79.0)	(28	80.1)	(33	71.7)	(42	77.8)	(34	80.9)	(189	76.8)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	10.8		11.9		12.3		11.8		11.9		12.3		11.9	

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = .4345.

Civil defense in the United States has been too neglected

Advocates of an expanded civil defense program have argued that civil defense in the United States has been too neglected. The relationship between a person's attitude on this matter and his stage of adoption is discussed below and summarized in Table 8.26.

To determine the degree to which an individual believes civil defense measures have been too neglected in the United States, each respondent was asked whether he "agreed" or "disagreed" with the following statement: "Civil defense programs in the United States have been too neglected." Each respondent was also asked the extent to which he agreed or disagreed with the statement.

Using an analysis of variance statistical test no significant difference was found among the stages of adoption. There is no linear trend percentage pattern among the adoption stages. From approximately one-half to three-fourths of the individuals of each adoption stage agreed with the statement.

Conclusion: The perception that civil defense in the United States has been too neglected is not statistically related to public fallout shelter stage of adoption.

Table 8.26. Civil defense programs in the United States have been too neglected.

Code	Civil defense in United States has been neglected	Stage of Adoption						TOTAL % of No. 246							
		(1)		(2)		(3)			(4)		(5)		(6)		
		UNAWARE % of No. 31	INFORMATION % of No. 38	AWARE % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54		HOME ADOPTION, PLAN % of No. 42	TOTAL % of No. 246					
0	Disagree 5 (Strongly)	2	6.5	2	5.3	1	2.9	3	6.5	10	18.5	4	9.5	22	8.9
3	Disagree 4	2	6.5	3	7.9	4	11.4	3	6.5	7	13.0	3	7.1	22	8.9
5	Disagree 3	-	-	3	7.9	3	8.6	4	8.7	5	9.3	1	2.4	16	6.5
6	Disagree 2	3	9.7	3	7.9	1	2.9	3	6.5	2	3.7	1	2.4	13	5.3
7	Disagree 1 (Weakly)	-	-	1	2.6	-	-	2	4.3	2	3.7	-	-	5	2.0
	(Disagree sub-total)	(7	22.6)	(12	31.6)	(9	25.7)	(15	32.6)	(26	48.1)	(9	21.4)	(78	31.7)
8	Undecided or don't know	6	19.4	1	2.6	5	14.3	5	10.9	2	3.7	3	7.1	22	8.9
9	Agree 1 (Weakly)	1	3.2	-	-	1	2.9	1	2.2	3	5.6	2	4.8	8	3.3
10	Agree 2	-	-	3	7.9	-	-	2	4.3	1	1.9	2	4.8	8	3.3
11	Agree 3	4	12.9	7	18.4	4	11.4	7	15.2	6	11.1	7	16.7	35	14.2
13	Agree 4	4	12.9	5	13.2	3	8.6	10	21.7	7	13.0	7	16.7	36	14.6
16	Agree 5 (Strongly)	9	29.0	10	26.3	13	37.1	6	13.0	9	16.7	12	28.6	59	24.0
	(Agree sub-total)	(18	58.1)	(25	65.8)	(21	60.0)	(26	56.5)	(26	48.1)	(30	71.4)	(146	59.3)
	Number and % of Total	31	12.6	38	15.4	35	14.2	45	18.7	54	22.0	42	17.1	246	
	Mean	10.5		10.1		10.7		9.5		7.9		10.6		9.7	

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 2.0812.

### Influence Congressmen to support civil defense

To determine the respondent's perception of the extent to which people should try to influence their Congressmen to support civil defense legislation, each person was asked whether he "agreed" or "disagreed" with the following statement: "Citizens should try to influence their Congressmen to support civil defense legislation." Each respondent was also asked the extent to which he agreed or disagreed with the statement. Responses are recorded in Table 8.27.

Using an analysis of variance statistical test no significant difference was found among the stages of adoption. However, more individuals in the latter stages of the adoption process agreed with the statement than did individuals in the earlier stages of the adoption process. Even then more individuals in the earlier adoption stages agreed with the statement than disagreed with the statement.

Conclusion: The perception that citizens should try to influence their Congressmen to support civil defense legislation is not statistically related to stage of adoption. However, more individuals in the latter adoption stages agreed that citizens should try to influence their Congressmen than did individuals in the earlier adoption stages.



Table 8.27. Citizens should try to influence their Congressmen to support civil defense legislation.

Code	Influence Congressmen to support CD	Stage of Adoption										TOTAL % of 246			
		(1)		(2)		(3)		(4)		(5)			(6)		
		UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42								
0	Disagree 5 (Strongly)	-	2	5.3	5	14.3	3	6.5	3	5.6	2	4.8	15	6.1	
3	Disagree 4	1	3.2	2	5.3	-	-	-	1	1.9	2	4.8	6	2.4	
5	Disagree 3	1	3.2	-	-	5	14.3	-	5	9.3	1	2.4	12	4.9	
6	Disagree 2	5	16.1	3	7.9	-	-	3	6.5	1	1.9	2.4	13	5.3	
7	Disagree 1 (Weakly)	-	-	2	5.3	2	5.7	1	2.2	-	-	-	5	2.0	
	(Disagree sub-total)	( 7	22.5)	( 9	23.8)	(12	34.3)	( 7	15.2)	(10	19.1)	( 6	14.3)	( 51	20.7)
8	Undecided or don't know	3	9.7	1	2.6	4	11.4	2	4.3	4	7.4	1	2.4	15	6.1
9	Agree 1 (Weakly)	2	6.5	3	7.9	-	-	2	4.3	3	5.6	2	4.8	12	4.9
10	Agree 2	6	19.4	6	15.8	1	2.9	4	8.7	2	3.7	4	9.5	23	9.3
11	Agree 3	5	16.1	10	26.3	5	14.3	15	32.6	11	20.4	6	14.3	52	21.1
13	Agree 4	3	9.7	4	10.5	7	20.0	8	17.4	6	11.1	8	19.0	36	14.6
16	Agree 5 (Strongly)	5	16.1	5	13.2	6	17.1	18	17.4	18	33.3	15	35.7	57	23.2
	(Agree sub-total)	(21	67.8)	(28	73.6)	(19	54.1)	(37	80.4)	(40	73.7)	(35	83.4)	(180	73.1)
	Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1	246	
	Mean	10.3	9.7	9.0	10.8	11.1	11.7	10.5							

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 1.9331.

An Individual's Community Responsibility in Civil Defense

A person's perception of the responsibility he has in his community for civil defense is compared to stage of public fallout shelter adoption in Table 8.28. To determine the extent to which a person perceives he has community responsibility in civil defense, each respondent was asked: "Do you believe that you have any community responsibility in the area of civil defense?" The four response choices are listed in Table 8.27. Using an analysis of variance statistical test a significant difference was found among adoption stages. Individuals in the last four stages perceived themselves as having more community responsibility than individuals in the first two stages. One-third of the individuals in the Unaware stage (32.3 percent) indicated they had no community responsibility for civil defense. Conclusion: The perception an individual has of his own community responsibility for civil defense is statistically related to stage of adoption. A greater proportion of individuals in the later stages of adoption perceived themselves as having more community responsibility in civil defense than did individuals in the earlier stages of adoption.

Table 8.28. Do you believe that you have any community responsibility in the area of civil defense?

Code	Community responsibility in civil defense	Stage of Adoption						TOTAL
		(1)	(2)	(3)	(4)	(5)	(6)	
		UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION PLAN % of No. 42	% of No. 246
0	I have no comm. res.	10 32.3	6 15.8	-	4 8.7	3 5.6	3 7.1	26 10.6
2	I have very little comm. res.	4 12.9	7 18.4	6 17.1	5 10.9	6 11.1	-	28 11.4
4	I have some comm. res.	14 45.2	23 60.5	20 57.1	32 69.6	35 64.8	31 73.8	155 63.0
6	I have a major comm. res.	3 9.7	2 5.3	9 25.7	5 10.9	10 18.5	8 19.0	37 15.0
	Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	246
	Mean	2.6	3.1	4.2	3.7	3.9	4.1	3.6

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 5.3276.

### Government Policy and the Use of Nuclear Weapons

In this section an individual's attitudes about the United States' use of nuclear weapons in seven possible decision situations are presented. The statements delineating the seven different decision situations are listed in Table 8.29. The seven world situations have been adapted from a research study conducted by Putney and Middleton (7). The percentage of individuals in each adoption stage who "agree" that the United States should use nuclear weapons to cope with each of the seven decision situations is also recorded in the table. The number of individuals who "disagreed" or "don't know" are also recorded.

Two general conclusions can be drawn from the findings in Table 8.29. First, as the threat to the United States increases individuals in all stages of adoption are more willing for the United States to use nuclear weapons. Second, individuals in the latter stages of adoption are less prone to want to use nuclear weapons in a situation than individuals in the earlier stages of adoption. That is, individuals in the earlier stages were more prone to use our nuclear weapons than individuals in the latter stages of adoption. In both decision situations 3 and 4 a significant difference was found among the stages of adoption. The calculated F values for the seven attitude statements presented in Table 8.29 are stated in the summary of this chapter.

Table 8.29. Government policy and the use of nuclear weapons.

	Stage of Adoption													
	(1)		(2)		(3)		(4)		(5)		(6)		TOTAL	
	UNAWARE % of No.	31	AWARE INFORMATION % of No.	38	EVALUATION % of No.	35	FAMILY DOWNTOWN ADOPTION % of No.	46	HOME ADOPTION, NO PLAN % of No.	54	HOME ADOPTION, PLAN % of No.	42	No.	246
1. If the Communists attempt to take over any other country no matter how small, we should use our nuclear weapons to stop them.														
Disagree	20	64.5	30	78.9	25	71.5	38	82.6	43	79.6	36	85.7	192	78.0
Don't know	3	9.7	2	5.3	2	5.7	-	-	-	-	-	-	7	2.8
Agree	8	25.9	6	15.7	8	22.9	8	17.4	11	20.4	6	14.3	47	19.1
2. If the Communists interfere with important rights of the United States, such as access to Berlin, we should use our nuclear weapons to stop them.														
Disagree	17	54.8	27	71.1	24	68.6	38	82.6	41	75.9	32	76.2	179	72.8
Don't know	4	12.9	1	2.6	2	5.7	-	-	-	-	-	-	7	2.8
Agree	10	32.2	10	26.3	9	17.4	8	17.4	13	23.8	10	23.8	60	24.4
3. If the Communists attack any ally of the United States with conventional weapons, we should retaliate with our nuclear weapons. <sup>a</sup>														
Disagree	20	64.5	31	81.6	27	77.1	42	91.3	47	87.0	36	85.7	203	82.5
Don't know	4	12.9	1	2.6	2	5.7	1	2.2	-	-	-	-	8	3.3
Agree	7	22.6	6	15.8	6	17.1	3	6.5	7	13.0	6	14.3	35	14.2
4. If the Communists attack the <u>United States with conventional weapons</u> , we should retaliate with our nuclear weapons. <sup>a</sup>														
Disagree	14	45.2	20	52.6	22	62.9	36	78.3	35	64.8	30	71.4	157	63.8
Don't know	4	12.9	-	-	2	5.7	2	4.3	-	-	1	2.4	9	3.7
Agree	13	41.9	18	47.4	11	31.4	8	17.4	19	35.2	11	26.2	80	32.5
5. If the Communists attack an <u>ally of the United States with nuclear weapons</u> , we should retaliate with our nuclear weapons.														
Disagree	4	12.9	2	5.3	6	17.1	7	15.2	8	14.8	7	16.7	34	13.8
Don't know	3	9.7	1	2.6	2	5.7	-	-	-	-	-	-	6	2.4
Agree	24	77.4	35	92.1	27	77.1	39	84.8	46	85.2	35	83.3	206	83.7
6. If the Communists attack the United States with nuclear weapons, we should retaliate with our nuclear weapons.														
Disagree	1	3.2	-	-	1	2.9	1	2.2	2	3.7	1	2.4	6	2.4
Don't know	2	6.5	-	-	2	5.7	-	-	-	-	-	-	4	1.6
Agree	28	90.3	38	100.0	32	91.4	45	97.8	52	96.3	41	97.6	236	95.9
7. In view of the present world situation and the threats of Communism we should use our nuclear weapons to strike them before they strike us.														
Disagree	23	74.2	28	73.7	28	80.0	38	82.6	48	88.9	37	88.1	202	82.1
Don't know	4	12.9	1	2.6	2	5.7	1	2.2	1	1.9	-	-	9	3.7
Agree	4	12.9	9	23.7	5	14.3	7	15.2	5	9.3	5	11.9	35	14.2

<sup>a</sup>A significant F value was found among adoption stages for this statement.

## Summary of Chapter 8

A knowledge of the relationship or lack of relationship between attitudes and stage of adoption should help civil defense change agents develop an attitude profile of the people who have been motivated to make civil defense decisions as well as profiles of people who have not yet been motivated to make civil defense decisions. It may also aid in constructing a logical rationale for present adoption behavior and help explain non-adoptive behavior. These data may also be of use in planning future civil defense programs. Thirty-five different attitude variables were compared to stage of public fallout shelter adoption. These attitude variables were categorized into six general attitude areas.

The first attitude area was the individual's perception of the situation in which he is making his civil defense decisions, that is, his perception of threat at the present time. Eight attitude variables were measured in this category. Of these eight, two (timing of war and thermonuclear war means the end of democracy) had a strong negative relation to stage of adoption, i.e., those thinking war was more imminent and believed most strongly thermonuclear war means the end of democracy were least likely to have adopted the idea of using public fallout shelters. Two variables (likelihood of war and likelihood of local community death and destruction in war) had a minor negative relationship to stage of adoption, i.e., a larger proportion of individuals in the earlier stages of adoption perceived war and local community death and destruction being more likely. The variable concern about fallout had a slight positive relationship to stage of adoption. The remaining three variables (likelihood of conventional war, likelihood of war escalation, and likelihood of fallout danger in the local community) had no apparent relationship to stage of adoption.

The second attitude area consisted of nine variables measuring an individual's perception of the innovation, that is, fallout shelters. Five of the attitudes were highly related to stage of adoption when formal statistical tests were used as the criteria of relationship; in general, if an individual perceived that fallout shelters were like insurance, that all people should pay taxes for fallout shelters, and that a city sales tax was needed for public shelters he was more likely to be in the later stages of adoption; and if an individual perceived that we should not abandon a fallout shelter program and that shelter measures are not obsolete he was more likely to be in the later stages of adoption. Two attitudes indicated a slight relationship to stage of adoption; in general, if an individual perceived fallout shelters were desirable he was more likely

to be in the later adoption stages; and if an individual perceived highway construction should not be curtailed for civil defense he was more likely in the later stages of adoption. Two attitudes (a public shelter program is worth its cost and future schools should have public fallout shelters) had no apparent relationship to stage of adoption.

The third attitude area was an individual's perception of the adequacy of civil defense. Two attitude variables were measured. Individuals in the later stages of adoption more often perceived the local (city) civil defense program as adequate. Individual perceptions of the adequacy of the total (United States) civil defense program had no apparent relationship to stage of adoption.

The fourth attitude area consisted of four variables measuring an individual's perception of the government's role in civil defense. There was no apparent relationship between any of the four attitudes measured and stage of public fallout shelter adoption. The four attitudes were: Government should require people to prepare for a nuclear attack, federal government should increase civil defense activities, civil defense should be handled by the military, and government action indicated the need for civil defense.

The fifth attitude area measured an individual's perceptions of some general civil defense ideas. Two of the attitudes were statistically related to stage of adoption: in general if individuals believed civil defense was a waste of time and money they were more likely to be in the early stages of adoption and if they believed they had a community responsibility for civil defense they were more likely to be in the later stages of adoption. One attitude had a slight relation to stage of adoption: individuals in the later stages of adoption were slightly more favorable to the idea of encouraging their Congressmen to support civil defense. Two of the general civil defense attitudes, that civil defense encourages people to wage war and that civil defense in the United States has been too neglected, had no apparent relationship to stage of adoption.

The sixth attitude area measured an individual's perception of our government's policy concerning the use of nuclear weapons in seven decision situations. In four of the seven decision situations individuals in the early adoption stages were more prone to use nuclear weapons than individuals in the latter stages of adoption. In the other three decision situations there were no apparent differences among adoption stages.

Table 8.30 Summary: Attitude Variables and Stage of Adoption

Attitude Variable <sup>a</sup>	Relationship to Stage of Adoption			
	Statistical at .05 level		Percentage Trend	
	Test	Tabular Value	Calculated Value	Positive Relation to Adoption <sup>b</sup>
<u>Perception of the situation: threat</u>				
1. High likelihood of war	F	2.25	.9572	Negative tendency
2. War will occur soon	F	2.25	2.5239 <sup>c</sup>	Strong negative
3. High likelihood of conventional war	F	2.25	1.8052	None apparent
4. High likelihood of war escalation	F	2.25	.5354	None apparent
5. High likelihood of fallout danger in local community in time of war	F	2.25	.2466	None apparent
6. High likelihood of local community death and destruction in time of war	F	2.25	1.6680	Negative tendency
7. Thermonuclear war means the end of democracy	F	2.25	3.9130 <sup>c</sup>	Strong negative
8. High concern about fallout	F	2.25	1.7299	Positive tendency
<u>Perception of the innovation: fallout shelters</u>				
9. Fallout shelters are desirable	F	2.25	.4433	Positive tendency
10. Fallout shelters are like insurance	F	2.25	3.9791 <sup>c</sup>	Strong positive
11. Abandon fallout shelter program	F	2.25	3.8656 <sup>c</sup>	Strong negative
12. Public shelter program is worth cost	F	2.25	1.3913	None apparent
13. Any public shelter measures are obsolete	F	2.25	2.2791 <sup>c</sup>	Strong negative
14. Should all pay taxes for shelters	F	2.25	5.1653 <sup>c</sup>	Strong positive
15. Highway construction should be curtailed for civil defense	$\chi^2$	11.07	7.22	Negative tendency
16. City sales tax for public shelters is needed	$\chi^2$	11.07	12.08 <sup>c</sup>	Strong positive
17. Should be public shelters in all future schools	$\chi^2$	11.07	13.68 <sup>c</sup>	None apparent
<u>Adequacy of the civil defense program</u>				
18. United States CD program is adequate	F	2.25	.9615	None apparent
19. Local CD program is adequate	F	2.25	.9185	Positive tendency

(Continued)

Table 8.30 Summary: Attitude Variables and Stage of Adoption (Continued)

Attitude Variable <sup>a</sup>	Relationship to Stage of Adoption			Percentage Trend Positive Relation to Adoption <sup>b</sup>
	Statistical Test	at .05 level Tabular Value	Calculated Value	
<u>Government's role in civil defense</u>				
20. Government should require people to prepare for attack	F	2.25	.6042	None apparent
21. Federal government should increase CD activities	F	2.25	.8051	None apparent
22. CD should be handled by the military	F	2.25	.3507	None apparent
23. Government action indicates CD need	F	2.25	.6087	None apparent
<u>Some general civil defense attitudes</u>				
24. CD is a waste of time and money	F	2.25	4.3076 <sup>c</sup>	Strong negative
25. CD encourages people to wage war	F	2.25	.4345	None apparent
26. CD in U.S. has been too neglected	F	2.25	2.0812	None apparent
27. Should encourage Congressmen to support CD	F	2.25	1.9331	Positive tendency
28. Individual perceives self with community CD responsibility	F	2.25	5.3276 <sup>c</sup>	Strong positive
<u>Government policy and the use of nuclear weapons</u>				
29. Communists take over a country, U.S. use nuclear weapons	F	2.25	.8749	Negative tendency
30. Communists threaten U.S., U.S. use nuclear weapons	F	2.25	1.7930	None apparent
31. Ally hit conventionally, U.S. use nuclear weapons	F	2.25	2.2684 <sup>c</sup>	Negative tendency
32. U.S. hit conventionally, U.S. use nuclear weapons	F	2.25	3.2736 <sup>c</sup>	Negative tendency
33. Ally hit with nuclear weapons, U.S. use nuclear weapons	F	2.25	.9052	None apparent
34. U.S. hit with nuclear weapons, U.S. use nuclear weapons	F	2.25	1.4632	None apparent
35. U.S. should strike first with nuclear weapons	F	2.25	1.7845	Negative tendency

<sup>a</sup>Attitude statements in this table are paraphrasings of actual wordings. For actual wordings see the table headings in the body of the chapter.

<sup>b</sup>Positive relation to adoption means people agree with attitude variables as stated in this table. Thus if people who perceived a high likelihood of war were in the latter stages of adoption there would be a positive relationship with stage of adoption. Actual findings in this case are a negative tendency, i.e., individuals perceiving a high likelihood of war tended to be in the earlier adoption stages.

<sup>c</sup>Statistically significant value.



## Chapter 9

## SOURCES OF CIVIL DEFENSE INFORMATION

## Introduction

The previous three chapters have been concerned with the relation of demographic, knowledge, and attitude variables to stage of public fallout shelter adoption. In this chapter the sources from which people indicated they have obtained civil defense information are analyzed. As was stated in Chapter 2, many change agents have attempted to determine the relative importance of various information sources in obtaining people's acceptance of new ideas and innovations. The findings presented in this chapter focus on the kinds of information sources people said they used to obtain information about civil defense.

In the first section the frequency with which individuals stated they used each of 18 specific sources of information is presented.

In the second section sources of information used by individuals are compared to public fallout shelter stage of adoption. In making the comparison of information sources to stage of adoption, a number of different categorizations of the sources of information are used. One method is categorizing sources of information into the four source of information categories of mass media, government, commercial, and informal. A second method of categorizing sources is that of personal and impersonal sources. A third method of comparing information sources to stage of adoption is to determine the average number of information sources used by individuals in each adoption stage. A fourth method is to attempt to determine the probable technological competency of information sources and then determine if individuals in the different adoption stages use technologically competent sources differentially.

In the third section the number of individuals seeking civil defense information is analyzed.

In the fourth section the degree to which a person perceives he has adequate information on what he should do in case of nuclear attack is related to stage of adoption.

### Civil Defense Information Sources

To determine the sources from which individuals had received civil defense information each respondent was shown a list of 17 possible information sources and asked to indicate each source from which he had received civil defense information. Each respondent was also asked to list any civil defense source from which he had obtained civil defense information that was not among the 17 information source items listed. Occupation-related sources were the major group of sources added to the list. A few other sources were also listed. The 18 information sources, which includes occupation-related sources, are listed in Table 9.1 in the order in which they were most frequently named by the respondents. Column 1 indicates the frequency rank order of the information sources. In column 2 the percentage of the total 246 respondents indicating they had received information from each source is presented.

The two sources most frequently named were television and newspapers. Both of these sources were indicated by 86 percent of the 246 respondents. Two-thirds of the respondents indicated radio as a source of information. Forty-four percent mentioned booklets and pamphlets put out by the Office of Civil Defense. Approximately 42 percent mentioned communication with personal friends, relatives, and neighbors. Forty percent said they obtained information from popular general magazines. Approximately one-fourth said they had obtained information from popular news magazines. Fifteen percent of the respondents said organizations to which they belong had discussed civil defense in at least one meeting of the organization. Thirteen percent said they had visited a fallout shelter. Thirteen percent said they had received information about civil defense in church sermons or meetings. Nine percent said they had attended meetings conducted by civil defense personnel. All other sources were indicated by eight percent or less of the respondents.

Each respondent was also asked to indicate which civil defense source of information had been most useful to him. In column 3 of Table 9.1 the percentage of the total 246 respondents naming each source as most useful is recorded. The rank order of the most useful sources of civil defense information is recorded in column 4 of Table 9.1.

Thirty-nine percent of the respondents said that the most useful source of information was television news and special programs. Daily or weekly newspapers ranked as the second most useful source of information, named by 17.5 percent of

the respondents. Approximately the same percentage of respondents, 16.7 percent, said the most useful source of information was booklets and pamphlets put out by the Office of Civil Defense. Each of the remaining sources was named as most useful by less than five percent of the respondents.

Table 9.1. Specific sources of civil defense information.

Source of Information	Frequency Named (1) (2)		Most Useful Source (3) (4)	
	Rank	Percent	Rank	Percent
Television news and special programs . . . . .	1	86	1	39.0
Daily or weekly newspapers . . . . .	2	86	2	17.5
Radio news and special programs . . . . .	3	67	4	4.5
Booklets and pamphlets put out by the Office of Civil Defense . . . . .	4	44	3	16.7
Communication with personal friends, relatives, neighbors . . . . .	5	42	10	1.2
Popular general magazines such as Life, Look, Saturday Evening Post, Reader's Digest . . . . .	6	40	5	3.3
Popular news magazines such as U.S. News and World Report, Newsweek, Time . . . . .	7	23	8	2.4
Meetings conducted by organizations to which you belong . . . . .	8	15	6	2.8
Visited a fallout shelter . . . . .	9	13	8	2.4
Church sermons or meetings . . . . .	10	13	14	.4
Meetings conducted by civil defense personnel . . . . .	11	9	6	2.8
Civil defense kits put out by the Office of Civil Defense . . . . .	12	8	12	.8
Books . . . . .	13	7	14	.4
Professional journals . . . . .	14	6	15	.0
Publications distributed by the County Extension Office . . . . .	15	5	16	.0
Occupation-related source . . . . .	16	5	10	1.2
Salesmen or dealers of civil defense equipment or supplies such as fallout shelters or radiation detection equipment . . . . .	17	4	12	.8
Specialized news magazines such as Commentary, The Nation, The Reporter, The New Republic . . . . .	18	2	16	0

## Sources of Information by Stage of Adoption

The sources of civil defense information used by the total sample of 246 respondents have been summarized in the previous section. In this section the sources of information used by individuals in each of the adoption stages are discussed. In Chapter 2, two methods that have been used by researchers to categorize the various sources of information were explained. The first method was that of categorizing information sources into four general categories: mass media, including radio, television, newspapers, etc.; government sources, including government agencies such as civil defense; commercial sources, including dealers and salesmen; and informal sources, including neighbors, friends, and relatives. The second method of categorization has been on the basis of personal and impersonal sources of information. Each of these two bases of categorization is developed below for this study and is then used as the basis for comparing sources of information by stage of adoption.

Two other frameworks are also developed so that sources of information used by individuals in different adoption stages can be compared and evaluated. One framework is to compare the mean number of different kinds of information sources individuals in each adoption stage have used. The second framework delineates, from one set of assumptions, the technological competence of the information sources used by individuals in each adoption stage.

Method 1. Sources of information by four general source of information categories

The 18 civil defense information sources listed in Table 9.1 were grouped into the four general information categories as follows:

Mass media sources:

1. Television news and special programs
2. Daily or weekly newspapers
3. Radio news and special programs
4. Popular general magazines such as Life, Look, Saturday Evening Post, Reader's Digest
5. Popular news magazines such as U.S. News and World Report, Newsweek, Time
6. Specialized news magazines such as Commentary, The Nation, The Reporter, The New Republic
7. Books
8. Professional journals

Government sources:

1. Booklets and pamphlets put out by the Office of Civil Defense
2. Civil defense kits put out by the Office of Civil Defense
3. Publications distributed by the County Extension Office
4. Meetings conducted by civil defense personnel
5. Visited a fallout shelter

Commercial sources:

1. Salesmen or dealers of civil defense equipment or supplies such as fallout shelters or radiation detection equipment.

Informal sources:

1. Communication with personal friends, relatives, neighbors
2. Meetings conducted by organizations to which you belong
3. Church sermons or meetings
4. Occupation-related source

The number of individuals in each stage of public fallout shelter adoption who indicated using a source in each of these four categories is recorded in Table 9.2. If an individual used more than one source in one of the four general categories he is counted only once in that category in the table. For example, if an individual indicated using both television and radio, he would still be counted only once in the mass media category. Thus, the percents listed in Table 9.2 refer to the number of individuals in each adoption stage who indicated one or more sources of information in that source of information category. By subtracting the percentage of each source of information category from 100 one finds the percentage of people in each adoption stage who did not indicate using a source of information in that information category.

An analysis of the data in Table 9.2 finds that more individuals in the latter stages of adoption indicated the use of government sources of information than did individuals in the earlier stages of adoption. Approximately three-fourths of the individuals in the Home Adoption Plan stage (71.4 percent) indicated using at least one government source of information, while only 16 percent of the individuals in the Unaware stage indicated using a government information source. The percentage of individuals in the other four stages using government information sources ranged from 32 percent in the Aware-Information stage to 59 percent in the Family Downtown Adoption stage.

Approximately all the individuals in each adoption stage had obtained information from at least one mass media source of information. All of the individuals in the last three stages indicated a mass media source. Approximately 90 percent of the individuals in the Unaware and Evaluation stages indicated using mass media information sources.

More individuals in the latter stages of adoption had received information about civil defense in informal communication situations than individuals in the earlier stages of adoption. The differences among the stages, however, was not very large. Approximately 60 percent of the individuals in the Home Adoption Plan

stage indicated the use of informal sources, while approximately 42 percent of the individuals in the Unaware stage said they had discussed civil defense in informal situations. The percentage of individuals in the other four stages ranged between these two percentage values.

Only a few individuals in each adoption stage received information from commercial information sources. There was little difference among the first five stages as approximately 10 percent of the individuals in each of these stages indicated a commercial source. Approximately one-fourth of the individuals in the Home Adoption Plan stage indicated a commercial source of civil defense information.

Table 9.2. Number of individuals in each adoption stage using each of four general categories of information sources.

Four general categories of information sources	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
Government	5 16.1	12 31.6	20 57.1	27 58.7	29 53.7	30 71.4	123 50.0
Mass Media	28 90.3	37 97.4	31 88.6	46 100.0	54 100.0	42 100.0	238 96.7
Informal	13 41.9	17 44.7	19 54.3	21 45.7	30 55.6	26 61.9	126 51.2
Commercial	3 9.7	2 5.3	3 8.6	5 10.9	5 9.3	10 23.8	28 11.4



As was mentioned in the first section of this chapter each respondent was also asked to indicate which civil defense information source had been most useful to him. In Table 9.3 the number of individuals in each stage of adoption indicating which of the four general categories of information sources had been most useful is recorded.

Over two-thirds of the total respondents indicated mass media sources as most useful. Approximately one-fourth of the total respondents indicated government sources as most useful. Five percent indicated informal sources and less than one percent commercial sources. Over one-half the individuals in each stage indicated mass media as the most useful source of civil defense information. More individuals in the Unaware and Aware-Information stages listed mass media sources as most useful, 87.1 and 78.9 percent respectively, than any other stage. From 55 percent to 72 percent in the other four stages indicated mass media as the most useful source of information. Approximately one-third of the individuals in the Evaluation and Family Downtown Adoption stage indicated government sources as most useful. The percentage of individuals in the Home Adoption Plan stage indicating government sources as most useful was slightly less, 28.6 percent. Three percent of those in the Unaware stage indicated government s 35.

Table 9.3. Most useful civil defense source of information by stage of adoption.

Most useful civil defense source	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 47	
Government	1	7	11	16	10	12	57
Mass Media	27	30	19	28	39	26	169
Informal	-	1	2	2	5	3	13
Commercial	-	-	1	-	-	1	2
No source listed	3	-	2	-	-	-	5
Number and % of Total	31	38	35	46	54	42	246
	12.6	15.4	14.2	18.7	22.0	17.1	100.0

## Method 2. Personal and impersonal sources of information

The second method of categorizing civil defense information sources and comparing them to stage of adoption was that of differentiating between personal and im-personal sources of information. The number of individuals in each adoption stage indicating the use of at least one personal information source is recorded in row 1 of Table 9.4. The number of individuals in each adoption stage indicating at least one impersonal source is recorded in row 2 of Table 9.4. Personal sources in this report include three government information sources, one commercial source and four informal sources. These are:

### Government personal sources

1. Meetings conducted by civil defense personnel
2. Visited a fallout shelter
3. Military sources

### Commercial sources

1. Salesmen or dealers of civil defense equipment or supplies such as fallout shelters or radiation detection equipment

### Informal sources

1. Communication with personal friends, relatives, neighbors
2. Meetings conducted by organizations to which you belong
3. Church sermons or meetings
4. Occupation-related source

All of the other information sources were considered to be impersonal sources.

In Table 9.4 it can be noted that a somewhat larger proportion of individuals in the later stages of adoption indicated using personal sources of information than did individuals in the earlier adoption stages. However, approximately 50 percent of the individuals in the earlier stages indicated the use of personal sources of information. Almost every individual in each adoption stage indicated receiving some information from impersonal information sources.

Table 9.4. Number of individuals in each adoption stage using personal and impersonal information sources

Sources of information	Stage of Adoption						TOTAL No. 246 % of
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
Personal	16	19	23	24	31	29	142
Impersonal	27	38	33	46	54	42	240
	51.6	50.0	65.7	52.2	57.4	69.0	57.7
	87.1	100.0	91.4	100.0	100.0	100.0	97.6

In Table 9.5 the degree to which individuals in each stage of adoption indicated a personal or impersonal source of information as most useful is recorded.

Over 80 percent of the individuals in each stage of adoption indicated that impersonal sources of civil defense information were most useful to them. Over 90 percent of the individuals in the Unaware and Aware Information stages indicated impersonal sources as most useful. More individuals in the Home Adoption Plan stage, 19 percent), indicated personal sources as most useful than did individuals in any other stage. None of the individuals in the Unaware stage indicated a personal source as being most useful. Using a chi-square statistical test no significant relationship was found among the six adoption stages when a comparison was made between personal and impersonal sources of civil defense information as being most useful to them.

Table 9.5. Most useful personal and impersonal sources of information by stage of adoption.

Most useful civil defense source	Stage of Adoption						TOTAL % of No. 246	
	(1)	(2)	(3)	(4)	(5)	(6)		
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42		
Personal	-	3	5	5	8	8	29	11.8
Impersonal	28	35	28	41	46	34	212	86.2
No source listed	3	-	2	-	-	-	5	2.0
Number and % of Total	31	38	35	46	54	42	246	100.0

**Method 3. Mean number of information sources**

In Table 9.6 the mean number of the 18 different kinds of information sources used by individuals in each adoption stage is presented. Individuals in the later stages of adoption indicated they used more different kinds of information sources than did individuals in the earlier stages. Individuals in the Home Adoption Plan stage used an average of 5.7 sources of information. Individuals in the Unaware stage used an average of 3.2 sources of information. Thus, individuals in all stages indicated using more than three sources of information. The mean number of sources used by the total 246 respondents was 4.7. An analysis of the mean number of sources used by individuals in each stage of adoption does not indicate, however, the kinds of sources used. Methods 1 and 2 discussed above provided two frameworks for analyzing the kinds of information sources used by individuals in different adoption stages. Method 4, which is discussed below, provides an additional framework for analyzing the relationship of information sources and stage of adoption.

Table 9.6. Mean number of 18 civil defense information sources named by stage of adoption.

Mean number of 18 sources named	Stage of Adoption					
	(1)	(2)	(3)	(4)	(5)	(6)
	UNAWARE N = 31	INFORMATION N = 38	EVALUATION N = 35	FAMILY DOWNTOWN ADOPTION N = 46	HOME ADOPTION, NO PLAN N = 54	HOME ADOPTION, PLAN N = 42
Mean number of sources named	3.2	4.3	4.7	4.9	5.1	5.7
						TOTAL N = 246 4.7

#### Method 4. Technologically competent sources of information

In this section a set of assumptions is made which makes it possible to categorize the 18 sources of information delineated in Table 9.1 on the basis of their technological competence as civil defense information sources. For purposes of analysis in this report, the 18 information sources are categorized into six different competence levels. On the basis of this categorization it is possible to compare the extent to which individuals in each stage of adoption used technologically competent sources of information about civil defense. Thus, a change agent will be able to determine whether individuals in the latter stages of adoption have used more technologically competent sources of information than individuals in the earlier stages of adoption.

The sources of information composing each of these six competence levels are outlined below. The assumptions used to differentiate among the six competence levels are also stated. Competence level 1 is assumed to be the least competent level, competence level 6 the most competent level.

##### Competence level 1:

Sources included in this level are:

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

Assumptions: These sources are assumed to be informal person to person interactions. These sources may not have a broad scope and depth of civil defense information.

##### Competence level 2:

Sources included in this level are:

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

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

Competence level 3:

Sources included in this level are:

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

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

Competence level 4:

Sources included in this level are:

- a. Publications distributed by the County Extension Office
- b. Military sources, such as Army Reserve or National Guard

Assumptions: These sources both have defined civil defense responsibilities. However civil defense is only one of the many functions each is expected to carry out.

Competence level 5:

Sources included in this level are:

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

Assumptions: These sources have been originated by civil defense. They are impersonal sources. Thus an individual cannot ask for clarification of ideas mentioned.

Competence level 6:

Sources included in this level are:

- a. Visited a fallout shelter
- b. Meetings conducted by civil defense personnel

Assumptions: These sources are personal sources of information that have been originated by civil defense. In these interaction situations the individual can personally ask questions about civil defense ideas and problems and receive personal replies.

The reader may note that all of the 18 sources of information do not lend themselves to easy classification as to their technological competence of civil defense information. For example, communication among neighbors, friends, or relatives is assumed to be in the lowest competence level (competence level 1). However, if the respondent's relative was the local civil defense director it would probably be a high-competence source (competence level 6 as defined in this report). Thus, the delineation of six competence levels in this report should be viewed as a preliminary effort to develop a continuum of information sources on the basis of their technological competence with respect to civil

defense information. It is possible to think of unique examples as to why an information source placed in one competence level should be placed in another competence level. The categorization of sources of information into six competency levels, however, is done by using the assumption framework explained above. It is hoped that future research will make it possible to more precisely determine the competency of civil defense information sources. This would make it possible to more precisely analyze technologically competent information sources by stage of adoption.

The number of individuals in each stage of adoption who named at least one information source in each of the respective competence levels is recorded in Table 9.7. An analysis of competence level 1 in Table 9.7, for example, shows that 12, or 38.7 percent, of the 31 individuals in the Unaware stage mentioned at least one source categorized as competence level 1. These 12 individuals named a total of 12 different sources at competence level 1. An analysis of competence level 6 finds that 16, or 38.1 percent, of the 42 individuals in the Home Adoption Plan stage had received information from sources categorized in competence level 6. These 16 individuals named 18 different sources at competence level 6.

From the data presented in the competence level 6 row, it can be seen that more individuals in the latter stages of adoption stated the use of more competent sources than individuals in the earlier stages of adoption. Only one individual in the Unaware stage mentioned a competence level 6 source, while 38.1 percent in the Home Adoption Plan stage mentioned a competence level 6 source. An analysis of the competence level 5 row finds the same trend occurring, more individuals in the latter stages of adoption used these information sources than did individuals in the earlier stages of adoption.



Table 9.7. Number of individuals in each adoption stage using information sources at each technological competence level

Source of information at technological competence level	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE of No. 31	AMARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADoption, NO PLAN % of No. 54	HOME ADoption, PLAN % of No. 42	
Competence level 1 Number of respondents (Total sources named) <sup>a</sup>	12 (12)	38.7 (14)	14 (25)	18 (20)	18 (25)	39.1 (23)	106 (119)
Competence level 2 Number of respondents (Total sources named)	28 (79)	90.3 (123)	38 (108)	32 (159)	54 (198)	100.0 (167)	240 (834)
Competence level 3 Number of respondents (Total sources named)	1 (1)	3.2 (3)	3 (2)	7.9 (6)	2 (7)	5.7 (11.1)	10.9 (3)
Competence level 4 Number of respondents (Total sources named)	1 (1)	3.2 (2)	2 (1)	5.3 (1)	2.9 (2)	1 (5)	2.2 (12)
Competence level 5 Number of respondents (Total sources named)	4 (4)	12.9 (17)	12 (19)	31.6 (27)	18 (32)	51.4 (27)	54.3 (27)
Competence level 6 Number of respondents (Total sources named)	1 (1)	3.2 (3)	3 (8)	7.9 (12)	8 (12)	22.9 (18)	21.7 (16)
Total Number Sources Named	98	162	163	225	276	243	1167
Mean Number Sources Named	3.2	4.3	4.7	4.9	5.1	5.7	4.7

<sup>a</sup>Total sources at this competence level named by respondents in that adoption stage.

As was mentioned earlier, each respondent was also asked to indicate which information source had been most useful to him. In Table 9.8 the most useful responses have been categorized by competence level and compared by stage of adoption. In each adoption stage more individuals named a competence level 2 source as being more useful than any other competence level. However, more individuals in the Home Adoption Plan stage indicated a source in competence level 6 as being the most useful information source than did individuals in any other adoption stage. The Unaware stage had only one individual who indicated a most useful information source above competence level 2. Approximately 15 to 30 percent of each of the other stages had individuals indicating most useful sources above competence level 2.

Table 9.8. Most useful civil defense information source technological competence level by stage of adoption.

Most useful civil defense information source technological competence level	Stage of Adoption										TOTAL % of No. 245			
	(1)		(2)		(3)		(4)		(5)			(6)		
	UNAWARE % of No. 31	INFORMATION % of No. 38	AWARE % of No. 35	EVALUATION % of No. 46	FAMILY DOWNTOWN ADOPTION % of No. 54	HOME ADOPTION, NO PLAN % of No. 42	HOME ADOPTION, PLAN % of No. 42	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	HOME ADOPTION, PLAN % of No. 42		HOME ADOPTION, PLAN % of No. 42		
Competence level 1	3	9.7	-	-	2	5.7	-	-	1	1.9	1	2.4	4	1.6
Competence level 2	27	87.1	31	81.6	20	57.1	31	67.4	45	83.3	29	69.0	183	74.4
Competence level 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Competence level 4	-	-	-	-	-	-	-	-	-	1	1.9	-	1	.4
Competence level 5	1	3.2	5	13.2	9	25.7	12	26.1	6	11.1	8	19.0	41	16.7
Competence level 6	-	-	2	5.3	2	5.7	3	6.5	1	1.9	4	9.5	12	4.9
No source listed	3	9.7	-	-	2	5.7	-	-	-	-	-	-	5	2.0
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1		
Mean	1.9		2.6		2.8		3.1		2.5		2.9		2.7	

For statistical purposes a source of information technological competence score was developed for each respondent as follows: For each of the 18 information sources an individual stated he had used he was given points based on the competence level classification of that source. For example, if an individual said his civil defense information sources were television news and special programs (competence level 2) and booklets and pamphlets put out by the Office of Civil Defense (competence level 5) his source of information technological competence score would be 7. Likewise if an individual mentioned only three sources, all of which were in competence level 2, he would have a technological competence score of 6. The technological score thus incorporates both competence level and the number of sources mentioned at each competence level. Possible scores could range from 0 to 56.

The frequency of technological competence scores for individuals in each stage of adoption is presented in Table 9.9. Using an analysis of variance statistical test a significant difference was found among the mean technological competence scores of the six adoption stages. Conclusion: Use of technological competent information sources (as defined in this report) is statistically related to stage of adoption. Individuals in the later stages of adoption said they used more technologically competent sources of information about civil defense than individuals in the early stages of adoption.

Table 9.9. Distribution of source of information technological competence scores by stage of adoption

Source of information technological competence scores	Stage of Adoption						TOTAL % of No. 246							
	(1)	(2)	(3)	(4)	(5)	(6)								
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42								
0-4	8	25.8	6	15.8	3	8.6	5	10.9	4	7.4	2	4.8	28	11.4
5-9	19	61.3	18	47.4	11	31.4	14	30.4	17	31.5	8	19.0	87	35.4
10-14	3	9.7	6	15.8	12	34.3	13	28.3	17	31.5	15	35.7	66	26.8
15-19	1	3.2	4	10.5	5	14.3	6	13.0	6	11.1	9	21.4	31	12.6
20-24	-	-	2	5.3	3	8.6	4	8.7	7	13.0	1	2.4	17	6.9
25-29	-	-	2	5.3	1	2.9	3	6.5	-	-	4	9.5	10	4.1
30-38	-	-	-	-	-	-	1	2.2	3	5.6	3	7.1	7	2.8
Number and % of Total	31	12.6	38	15.4	35	14.2	46	18.7	54	22.0	42	17.1		
Means	6.5	10.4	10.9	12.5	13.3	15.0	11.7							

With 5 and 240 d.f., F significant at .05 level if  $\geq 2.25$ , at .01 level if  $\geq 3.10$ . Calculated F = 5.9113.

As was pointed out earlier each respondent was also asked to indicate the one information source which had been most useful to him. In addition to being asked which source was most useful, each respondent was also asked to indicate which sources had been second and third most useful to him. Using the technological competence levels as score values a mean technological most useful score was calculated for each stage of adoption. These scores are found in row 1 of Table 9.10. Individuals in the Unaware stage had the lowest technological competence mean score for the most useful responses (1.9 average), while individuals in the Family Downtown Adoption Plan stage had the highest most useful technological competence score (3.1 average). When second most useful mean scores are compared there is very little difference among the last five adoption stages. The Unaware stage again has the lowest mean value. When third most useful mean scores are compared the same pattern holds; the Unaware stage has the lowest average score. While the other five stages differ only slightly. When the mean scores of the first, second, and third most useful scores are added together a larger difference among the stages of adoption is found. The mean of the Home Adoption Plan stage is 15.0 while the mean for the Unaware stage is 6.5.

The reader may note that in each stage of adoption the average technological competence score of the first most useful score is higher than the average score of the second most useful score; and the average technological competence score of the second most useful score is higher than the average of the third most useful score.

Conclusion: Individuals in the latter stages of adoption indicated more competent sources of information as being more useful to them than did individuals in the earlier stages of adoption.

Table 9.10. Technological competence mean scores of three most useful civil defense information sources.

Levels of most useful civil defense information sources	Stage of Adoption						TOTAL N = 246
	(1) UNAWARE N = 31	(2) AWARE INFORMATION N = 38	(3) EVALUATION N = 35	(4) FAMILY DOWNTOWN ADOPTION N = 46	(5) HOME ADOPTION, NO PLAN N = 54	(6) HOME ADOPTION, PLAN N = 42	
1st most useful source <sup>a</sup>	1.9	2.6	2.8	3.1	2.5	2.9	2.7
2nd most useful source	1.8	2.2	2.1	2.1	2.2	2.3	2.1
3rd most useful source	1.5	1.8	1.9	1.8	2.1	2.0	1.9
Mean technological competence score	6.5	10.4	10.9	12.5	13.3	15.0	11.7

<sup>a</sup>All values in first row are the mean technological competence scores of the first most useful source. This row contains the same values as the mean row of Table 9.8.

Seeking Civil Defense Information

To determine the number of individuals who had personally sought information about civil defense, each respondent was asked, "Have you ever personally sought any information about civil defense?" The responses to this question are shown in Table 9.11 by stage of adoption. Using a chi-square test no statistical relationship was found between stage of adoption and seeking civil defense information when those answering "yes" to the question were compared to those who answered "no" and "don't know." Three-fourths or more of the individuals in each adoption stage said "no" or "don't know" to the question. However, the statistical test approached significance. More individuals in the latter stages of adoption had said "yes" they had sought information about civil defense than had individuals in the earlier stages. Conclusion: Having sought information about civil defense is not statistically related to stage of adoption. However, more individuals in the latter stages of adoption stated they had sought information than did individuals in the earlier stages of adoption.

Table 9.11. Have you ever personally sought any information about civil defense?

Sought civil defense information	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
No	30 96.8	35 92.1	28 80.0	37 80.4	45 83.3	31 73.8	206 83.7
Don't know	1 3.2	-	1 2.9	-	-	1 2.4	3 1.2
Yes	-	3 7.9	6 17.1	9 19.6	9 16.7	10 23.8	37 15.0
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	

With 5 d. f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 10.59

Adequacy of Individual's Civil Defense Information

To determine the number of individuals who perceived they had adequate civil defense information, each respondent was asked, "Do you feel that you have adequate information on what you should do in case of nuclear attack?" The responses to this question are shown in Table 9.12 for each stage of adoption. Using a chi-square test, a relationship was found between stage of adoption and information adequacy when those answering "yes" to the question were compared to those answering "no" and "don't know." Approximately one-half the individuals in the Evaluation and Family Dometown Adoption stages said that they had adequate information. Approximately 43 percent of the individuals in the Home Adoption Plan stage said they had adequate information. Less than one-fourth of the individuals in each of the first two stages indicated they had adequate information. Conclusion: Feeling that one has adequate information on what to do in case of nuclear attack is statistically related to stage of adoption. Approximately one-half of the individuals in the middle two stages said they had adequate information, while one-third to two-fifths of the individuals in the last two stages stated they had adequate information. A smaller number of individuals in the first two stages perceived themselves as having adequate information.

Table 9.12. Do you feel that you have adequate information on what you should do in case of nuclear attack?

	Stage of Adoption						TOTAL % of No. 246
	(1)	(2)	(3)	(4)	(5)	(6)	
	UNAWARE % of No. 31	AWARE INFORMATION % of No. 38	EVALUATION % of No. 35	FAMILY DOWNTOWN ADOPTION % of No. 46	HOME ADOPTION, NO PLAN % of No. 54	HOME ADOPTION, PLAN % of No. 42	
No	23 74.2	26 68.4	14 40.0	23 50.0	34 63.0	21 50.0	141 57.3
Don't know	3 9.7	3 7.9	2 5.7	1 2.2	2 3.7	3 7.1	14 5.7
Yes	5 16.1	9 23.7	19 54.3	22 47.8	18 33.3	18 42.9	91 37.0
Number and % of Total	31 12.6	38 15.4	35 14.2	46 18.7	54 22.0	42 17.1	

With 5 d.f., chi-square significant at .05 level if  $\geq 11.07$ , at .01 if  $\geq 15.09$ . Calculated chi-square = 16.51.



## Summary of Chapter 9

A knowledge of the relationship between sources of civil defense information and stage of adoption should be helpful to civil defense change agents. Change agents may use a knowledge of these data to plan future mass media and other public education programs. Briefly the highlights of this chapter are:

1. Television news and special programs and daily or weekly newspapers were the most frequently named sources of civil defense information, followed by radio news and special programs and booklets and pamphlets put out by the Office of Civil Defense.
2. Television news and special programs were ranked as the most useful source of civil defense information.
3. Individuals in the latter stages of adoption indicated they had received civil defense information from more information sources than did individuals in the earlier stages of adoption.
4. More individuals in the latter stages of adoption indicated the use of government sources of information than did individuals in the earlier stages of adoption.
5. Approximately all the individuals in each adoption stage obtained information from at least one mass media source of information.
6. A slightly larger number of individuals in the later stages of adoption received information about civil defense in informal communication situations than did individuals in the earlier stages of adoption.
7. Only a small number of individuals in each adoption stage received information from commercial information sources.
8. Over two-thirds of the individuals in the study indicated a mass media source of civil defense as the most useful source to him.
9. More individuals in the later stages of adoption indicated using personal sources of information than did individuals in the earlier stages of adoption.
10. Over 80 percent of the individuals in each stage of adoption indicated that impersonal sources of civil defense information were most useful to them.
11. More individuals in the later stages of adoption stated the use of technologically competent sources of information (as measured in this report) than individuals in the earlier stages of adoption.
12. Individuals in the later stages of adoption said they used more technologically competent sources of information about civil defense (as measured

in this report) than individuals in the early stages of adoption.

13. Having sought information about civil defense is not statistically related to stage of adoption. However, more individuals in the later stages of adoption stated they had sought civil defense information than individuals in the earlier stages of adoption.

14. The feeling that one has adequate information on what to do in case of nuclear attack is statistically related to stage of public fallout shelter adoption. More individuals in the middle and later adoption stages believed they have adequate information than do individuals in the earlier adoption stages.

## Chapter 10

## SUMMARY

## Introduction

The Office of Civil Defense is conceptualized as a change agent whose goal is to have specified target audiences adopt new civil defense ideas, innovations, and programs. It is assumed that OCD as a change agent is interested in understanding and predicting how people will adopt new civil defense ideas. This involves a clear and detailed understanding of the factors related to the acceptance or rejection of these new ideas. The change agent may find insights about such factors to be important tools in planning, implementing, and evaluating present and future civil defense adoption programs.

## Objective 1: Framework for Analysis

The first objective of the report was to develop an analytical frame of reference which can be used for planning, implementing, and evaluating civil defense programs which have as their primary objective the obtaining of the adoption of new ideas, innovations, or programs by individuals in target audiences. The major concepts of the frame of reference are as follows: The Office of Civil Defense is perceived as a change agent. As a change agent one of its goals is to obtain adoption of its innovations. By innovation is meant an idea, practice, or product perceived as new by the individual or group for whom it is intended. The civil defense innovation which is of central concern to this report is the idea of using public fallout shelters if there is a nuclear attack. Adoption in this study is defined as the adoption of the idea of using a public fallout shelter if there is a nuclear attack. Thus, adoption in this study is symbolic adoption, i.e., the adoption of an idea, rather than behavior adoption. Almost all previous adoption research studies have focused on behavior adoption. Thus, the civil defense innovation and adoption being studied in this report are different from most previous adoption studies. The adoption unit is the individual or group who has to make the decision to adopt an innovation. The adoption unit in this report is an individual (husband or wife) in a family household. The adoption process is the mental process through which an individual passes from first hearing about an innovation to its final adoption. Conceptually, the adoption process is usually referred to as an

adoption model. The adoption process may be conceptually divided into five stages:

1. Awareness stage. At this stage the individual is initially exposed to the innovation. The individual knows of the innovation but lacks complete information about it. The individual may or may not be motivated to seek additional information about the innovation at this stage.
2. Information stage. The individual becomes interested in the innovation and seeks more information about it. In this stage the individual mainly increases his information about the innovation. The individual is interested in getting both general and more specific information about the intrinsic qualities of the innovation and relating this information to his past experiences and knowledge. At this stage he is building up a data base which will help him to decide whether or not he wishes to become further involved with the innovation.
3. Evaluation stage. The individual is concerned with applying the innovation to his own situation at this stage. The relative advantages and disadvantages of the innovation to other alternatives are considered. The individual makes a mental application of the innovation to his present and future situation and makes the decision either to try it or not. He is concerned with determining if adoption of this innovation will help him to maximize his goals to a greater degree than will any of the other alternatives which are perceived to be available to him.
4. Trial stage. At this stage the individual is motivated to use the innovation on a small scale in order to determine its utility in his own situation. When possible, most potential adopters use an innovation on a small experimental scale to test its applicability and compatibility to their situations.
5. Adoption stage. The individual adopts and decides to continue the full use of the innovation. At this stage and point in time the individual is satisfied that the course of action being pursued is best for him.

The adoption period is the time required for an individual to pass through the adoption process from awareness to adoption. The rate of adoption is the relative speed with which an innovation is adopted by adoption units in the target audience. One of the goals of the change agent is to increase the rate of adoption of his innovation. One way to attempt this is to shorten the adoption period. Four categories of factors whose relationship to adoption have been studied are: demographic, knowledge, attitude, and sources of information. Knowledge of these four factors may be used by a change agent to effectively and efficiently shorten the adoption period and increase the rate of adoption of his innovation.

## Objective 2: Adoption of Public Fallout Shelters

The second objective of the report was to determine the extent to which a sample of people has adopted the idea of using public fallout shelters if there is a nuclear attack. This innovation was selected for study because one of the major goals of civil defense during the past three years has been to develop a fallout shelter capability for all the people in the United States. The major activity to accomplish this goal has been the National Fallout Shelter Survey, Marking and Stocking Program. This program was designed to locate, mark, and stock existing facilities which would be used as public fallout shelters if needed. Logically flowing from these activities is the desire to have people make plans to use the shelters if there is a nuclear attack.

The five stage adoption process (awareness, information, evaluation, trial and adoption) was used as the basis for developing a series of questions which could be used to determine an individual or family's stage in the adoption of the idea of using public fallout shelters if there is a nuclear attack.

### The research population and sample

The city of Des Moines, Iowa, was selected as a community in which to measure the public's adoption of the idea of using public fallout shelters. Only husband and wife households were selected for study. Thus the statistical population for this study was the approximately 54,000 husband and wife households in Des Moines. A probability sample of households was selected for study. Husbands were interviewed in approximately one-half of the households and wives in the other one-half of the households. Whether a husband or wife was to be interviewed in a household was systematically determined by research design before the interviewer went to the household. A total of 246 interviews were completed during June and July of 1963.<sup>2</sup>

Using the questions based on the adoption model, respondents were classi-

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<sup>2</sup>Des Moines was one of the pilot and leading cities in stocking public fallout shelters at the time of the research study. Based on OCD data as of July 25, 1963, Des Moines had stocked 74,827 shelter spaces, capable to shelter over 28 percent of its population. As of that date only 18 of the 215 Standard Metropolitan Areas in the United States had stocked space 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 was one of these three.

fied into six analytical "stages" of adoption. The analytical adoption stages and the percent of respondents in each stage were as follows:

1. Unaware stage: approximately 13 percent of the sample respondents stated they were not aware of a public fallout shelter program. (This stage has been included in the analysis to account for all individuals in the study sample.)

2. Aware-Information stage: approximately 15 percent of the respondents stated they were aware, or were aware and had obtained additional information about the marking and stocking public fallout shelter program. (This analytical stage combines the individuals who were in the awareness and information stages. This was done because only a small number of individuals, 2.4 percent of the respondents, were in the awareness stage.

3. Evaluation stage: fourteen percent of the respondents were in this stage.

(A trial stage was not included in the analysis since licenses signed by building owners do not allow the use of public fallout shelters except in a nuclear attack.)

4. Adoption type 1 - Downtown Adoption Only: approximately 19 percent of the respondents stated they would use a public fallout shelter if they were in a downtown business district and a nuclear attack occurred, but they stated they would not go to a public fallout shelter if they were at home with their family when a nuclear attack occurred.

5. Adoption type 2 - Home Adoption, No Plan: twenty-two percent of the respondents stated they had made the decision to use a public fallout shelter if they were at home with their family and an attack occurred, but they stated they did not have a specific plan of the steps they would take to get to a public fallout shelter

6. Adoption type 3 - Home Adoption, Plan: approximately 17 percent of the respondents stated they had decided to use a public fallout shelter if they were at home with their family when an attack occurred and they also stated they have a specific plan of the steps they would take to get to a public fallout shelter.

Thus by mid-1963 almost 90 percent of the sample respondents stated they were aware of public fallout shelters. And approximately 17 percent stated they: (1) had decided to use a public fallout shelter if a nuclear attack occurred while they were at home with their family and (2) had a plan of the

steps they would take to get to a public fallout shelter in this situation.

Approximately 23 percent of the respondents said they became aware of public fallout shelters during the last six months of 1961. Almost 40 percent of the respondents said they became aware of public fallout shelters during the last half of 1962. Approximately two-thirds of the respondents who said they would go to a public fallout shelter and had a plan to get to it said they had decided to use a public fallout shelter during the last half of 1962.

### Objective 3: Relation of Factors to Stage of Adoption

The third general objective of the research presented in the report was to determine the relationship between selected demographic, knowledge, attitude, and information variables and the adoption of the innovation of using public fallout shelters if there is a nuclear attack. This objective attempted to provide answers to questions such as: what are the characteristics of people in each stage of adoption? Do people who are in the later stages of adoption have different characteristics (demographic, knowledge, attitudes, and sources of information) than individuals in the earlier stages of adoption? The individuals in the six analytical stages of adoption delineated above were compared on selected demographic, knowledge, attitude, and sources of information variables to determine relationships, if any, by stage of adoption. This research is one of the first attempts to determine variables which are related to the adoption of this type of civil defense innovation. Because of its exploratory nature, a large number of variables are used to determine which ones, if any, are related to stage of adoption of public fallout shelters. The reader should exercise caution in attributing causal effects when a relationship is stated. A statement of relationship does not necessarily mean a causal relationship. However, for many variables, theory, past research, or logical derivations do suggest a logic for inferring a causal relationship.

#### Demographic variables and stage of adoption

A knowledge of the relationship or lack of relationship between a demographic variable and stage of adoption should be helpful to civil defense change agents. Such an analysis makes it possible for the change agent to develop a profile of the people who have been motivated to adopt civil defense innovations and also to compare these people to those who have not yet been

motivated to adopt civil defense ideas. These data may be used in planning and implementing future civil defense programs. Twelve demographic variables are related to stage of adoption. Two of the twelve demographic variables, years of formal education and home ownership, were found to be related to stage of adoption when formal statistical tests were used as the decision criteria of relationship. In general those more highly educated and owning their own home adopted the idea of using public fallout shelters. Three other variables approached a statistically significant relationship level (in the direction of a positive relationship). These were the number of people in the household under 15 years of age, active military service of husband, and membership in the National Guard. A weak percentage trend in the direction of a positive relationship was found between stage of adoption and higher family income. A weak percentage trend in the direction of a negative relationship was found between stage of adoption and age of the respondent. The remaining demographic variables had no apparent percentage relationship to stage of adoption: total number of people in household, combat duty, religious preference, political orientation, and sex of the respondent.

When one analyzes the 42 respondents in the Home Adoption Plan stage the following "profile" of the "adopter" is obtained. Eight out of ten "adopters" will have more than two people in their household. Seven out of ten "adopters" will have at least one child under 15 years of age. The "adopter" is younger than the rest of the adult population. Two out of three "adopters" will have had some type of formal training beyond high school. The "adopter's" family income is only slightly above the average income. Three of every four "adopters" are home owners or in the process of buying a home. In two of every three "adopter" homes the husband has been in active military duty. One husband in five has been in combat. Approximately one husband in five has been a member of the National Guard.

#### Knowledge variables and stage of adoption

A knowledge of the relationship between an individual's knowledge of civil defense and his stage of public fallout shelter adoption should make it possible for the change agent to develop a knowledge profile of people who have adopted civil defense innovations and to compare these people to those who have not yet adopted civil defense innovations. A number of types of knowledge were found to be statistically related to stage of public fallout shelter adoption. In



general, the more knowledge an individual had about civil defense, the farther along he was in his adoption process with respect to public fallout shelters.

Four knowledge variables found to be statistically related (in a positive direction) to stage of adoption are: knowledge of a civil defense program in the United States; knowledge of a city (local) civil defense program; knowledge of the local civil defense director; and technical knowledge about fallout shelter and nuclear radiation. The technical knowledge variable consisted of nine specific knowledge items. When each of these specific knowledge items was compared to stage of adoption, five were found to be statistically related (in a positive direction) to stage of adoption. These five items are an individual's knowledge: (1) of a person's ability to survive exposure to radiation; (2) that radiation is not contagious; (3) that you can filter dust out of the air to make the air safe to breathe; (4) that a pill will not protect you from fallout; and (5) that most fallout rapidly loses its power to harm people. The other four knowledge items had no apparent relationship to stage of adoption. These knowledge items are: (1) that a plastic suit with filtering mask does not offer protection from fallout, (2) that you cannot see fallout, (3) that shelters do not need an air-tight door to protect against fallout, and (4) that fallout covers thousands of square miles.

#### Attitude variables and stage of adoption

A knowledge of the relationship or lack of relationship between attitudes and stage of adoption should help civil defense change agents develop an attitude profile of the people who have been motivated to make civil defense decisions as well as profiles of people who have not yet been motivated to make civil defense decisions. It may also aid in constructing a logical rationale for present adoption behavior and help explain non-adoptive behavior. These data may also be of use in planning future civil defense programs. Thirty-five different attitude variables were compared to stage of public fallout shelter adoption. These attitude variables were categorized into six general attitude areas.

The first attitude area was the individual's perception of the situation in which he is making his civil defense decisions, that is, his perception of threat at the present time. Eight attitude variables were measured in this category. Of these eight, two (timing of war and thermonuclear war means the end of democracy) had a strong negative relation to stage of adoption, i.e., those thinking war was more imminent and believed most strongly thermonuclear

war means the end of democracy were least likely to have adopted the idea of using public fallout shelters. Two variables (likelihood of war and likelihood of local community death and destruction in war) had a minor negative relationship to stage of adoption, i.e., a larger proportion of individuals in the earlier stages of adoption perceived war and local community death and destruction being more likely. The variable concern about fallout had a slight positive relationship to stage of adoption. The remaining three variables (likelihood of conventional war, likelihood of war escalation, and likelihood of fallout danger in the local community) had no apparent relationship to stage of adoption.

The second attitude area consisted of nine variables measuring an individual's perception of the innovation, that is, fallout shelters. Five of the attitudes were highly related to stage of adoption when formal statistical tests were used as the criteria of relationship: in general, if an individual perceived that fallout shelters were like insurance, that all people should pay taxes for public shelters, and that a city sales tax was needed for public shelters, he was more likely to be in the later stages of adoption; and if an individual perceived that we should not abandon a fallout shelter program and that shelter measures are not obsolete he was more likely to be in the later stages of adoption. Two attitudes indicated a slight relationship to stage of adoption. Two attitudes indicated a slight relationship to stage of adoption: in general, if an individual perceived fallout shelters were desirable he was more likely to be in the later adoption stages; and if an individual perceived highway construction should not be curtailed for civil defense he was more likely in the later stages of adoption. Two attitudes (a public shelter program is worth its cost and future schools should have public fallout shelters) had no apparent relationship to stage of adoption.

The third attitude area was an individual's perception of the adequacy of civil defense. Two attitude variables were measured. Individuals in the later stages of adoption more often perceived the local (city) civil defense program as adequate. Individual perceptions of the adequacy of the total (United States) civil defense program had no apparent relationship to stage of adoption.

The fourth attitude area consisted of four variables measuring an individual's perception of the government's role in civil defense. There was no apparent relationship between any of the four attitudes measured and stage of public fallout shelter adoption. The four attitudes were: government should

require people to prepare for a nuclear attack, federal government should increase civil defense activities, civil defense should be handled by the military, and government action indicated the need for civil defense.

The fifth attitude area measured an individual's perceptions of some general civil defense ideas. Two of the attitudes were statistically related to stage of adoption: in general if individuals believed civil defense was a waste of time and money they were more likely to be in the early stages of adoption and if they believed they had a community responsibility for civil defense they were more likely to be in the later stages of adoption. One attitude had a slight relation to stage of adoption: individuals in the later stages of adoption were slightly more favorable to the idea of encouraging their Congressmen to support civil defense. Two of the general civil defense attitudes, that civil defense encourages people to wage war and that civil defense in the United States has been too neglected, had no apparent relationship to stage of adoption.

The sixth attitude area measured an individual's perception of our government's policy concerning the use of nuclear weapons in seven decision situations. In four of the seven decision situations individuals in the early adoption stages were more prone to use nuclear weapons than individuals in the latter stages of adoption. In the other three decision situations there were no apparent differences among adoption stages.

#### Sources of information and stage of adoption

A knowledge of the relationship between sources of civil defense information and stage of adoption should be helpful to civil defense change agents when evaluating present and planning future mass media and other public education programs. Following is a list of findings pertaining to sources of civil defense information.

1. Television news and television special programs, and daily or weekly newspapers were the most frequently named sources of civil defense information, followed by radio news and radio special programs, and booklets and pamphlets put out by the Office of Civil Defense.

2. Television news and television special programs were ranked as the most useful source of civil defense information.

3. Individuals in the latter stages of adoption indicated they had received civil defense information from more information sources than did individuals in the earlier stages of adoption.

4. More individuals in the latter stages of adoption indicated the use of government sources of information than did individuals in the earlier stages of adoption.

5. Almost all the individuals in each adoption stage obtained information from at least one mass media source of information.

6. A slightly larger number of individuals in the latter stages of adoption received information about civil defense in informal communication situations than did individuals in the earlier stages of adoption.

7. Only a small number of individuals in each adoption stage received information from commercial information sources.

8. Over two-thirds of the individuals in the study indicated a mass media source of civil defense as the most useful source to him.

9. More individuals in the later stages of adoption indicated using personal sources of information than did individuals in the earlier stages of adoption.

10. Over 80 percent of the individuals in each stage of adoption indicated that impersonal sources of civil defense information were most useful to them.

11. More individuals in the later stages of adoption stated they used technologically competent sources of information (as measured in this study than did individuals in the earlier stages of adoption).

12. Individuals in the later stages of adoption said they used more technologically competent sources of information about civil defense (as measured in this study) than did individuals in the early stages of adoption.

13. Having actively sought information about civil defense is not statistically related to stage of adoption. However, more individuals in the latter stages of adoption stated they had sought civil defense information than did individuals in the earlier stages of adoption.

14. The feeling that one has adequate information on what to do in case of nuclear attack is statistically related to stage of public fallout shelter adoption. More individuals in the middle and latter adoption stages believe they have adequate information than do individuals in the earlier adoption stages.

The above data provide a profile of the individuals in the later stages of public fallout shelter adoption as well as those in the earlier adoption stages. These data may be used by OCD in planning and implementing future civil defense programs. One concern of OCD is to have people who have not yet

adopted the idea of using public fallout shelters to adopt the idea of using them. At what rate may individuals in the early adoption stages be expected, if at all, to adopt the idea of using public fallout shelters? Another concern of OCD may be the extent to which the adoption of this idea will persist in the mind of an individual over time. As was stated above the adoption of the idea of using public fallout shelters may be perceived as symbolic adoption. Will some people who are adopters at this point in time become non-adopters at a future point in time? What will the adoption stage profiles be if this occurs? There is a need for a periodic assessment of people's idea adoption so trends and patterns of symbolic adoption may be delineated and analyzed.

#### A Final Note

Throughout the preceding chapters possible uses of this report by OCD personnel are made. In Chapter 2 the use of the adoption framework is explored. In other chapters the uses of the empirical research data presented in this report are discussed. In this section further possible uses of the empirical data are presented.

The broad scope of civil defense activities makes it virtually impossible to include in this report the specific application of the research data to the many specific civil defense activities. In other words, the data may be useful for many different civil defense operational functions, many of which may be unknown to the authors of this report. The data may be relevant to OCD staff members concerned with public information and education programs, shelter utilization planning, the licensing of buildings, and various training programs, as well as many other activities. Thus, rather than to try to show how the data in this report may be applied to many alternative civil defense activities, some examples are given which show how the empirical findings may be used by OCD. It is hoped that these examples will stimulate the reader to peruse the report and thoughtfully contemplate how the data may be relevant for his task or tasks.

Example 1 - The finding: Only eight percent of all respondents stated that you can see fallout (see Table 7.9). There was no statistical difference among public fallout shelter stages of adoption for this knowledge variable. The change agent may ask how this data may be relevant. For example the change agent may ask: Is there a need for people to understand that you can see fallout, since most people who stated they have adopted the use of public fallout shelters

think that you can't see fallout? Even though people do not need to know this idea before adopting the idea of using public fallout shelters, do people need to know this idea before they can adopt other civil defense innovations or act intelligently if there is an attack? Or should they know they can see fallout for other reasons? How much effort should be made to communicate this idea to people? Does there need to be increased emphasis on communicating this idea or should resources be focused on communicating other ideas? How much information do people need to have to adopt civil defense innovations?

Example 2 - The finding: Almost all individual in each adoption stage knew that fallout may cover thousands of square miles (see Table 7.13). The change agent may ask: To what extent does this idea need to be included in future civil defense messages? If it is included in future civil defense messages, to what extent should it be emphasized? Is it needed to introduce the public to other civil defense ideas which are not yet understood? Or is it needed to help provide a general context for an understanding of other civil defense ideas? Why is it that most people understand this idea? Can anything be learned from this idea's acceptance that may be helpful in communicating other civil defense ideas?

Example 3 - The finding: Approximately 50 percent of the total sample perceived that radiation is not contagious. More individuals in the latter adoption stages correctly stated that radiation is not contagious (see Table 7.7). The change agent may ask: Should this idea be emphasized in the hopes of increasing the acceptance of public fallout shelters? To what extent does one want to continue to communicate this idea to the general public? For what reasons does one want to communicate this idea to the general public? To what other civil defense objectives is this idea related?

Example 4 - The finding: A larger proportion of the individuals in the latter stages of adoption perceived that public fallout shelters are like insurance (see Table 8.10). The change agent may ask: Does one want to emphasize the idea that public fallout shelters are like insurance in the hopes that it will encourage people to develop a favorable perception of fallout shelters and civil defense? Or is this idea in conflict with certain other goals of civil defense? To what extent does one want to develop this idea in public information programs such as mass media messages for radio and television? What image of the innovation, i.e., public fallout shelters, does civil defense as a change agent want people to develop? What characteristics need to be communicated to people in order that they have a positive image of the innovation? How do the various civil defense innovations

differ in terms of characteristics? Does the insurance concept have greater positive meaning to those in the later adoption stages who have high knowledge, more education, and children? Is the insurance concept a good approach to non-adopters or is there some other more strategic appeal to use?

Example 5 - The finding: A majority of the people who had adopted the idea of using a public fallout shelter if there is an attack while they are at home with their family and have a plan of the steps to get to a shelter in this situation developed these plans during the last half of 1961 (Berlin crisis) and the last half of 1962 (Cuban crisis). Thus, one might hypothesize that in a future crisis people will again become quite concerned with civil defense. What type of information might be requested by the general public in a future crisis? As some people obtain more information about civil defense than do others, a differentiation of the general public in terms of knowledge levels and information needs will probably occur. Thus, more varied messages may need to be developed by OCD in future crises as people's perceptions of civil defense needs differ. To what extent will decision made during these crisis periods sustain themselves? How can the decision best be supported in non-crisis periods?

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