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## ABSTRACT

### VALUE CHANGE, PERCEIVED INSTRUMENTALITY, AND ATTITUDE CHANGE

by Charles C. Hollen

This study was conducted as part of an ongoing series of studies at Michigan State University investigating experimentally induced changes in values, attitudes, and behavior. The purpose of this study was to test the effect of an induced value change on changes in instrumentally related attitudes.

In the theoretical viewpoint which guided this investigation, values are seen as part of the belief system of an individual (Rokeach, 1968a). A belief is considered to be "any simple proposition, conscious or unconscious, inferred from what a person says or does, capable of being preceded by the phrase 'I believe that...'" (1968a:113). A belief system consists of "the total universe of a person's beliefs about the physical world, the social world, and the self" (1968a:123). In this system, a value is "an enduring belief that a specific mode of conduct or end-state of existence is personally and socially preferable to alternative modes of conduct or end-states of existence" (1968a:160). A value system is "an hierarchical organization--a rank ordering--of ideals or values in terms of their importance" (1968a:124). Finally, an attitude is defined as "a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner" (1968a:112).

The following hypotheses were advanced as the focus of this inquiry:

1. A significant change in the relative importance of a particular value to an individual may be induced by presenting a persuasive message which makes the individual aware of an inconsistency between his own value ranking and those of significant others.

2. An induced increase in the importance of a value will lead to increases in favorable attitudes toward objects which are perceived as facilitating the attainment of that value and increased disfavor toward objects perceived as hindering the attainment of the value.

3. Given an induced value change, the amount of change in each instrumentally-related attitude will be in direct proportion to the degree of perceived instrumentality possessed by that attitude object, i.e. the degree to which that attitude object is perceived as instrumental to the attainment of the value.

In other words, we may change a person's attitudes indirectly, by changing his values. An increase in the importance ascribed to a particular value will lead to an increase in favorability toward objects seen as facilitating the attainment of that value, and a decrease in favorability toward objects seen as hindering the attainment of that value. The amount of positive or negative attitude change should be relatively greater in the case of objects which are perceived as highly instrumental, either positively or negatively, to the attainment of a value, and less in the case of objects whose "perceived instrumentality" is relatively slight.

An experiment was conducted to test the hypotheses, using questionnaires administered to volunteer college student subjects. There were three experimental sessions, the first consisting of the pre-tests and the second, one week later, including the experimental treatment and the

immediate post-tests. The third experimental session, administered to a subgroup of the subjects one month later, consisted of the same post-tests.

Initial attitude position was measured by asking subjects to indicate their degree of agreement or disagreement with each of a series of attitudinal statements, each one proposing some social action. Second, initial value importance was measured by asking subjects to rank a set of 18 values from most to least important. Third, perceived instrumentality was measured by asking subjects to respond again to the same set of attitude statements, this time by indicating to what extent they felt each social action would help or hinder the attainment of a particular value. Statements pertaining to two values were included, the value to be manipulated (A World of Beauty) and a "control" value, (A World at Peace). This concluded the first experimental session. One week later, subjects were given a written persuasive message designed to increase the importance of the value, A World of Beauty. A control group received no manipulation. After receiving the persuasive message, subjects were administered post-tests of value importance and attitude position, using the same questions which had been used in the pre-tests. One month later, a subgroup of the subjects were given the post-tests for a second time, in order to measure the persistence of the induced changes.

Value change was then computed by taking the difference between the pre-test and post-test rankings of each of the values. Attitude change was similarly computed, by taking the differences between the pre- and post-measures for each attitude item. Perceived instrumentality was taken directly from subjects' ratings.

Apparently value importance can be successfully changed using persuasive techniques. Our results show that the importance assigned to A World of Beauty was significantly changed immediately following the persuasive message and this change had persisted and slightly increased one month later. Previous studies have shown that changes in value importance are highly persistent over periods of a year or more (Rokeach, 1971b). Thus we may conclude that we may induce significant and persistent changes in value-importance through persuasion.

Our results show that a change in value importance did produce changes in attitudes toward related issues. Moreover, the results showed that attitudes changed toward those actions which were seen as highly instrumental to value attainment. Thus the study provides further support for the conception of instrumental linkages between values and attitudes. Given an increase in value-importance, the more a particular action was seen as facilitating the attainment of that value, the more the individual's attitude toward that action changed toward increased favorability.

There was also a tendency, though not as clear-cut, for individuals who had changed their values to become less favorable toward actions seen as hindering the attainment of the value in question. Thus it would seem that it is possible to change a number of attitudes at once, through a single manipulation, by directing that manipulation toward a value to which the attitudes are seen as instrumental.

Results from a delayed post-test showed that the obtained attitude change did not decrease over time. Indeed, they tended to increase slightly (though not significantly). The results of studies of attitude

change typically show decreases over time as the effects of the manipulation "wear off" and individuals' attitudes regress toward their initial positions. It is extremely interesting to note that in this study the opposite effect occurred.

The results of this study indicate that (a) individuals' values are amenable to influence through traditional persuasive methods, (b) changes in values bring about changes in attitudes toward instrumentally related objects, and (c) these changes in attitudes do not decrease over time. Thus it would seem to illustrate a potentially powerful means of persuasion and influence. First, changing attitudes indirectly through changing values would appear more economical for persuaders, in that a number of attitudes may be influenced "in one fell swoop" through the manipulation of a single value. Second, it would appear that attitude changes obtained through this indirect method may be more lasting than attitude changes obtained without regard to (or perhaps even in spite of) the individual's values.

VALUE CHANGE, PERCEIVED INSTRUMENTALITY, AND ATTITUDE CHANGE

by

Charles C. Hollen

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## CONTENTS

INTRODUCTION . . . . .	1
Studies of Indirect Changes	2
Summary and Evaluation	10
The Role of Personal Values in Human Behavior	15
The Relation Between Attitudes and Values	17
Definitions of Terms Used in This Research	27
Hypotheses	27
METHOD . . . . .	29
Overview of Method	29
Subjects	30
Materials and Procedure	30
Attitude Pre-Test	31
Value Importance Pre-Test	32
Perceived Instrumentality Test	32
Second Experimental Session	33
Experimental Treatment	34
Value Importance Post-Test	35
Attitude Post-Test	35
Matching Questions	35
Third Experimental Session	36
Constructed Variables	36
RESULTS . . . . .	38
Value Change	38
Value Change - Delayed Post-Test	40
Attitude Change	42
Attitude Change - Delayed Post-Test	44
The Relation Between Value Change and Attitude Change	46
Perceived Instrumentality and Attitude Change	48
DISCUSSION . . . . .	52
Value Change Through Persuasion	52
Value Change, Perceived Instrumentality, and Attitude Change	53
Delayed Action Effects in Value and Attitude Change	54
Changing Attitudes Through Value Change	56
Conclusions	57
REFERENCES . . . . .	59
APPENDICES . . . . .	62
A. Verbal Instructions for Session One	62
B. Values and Attitudes Questionnaire	63
C. Verbal Instructions for Second Session	69
D. Values and Attitudes Questionnaire - Part II	70

LIST OF TABLES

Table		Page
1.	Mean changes in rank order of 18 terminal values for experimental and control groups . . . . .	39
2.	Mean changes in rank order of 18 terminal values for subgroups of experimental and control subjects tested immediately and one month later . . . . .	41
3.	Mean changes in agreement-disagreement ratings of 11 attitude statements for experimental and control groups . . . . .	43
4.	Mean changes in attitudes for subgroups of experimental and control subjects tested immediately and one month later . . . . .	45
5.	Mean changes in attitude for experimental subjects grouped according to amount of value change . . . . .	47
6.	Mean instrumentality ratings and mean incremental changes in attitudes of experimental subjects . . . . .	49

## INTRODUCTION

In past studies, attitudes have frequently been treated as if they existed independently, in isolation from one another and from other cognitive elements. Recently, however, it has begun to be recognized that in order to fully understand the functioning of attitudes in human behavior, we must attempt to place them within some organized system of relationships to other entities. Conceptions of linkages between an attitude and other attitudes and beliefs have been advanced by various theorists (McGuire, 1960a; Rosenberg, 1960a; Rokeach, 1968a). It has been suggested that we must obtain evidence concerning the cognitive and motivational systems in which an attitude is embedded in order to understand and predict the ways in which attitudes determine social behavior (Rokeach, 1968).

An effective method of studying the extent and strength of attitudinal linkages is through the study of "repercussion effects," i.e. the changes in related attitudes and beliefs when a particular attitude is changed through experimental manipulation. The "cognitive consistency" models of human thinking and action (Heider, 1946; 1958; Newcomb, 1953; Osgood and Tannenbaum, 1955; Cartwright and Harary, 1956; Festinger, 1957; Abelson and Rosenberg, 1958; Rokeach, 1968a) would all agree that people tend to behave in ways which will maintain an internally consistent belief system. Thus, an induced change in one belief should arouse inconsistencies with related beliefs, leading to "readjustments" to restore consistency. These "readjustments" may take a variety of forms, including the restoration of the manipulated belief to its original position (we see this occurring in the ubiquitous "regression" or "decay" effects). However, if the

manipulated change is accompanied by sufficient motivating force, then it will persist, and will set off "repercussions" as other beliefs are changed to accommodate it. The processes through which such "cognitive diffusion" effects occur are not well understood, and until very recently, have received little attention from investigators.

### Studies of Indirect Changes

Empirical results pertaining to indirect change effects are not numerous in the literature on attitude change. Only a few studies have included measures of attitudes toward additional issues not explicitly mentioned in the persuasive message.

{ Hovland, Lumsdaine, and Sheffield (1949) conducted a series of studies of the impact of orientation films on military recruits. They found that large and significant opinion changes on specific issues dealt with by the films were not accompanied by changes on implicit, generalized conclusions which were intended as the actual target of the films.} Thus opinion changes toward the effectiveness of the Royal Air Force in the Battle of Britain did not lead to changes in general confidence in British fighting strength. They suggest that a general attitude toward some object is a function of many specific opinions about particular aspects of the object. They conclude that "it would appear that changes in specific opinions can occur without being accompanied by changes in general orientation toward an issue" (1949: 70). In a further effort to ascertain whether effects on general attitudes require a "sinking-in" period, they conducted a study in which one group was post-tested five days after experimental treatment while another group was tested nine weeks later. Their results showed some tendency for the effects on general conclusions to increase with the passage of time. Unfortunately these results are

equivocal, since they occurred on some issues but not on others. They cautiously interpret these results as indicating some degree of support for the hypothesis that changes in specific opinions may lead to changes in general orientations gradually over time.

{ Stotland, Katz, and Patchen (1959) report a study in which subjects were given case history material regarding the roots of prejudice. This information set in motion a process of change which led to alterations in their opinions on specific issues pertaining to racial prejudice. These opinion changes were not present on an immediate post-test, but were found on a delayed post-test administered several weeks later.

Carlson (1956) administered a persuasive message designed to increase subjects' favorability toward "allowing Negroes to move into White neighborhoods." He also obtained measures of attitudes toward five related issues, (a) Mexican housing segregation, (b) Jewish housing segregation, (c) command of White enlisted men by Negro officers, (d) command of White enlisted men by Mexican officers, and (e) command of White enlisted men by Jewish officers. He found that attitude change on the "target" issue was accompanied by significant change on all five related issues. His results provide no evidence concerning the time-delay factor, since his study included only a single post-test, administered three weeks after the experimental treatment. He hypothesized that there would be differential amounts of change on the five related issues, according to a "gradient of generalization" based on the similarity of the attitude objects and situations. This hypothesis was not confirmed by his results. He concludes that "further study of the process of generalization of change of social attitudes will depend upon systematic analyses of the gradients of conceptual similarity involved" (1956: 260).

Tannenbaum and Gengel (1966) demonstrated that a change in attitude toward a given concept will be accompanied by changes in attitudes toward sources (persons) who previously made assertions about that concept. Subjects were given a brief message describing a fictitious "Dr. McLay" as a proponent of teaching machines, "Dr. Samuels" as opposing teaching machines, and "Dr. Spence" as neutral. Following this linking message the subjects were administered persuasive messages designed to change their attitudes toward teaching machines. For half the subjects the communication favored teaching machines and for the other half the communication opposed teaching machines. Utilizing Osgood's congruity theory (Osgood and Tannenbaum, 1955) Tannenbaum and Gengel predicted that a favorable change in attitude toward teaching machines should produce a favorable change toward the source with the positive linkage (Dr. McLay) and an unfavorable change toward the source with the negative linkage (Dr. Samuels). Comparably, the unfavorable change toward teaching machines should also be accompanied by changes in attitudes toward the two "sources," but in the opposite direction. In general, their results quite thoroughly confirm the hypotheses, although the negative changes were somewhat less than predicted, and significant positive changes toward the neutral source were obtained. These effects were probably due to a generally favorable impression of all three sources, imparted by the linkage message, even though it was not intended to change attitudes. It could be argued that the linkage message itself rather than the attitude-change message may have been responsible for what appear to be the "indirect change effects." This argument could not be effectively refuted from the data were it not for the existence of the "negative persuasion" group. For this group, a negative change toward teaching machines was accompanied

by a significant positive change toward the source who had been negatively linked with teaching machines. This result is the reverse of what would be expected on the basis of the linkage message alone, given that subjects' initial attitudes toward teaching machines are neutral or mildly favorable. To counter anticipated questions regarding the possible presence of demand characteristics, the linkage message was administered by a different experimenter for an ostensibly different purpose. Follow-up interviews with subjects indicated that the two messages were in fact perceived as independent of each other.

In a second study, Tannenbaum (1966) obtained evidence indicating that a change in attitude toward a given concept will produce a change in attitude toward a source who has been linked with that concept, and in addition, a "second-order" change, toward an additional concept about which the source has made an assertion. In a design similar to the previous one, the concepts "teaching machines" and "Spence learning theory" were used, along with the source "Prof. Samuels." Four different linking messages were used, containing different combinations of positive and negative linkages between the source and the two concepts. Results fully supporting the hypotheses were obtained, including predicted negative changes which the previous (Tannenbaum and Gengel, 1966) study had failed to obtain. Thus not only did attitude change generalize from a manipulated concept to a linked source, but also from the source to an additional linked concept. These findings provide strong support for the existence of at least certain types of indirect change effects, and by inference, for the general conception of indirect changes predictable from balance or consistency theory. It must be pointed out, however, that no evidence was found (nor was any sought) to show that these indirect changes were delayed or required a "sinking-in" process. The post-test was administered

immediately following the persuasive message, and there was no other post-test.

McGuire (1960a, 1960b) has conducted a series of studies, one focus of which is the logical repercussions of change. Subjects are asked to rate the truth probability of three syllogistically related statements--a major premise, a minor premise, and a conclusion--which are randomly dispersed among other statements in a questionnaire. On a subsequent occasion, persuasive messages are administered which argue for the truth value of the minor premise. Immediately and again later, the impact of the persuasion on the premise and on the unmentioned but logically related conclusion is retested. Each subject receives persuasive messages relating to several syllogisms. McGuire provides the following example of a set of statements used in his studies: (1) "Any form of recreation that constitutes a serious health menace will be outlawed by the City Health Authority." (2) "The increasing water pollution in this area will make swimming at the local beaches a serious health menace." and (3) "Swimming at the local beaches will be outlawed by the City Health Authority." In addition to ratings of truth probability, McGuire also obtains ratings of the desirability of the state of affairs described in each statement. He uses these data to test a "wishful thinking postulate," i.e. that change will be greater on statements which are rated as highly desirable. Thus, an individual will behave to increase logical consistency among his beliefs, but this tendency will be tempered or distorted somewhat by a tendency toward "affective consistency" i.e. consistency with desired or hoped-for states of affairs. McGuire also advances a "cognitive inertia" postulate, stating that the amount of change will be less than the amount required to achieve complete logical consistency, and that this change



will occur through a delayed-action process. The results of McGuire's studies have demonstrated repeatedly that persuasion directed at a "premise" will produce change, not only on it, but also on the unmentioned "conclusion." Unfortunately, McGuire's results, examined closely, are not strong and unequivocal evidence of delayed-action effects on derived issues, even though he interprets them as providing significant support for this effect. Ideally, in order to conclude that indirect changes were delayed, one would expect to find large, significant changes on the premise but little or no change on the conclusion at the time of the immediate post-test, then a large and significant change in the conclusion on a subsequent, delayed post-test. In McGuire's studies, both the premise and the conclusion changed significantly on the immediate post-test, and both regressed back toward initial positions on the delayed (one week later) post-test. However, he found a slight ( $p < .10$ ) tendency for the reversion of the conclusion to be less than that predicted by the reversions on the premises. He interprets this as evidence for "continued seepage of the impact" from the explicit issue tending to overcome "the opposing decay effect on the derived issue." (1960a: 350).

Regardless of whether his results adequately illustrate delayed-action effects, we are indebted to McGuire for his demonstrations of another type of indirect change effect, that which occurs according to logic. In addition, his proposals concerning "wishful thinking" and "cognitive inertia" are instructive.

Dillehay, Insko, and Smith (1966) report two studies using the same syllogisms, communications, and instructions as McGuire. The results of these studies for the direct and indirect effects of persuasion are consistent with McGuire's findings. The second of these studies is

particularly helpful since it utilized an after-only design. A potential criticism of McGuire's studies can be based on his use of a before-after design. Even though the syllogistic statements were scrambled and embedded among other statements, the pre-test may have served to sensitize the subjects to the logical connections between the statements. Dillehay, Insko, and Smith's second study showed that apparently this is not the case, since they found results consistent with McGuire's, on their immediate post-test which was not preceded by a pre-test. Unfortunately, they do not mention whether in their post-test, the attitudes toward the conclusions were tested before or after the attitudes toward the premises. Secondly, they did not administer the two post-tests to two separate groups. Thus, their design does not preclude the presence of sensitization effects of the immediate post-test on the delayed one. Whether or not such effects may have been present, an interesting finding of their study was that at the time of the delayed measurement there was no significant difference between the message and no-message groups on the derived, unmentioned issues. One week after experimental treatment there was "no remaining impact of the communications on the conclusions" (1966: 653). The failure of this replication casts further doubt on McGuire's somewhat weak results concerning delayed action effects.

Rokeach, Reyher, and Wiseman (1968) conducted a study designed to show that a change in a "more central" belief will produce greater changes among related beliefs than will a change in a "less central" belief. 55 belief statements were selected to represent five types of beliefs, varying systematically in degree of centrality. These five types (in descending order of centrality) were: (A) Primitive beliefs, unanimous consensus, i.e. "my name is...", (B) Primitive beliefs, zero consensus, i.e. "I

believe that my mother loves me," (C) Authority beliefs, i.e. "the philosophy of Dwight Eisenhower is basically a sound one," (D) Derived beliefs, i.e. "birth control is morally wrong," and (E) inconsequential beliefs, i.e. "Elizabeth Taylor is more beautiful than Dinah Shore." It was postulated that a more central belief should possess more and stronger functional connections (linkages) with other beliefs than a less central one. Hence an induced change in a Type A belief should produce greater changes among related beliefs than a Type B change, and so on in descending order for each of the remaining belief types. Belief statements to represent each of the five types were selected on the basis of intuitive judgments "that they should be sufficiently interconnected and have implications for one another, so that a change occurring in one or more beliefs of one type could reasonably be expected to lead to changes in the remaining beliefs." (Rokeach, 1968: 26). However, the precise nature of the relationships among the "related" beliefs, logical or otherwise, was not systematically formulated, nor were any predictions made concerning which particular "related" beliefs would be expected to change as a result of change in a manipulated belief.

Belief changes were induced by hypnotic suggestion. Subjects were selected who were capable of being placed in a deep hypnotic trance and who evidenced complete posthypnotic amnesia. In a series of experimental sessions, subjects' responses to the 55 belief items were obtained immediately prior to hypnosis, while under hypnosis, and following removal of hypnotic trance but while under post-hypnotic suggestion. The only results which the authors have presented pertaining to the "indirect changes" hypothesis concern simply the sheer amount of change, averaged across subjects and across beliefs. In their "raw" form, and after having been "adjusted"

to take into account differential amounts of change in the manipulated beliefs, the results show that substantial indirect change effects were obtained. However, they show very little difference in the amount of indirect change produced by manipulating each of the belief types. Although the results differ very slightly in the predicted direction, which is encouraging, the differences appear insignificant. (The authors do not report a test of the significance of the differences.) It is apparent that further study of the relation between belief centrality and repercussion effects would be useful. On both theoretical and common-sense grounds, the authors' hypothesis appear to be a reasonable and valid one. Unfortunately, opportunities to study repercussion effects of this type are sharply limited, since extremely central beliefs such as one's own name are not readily manipulable except by extreme measures such as hypnosis, and it cannot be known whether the types of indirect changes which occur under hypnosis are comparable to those which occur naturally.

#### Summary and Evaluation

In summarizing and evaluating the evidence concerning indirect change effects, several general conclusions may be drawn, some of which are more in the nature of tentative proposals rather than conclusions, since they lack strong or unequivocal empirical support at this time.

1. Indirect change effects are limited by certain inherent properties of belief-system linkages. In almost every case it has been found that when persuasive messages do produce changes in related, unmentioned issues, these changes are less than the amount required to achieve complete consistency. McGuire (1960b) has proposed that this is due to "cognitive inertia." However, this approach to the problem is characteristic of those who apply a label to a phenomenon instead of attempting to understand or

explain it. A variety of mechanisms might be proposed to account for "cognitive inertia." Most plausibly, following Hovland et al. (1949) it seems reasonable to assume that an individual's position on a "related" issue is not determined solely by his position on the manipulated issue, but rather is itself linked to a number of related beliefs, each of which determines a certain amount of the variance, as it were. The existence of this type of internal belief-system relationships has been strongly supported by the work of Fishbein (1963, 1965a, 1965b, 1966) which shows that an individual's attitude toward an object can be conceptualized and measured as an additive function of his beliefs about its' characteristics and his evaluations of those characteristics. This theoretical expectation is also implicit in the work of Rosenberg (1956, 1960) and others who have studied the relation between values and attitudes. However, no study has been undertaken to attempt to predict the amount of change in a related attitude or belief from prior knowledge of the amount of variance accounted for in it by the manipulated belief.

Additional constraints on the occurrence of repercussion effects may be postulated in the form of belief system isolation and compartmentalization. As Rokeach (1960), Rosenberg (1960), and other cognitive consistency theorists have pointed out, all individuals' belief systems contain numerous disconnections and inconsistencies. Everyone must maintain certain "mental blocks" and defensive avoidances in order to maintain sanity in a world of violently conflicting stimuli. In addition, each individual to some extent maintains his own "psycho-logic." Thus we may expect considerable idiosyncratic differences affecting the extent to which a change in Belief A is perceived as necessarily implying a change in Belief B. Few of these factors have been systematically investigated, but all of them must be

taken into account before we can reach complete understanding and prediction of the nature and extent of repercussion effects.

2. No single theoretical model appears adequate to account for all types of indirect change effects. Repercussion effects appear to proceed through a variety of different types of interconnections. Past studies show changes going from specific beliefs to general orientations (Hovland, Lumsdaine, and Sheffield, 1949), from a specific issue to similar issues (Carlson, 1956), from a concept to a linked source (Tannenbaum and Gengel, 1966), and from a logical premise to a deduced conclusion (McGuire, 1960a, 1960b). The empirical results obtained by McGuire appear to support his "logical model" as a candidate for consideration as a possible general model within which others may be subsumed. However, Dillehay, Insko, and Smith (1966) have noted that McGuire's results provide no evidence whatsoever that repercussion effects occur according to logic. In discussing their own results, they point out that:

Perhaps changes occur in derived unmentioned issues less as a result of the logical structure of the relationships between explicit and implicit issues than of the extralogical cognitive relatedness of the propositions. If persuasion produces a change in acceptance of Fact A about Object X, this change may influence the acceptance of other facts about the object, especially facts that have an experiential relationship to Fact A or are "reasonably" related to A. What we are suggesting is that the process underlying the observed changes in McGuire's studies and ours may be due to a psychological process based on experience and/or judged reasonableness and not to valid logical structures among beliefs. The apparently logical repercussions found in these studies may be due to the fact that we only looked at derived issues that were logically related. (1966: 654)

The only way to clearly prove or disprove the validity of this contention would be to show evidence of indirect change effects between cognitions which are related experientially or reasonably but not logically. This may be easier said than done. The attitudes toward sources and concepts utilized by Tannenbaum and Gengel (1966), for example, can be

rather simply and directly linked by a pseudo-logical premise ("Teaching machines are valuable and useful objects, therefore anyone who advocates them must be an intelligent and worthy person, and anyone who opposes them must be either stupid or dishonest.") However, in the case of results such as Carlson's (1956) it may not be so easy to make a "logical" connection. In order to establish a logical connection between Negro housing integration and issues such as the command of WASP enlisted men by Jewish or Mexican officers, one would require a rather long and tenuous chain of premises. It would seem rather more parsimonious to conclude that repercussion effects such as these took place more through "reasonable" or "experiential" connections than through logical deductions.

The type of indirect effects found by Hovland et al. (1949) would appear best explained by the type of model advanced by Fishbein (1963, 1965a, 1965b, 1966) and by Rosenberg (1956, 1960) in which an individual's attitude toward an object is seen as a joint function of his beliefs linking it with other objects, concepts, values, or goals, and his evaluations of or attitudes toward these "related objects." I shall review these models in more detail in a subsequent section of this paper. In regard to the present concern, it may be stated that although these models appear potentially capable of accounting for some types of indirect changes, it does not appear that they are sufficiently general to account for all the interconnections within a belief system, hence all the ways in which repercussion effects can occur. In addition, except for Hovland et al.'s (1949) suggestive but inconclusive results, studies of indirect changes based on these models have not yet been carried out.

3. Indirect changes are delayed, and may occur days, weeks, or months following the manipulation. For example, in a recent study conducted by Rokeach (1971b) a "delayed action effect" was found, through which attitude change took place following changes in values. A manipulated

change in value importance was followed by changes in related attitudes on post-tests taken three months to 17 months later. These indirect attitude changes were not present on a post-test taken three weeks after the manipulation. In this particular study, which will subsequently be discussed in more detail, the repercussions began to occur only after three weeks had elapsed, and some time prior to three months afterwards. It is difficult, of course, to precisely pinpoint the process of indirect change over time. To do so would require a series of closely-spaced post-tests. And the time factor would vary according to the nature of the manipulated and the related cognitions.

The time required for indirect changes may be a function of the closeness or remoteness of the affected cognitions to the one manipulated-- their distance from it in "belief space." We may envision a manipulated change in belief as setting off a chain of repercussions, beginning with immediate effects on closely linked beliefs and followed by second- and third-order changes as effects spread throughout the surrounding belief space in ever-widening circles. No study has been undertaken to test this postulate directly, although such a study would seem eminently worth doing.

4. Some types of beliefs may be more powerful sources of repercussions than others. Rokeach, Reyher, and Wiseman's (1968) compelling arguments and their suggestive results indicate that a change in a central belief may lead to a greater number and/or magnitude of indirect changes than will a change in a peripheral belief. This study is one of a mere handful in the literature which have addressed themselves to the neglected problem of systematic differences among beliefs or attitudes having to do with their importance or unimportance. In a sense it may be seen as an attempt to



distinguish those sources of repercussion effects which are important, which represent significant and lasting changes in an individual's life, from those which are trivial, superficial, and transitory. Based on Rokeach, Reyher, and Wiseman's finding, we may postulate that a change in the importance of a value will lead to a greater number and/or magnitude of indirect changes than will a change in some less fundamental cognition.

A person's attitude toward an object (person, group, issue, etc.) consists of a cluster of beliefs about that object. This cluster includes a variety of types of beliefs. A crucially important subset of beliefs within this cluster are his beliefs about the object's potentiality for facilitating or blocking the attainment of important values. A favorable attitude toward an object will be associated with beliefs that it (the attitude object) tends to facilitate the attainment of important values, while an unfavorable attitude will be associated with beliefs that the attitude object tends to block the attainment of important values. These beliefs may be referred to as "instrumentality beliefs." They constitute one type of belief system interconnections, concerning which we may propose the following mechanism for indirect belief change which is the thesis of the present research: If we can succeed in substantially altering the importance an individual ascribes to a particular value, he will also change his attitudes toward objects which he sees as instrumental to the attainment of that value. The amount of change in each attitude will be in direct proportion to that attitude object's degree of instrumentality to the value in question.

#### The Role of Personal Values in Human Behavior

Rokeach (1968a) has pointed out that half a century of attitude research has resulted in a proliferation of fragmentary and microscopic

knowledge of attitudes but has not led to any satisfactory theoretical conception of the role of attitudes in social behavior. He proposes that the concept of value be accorded greater attention in our attempts to predict attitudes and behavior. He argues that value is a more powerful and efficient explanatory concept than the concept of attitude, since:

- (1) values are more fundamental components of the individual's belief system than attitudes,
- (2) values are determinants of attitudes as well as of behavior,
- (3) values are relatively few in number and are organized hierarchically, while attitudes are extremely numerous and possess no inherent organizing structure, and
- (4) the concept of value is a more clear and unequivocal locus of motivational dynamic, to account for the purposiveness or goal-directedness of human behavior.

In Rokeach's conception, an individual's day-to-day behavior is organized around his efforts to attain certain values. Thus, his attitudes may be understood as favorable or unfavorable reactions to objects in his environment which he sees as instrumentally related to his values, either directly or indirectly. The relevant question concerning any attitude object thus becomes: which values does the individual see this object as facilitating or hindering? It is not suggested that direct instrumentality relationships are the sole determinants of attitude intensity. In some cases, an attitude may be formed directly through experience with the attitude object itself. For example, a child may form a negative attitude toward a particular dog as a result of being bitten by it. In other cases, an attitude may be induced through associations with other attitude objects, as in the well-known case of induced favorability toward some issue or person, through the suggestion of a respected authority figure. However, the original source of all positive evaluations of external

objects is the individual's value system. His values, of course, are a product of socialization, and thus reflect the culture in which he lives, as well as the influences of his own personal childhood and personality. Thus the influences of culture and personality on attitudes and behavior may be understood through their role in shaping values, which are viewed as fundamental determinants of attitudes and behavior.

The type of indirect change proposed here--value change leading to attitude change--is not intended as a comprehensive model for indirect changes. It represents only one specific type of indirect change - albeit an important one. Earlier, in stating the thesis of this research, we postulated that "instrumentality beliefs" constitute the functional link between attitudes and values. To defend this assumption, we shall review briefly the evidence from previous studies of the relation between attitudes and values.

#### The Relation Between Attitudes and Values

An operational definition of value was introduced into the literature of social psychology in 1931 by Vernon and Allport (Vernon and Allport, 1931). They constructed a standardized, generalized measuring instrument for personal values. The availability of this test stimulated a number of investigations of personal values, including studies of their relationship to attitudes. Early studies of values and attitudes typically were correlational, seeking to identify which values and which attitudes were related. For example, Pintner (1933) correlated college students' scores on the Allport-Vernon scale with their attitudes toward church, prohibition, war, and the Negro. His results, like those of most of the other correlational and exploratory studies, yielded moderate (.20 to .40) correlations, most of which seemed consistent with common-sense expectations.

G. H. Smith (1946) found evidence indicating that individuals who possess the same positive value may at the same time possess opposing attitudes, depending on whether they perceive the object of their attitude as favoring or opposing their value. In a study of values and attitudes toward Russia, he found that individuals who approve of Russia affirm that one can worship as he pleases there, while those who oppose Russia deny that a person may worship as he pleases in the U.S.S.R. Both groups agree on religious freedom as a value. This example revealed that the relation between values and attitudes may not be a simple one.

Brewster Smith (1949) conducted an interview study to test the hypothesis that a value for liberty would be related to negative attitudes toward Russia, while a value for economic security would be related to positive attitudes. His first hypothesis was confirmed, but he found no relationship between economic security as a value and attitudes toward Russia. This led him to hypothesize a difference in levels between liberty and economic security, the former being usually thought of as an abstract universal good, but the latter usually having a much more personal focus. Upon looking again at his data, he found that people who mentioned economic security as important to them tended to possess less information about Russia and to be less interested in world events and in taking part in community affairs, while people holding a high value for liberty showed a broader scope of interests. He concludes by proposing that a person will tend to perceive and judge the focus of an attitude in terms of one of his personal values to the extent that (a) the value is important to him, occupying a central position in his value hierarchy; (b) the information available to him about the focus (the object) contains a basis for engaging the value; and (c) the scope of the value and of the person's interests is broad enough to extend to the focus of the attitude.

X

A study conducted by Woodruff and DiVesta in 1948 represents a landmark in the literature on attitudes and values. Not only was it the first attempt to go beyond the correlational approach and study the effects of change, in addition it presents for the first time an attempt to specify the functional relation between attitudes and values. Woodruff and DiVesta use the term "concepts" to refer to what we herein call "instrumentality beliefs." They hypothesize that:

An individual's attitude toward any object, proposition, or circumstance will be favorable if, according to his concepts, that object seems to favor the achievement of his strong positive values. Conversely, one's attitude toward any object, proposition, or circumstance will be unfavorable if, according to his concepts, the object seems to threaten his strong positive values. (1948: 648).

They also hypothesized that a change in an individual's concepts would lead to a change in his attitude. They used a test previously developed by Woodruff (1942) to measure the importance of a number of values, and a combination of structured and open-ended questions to measure attitudes and concepts. They found a correlation of .80 between Ss' attitude scores (their positions on the issue of whether fraternities and sororities should be abolished) and their "concepts" scores, which consisted of the net total of the number and strength of their beliefs about the value-attaining and value-blocking properties of fraternities and sororities. Later, after having been subjected to favorable propaganda pertaining to the Greek system, the subjects' attitudes and concepts were re-tested. It was found that a change in attitudinal position on the issue was accompanied by changes in instrumental "concepts." Thus both of the hypotheses were confirmed. The authors conclude by suggesting that their results support the general thesis that "values are directive factors in behavior, and attitudes are an aspect of behavior, and not causative factors" (1948: 653).

Several years later, Rosenberg (1956) conducted a study very similar to the correlational portion of Woodruff and DiVesta's, but with more up-to-date terminology and with more measurement precision. Whereas Woodruff and DiVesta had stated their hypotheses simply in terms of sign (favorable or unfavorable) Rosenberg attempted to account for degree of favorability. He hypothesized:

The degree and sign of affect aroused in an individual by an object (as reflected by the position he chooses on an attitude scale) vary as a function of the algebraic sum of the products obtained by multiplying the rated importance of each value associated with that object by the rated potency of the object for achieving or blocking the realization of that value. (1956: 367).

Rosenberg used two separate card-sorting procedures to measure "value importance" and "perceived instrumentality." Subjects were asked to rate a group of value statements in terms of (1) the importance of the value as a source of satisfaction, and (2) the extent to which the value tends to be attained or blocked through the agency of the attitude "object" (allowing Communists to address the public). An index was computed by multiplying a subject's "value importance" rating by his "perceived instrumentality" rating for each of the values, then summing this set of products. These indices were found to be monotonically related to attitudinal position. In addition to confirming the principal hypothesis, Rosenberg also found that attitudinal position varied significantly with "value importance" and with "perceived instrumentality" scores, when each was considered while the other was held constant.

Rosenberg has also conducted several studies of the effect of "affect change" on perceived instrumentality. (1960a, 1960b) In a reversal of the typical persuasion procedure which seeks to create or alter instrumentality beliefs in order to change an attitude, Rosenberg sought to demonstrate that hypnotically induced attitude change could

produce changes in beliefs concerning the value-instrumentality of the object. He points out that this sort of process can be seen to occur in everyday life. A positive or negative affect toward an object is acquired or changed directly (for example, through rewarding or punishing experiences with the object itself) and then beliefs concerning the value-instrumentality of the object are acquired or invented, to "rationalize" the acquired affect. In a series of replicated studies using a variety of attitude issues, Rosenberg utilized posthypnotic suggestion to induce a reversal of attitudinal affect toward a particular object. He found that this led to four different types of instrumentality change: (1) a simple reversal from positive to negative or negative to positive, (2) a reduction in extremity of an instrumentality rating without change in its sign (3) the reduction of an object-value relationship to the absence of any relationship, and (4) the addition of new object-value relationships. He also found numerous instances of value change, in which subjects substantially increased or decreased the rated importance of one or more values in order to reduce cognitive inconsistency. He points out, however, that "subjects tend to rely on instrumentality change significantly more than upon value change in reorganizing their cognitive structures to accommodate imposed reversals of attitudinal affect" (1960b: 63).

Scott (1959) conducted a study of cognitive consistency and attitude change, using a modified version of Rosenberg's procedures. He used measures of value importance and perceived instrumentality to predict the degree of favorability of each subject toward an attitude object. Subjects whose predicted attitudes corresponded to their actual attitudes were called "cognitively consistent" and the others were called "inconsistent." An attempt was then made to induce a change in attitude on the issue. It

was found that cognitively consistent S's were significantly more likely to retain their initial attitudes than inconsistent S's. This result was interpreted as indicating that "the consonance of an attitude with other cognitive elements, such as values and expectancies, serves to stabilize it and increase its resistance to change under externally imposed pressures" (1959: 229). Thus one function which values may serve for attitudes is to provide "bolstering power" when an attitude meets with challenge. ✓

Carlson (1956) conducted a study designed specifically to test the traditional underlying assumption of rational persuasion attempts, i.e. that attitudes toward an object may be changed through altering the person's perception of the instrumentality of the object as a means for attaining valued goals. He measured value importance and perceived instrumentality using procedures similar to Rosenberg's. Subjects were given persuasive messages designed to increase their awareness that the object (allowing Negroes to move into White neighborhoods) would lead to the attainment of four important values. On postmanipulation measures the experimental group was found to have changed significantly both their judgments of the instrumentality of the object for each of the values, and their attitudinal position toward the object.

DiVesta and Merwin (1960) report evidence that attitudes toward teaching as a career can be made more favorable by changing the perceived instrumentality of teaching for the satisfaction of the achievement need. Two experimental groups were exposed to two different panel discussions pertaining to the teaching profession. Both of the panel discussions maintained that teaching is a desirable career, but one emphasized achievement-oriented satisfactions which it allegedly provides, while the other spoke of freedom from competitiveness and the frequent vacations. It was



found that the achievement panel produced significant positive changes in the perceived instrumentality of teaching for satisfaction of achievement need and in attitude toward teaching, while the nonachievement panel produced significant negative change on both of these dependent variables. In a control group, there was no significant change. The correlation between attitude change and the products of the achievement scores by the instrumentality change scores was a low but significant .26.

A series of studies conducted by Fishbein (1963, 1965a, 1965b, 1966) have shown that attitudes toward a person or group of people can be predicted on the basis of individuals' beliefs or cognitions about the characteristics of the given person or persons and the value they place on these characteristics. Subjects are asked to indicate the extent to which Negroes (for example) possess certain characteristics, such as dark skin, tall, athletic, lazy, etc. Next, subjects indicated on evaluative semantic differential scales the value they placed on each of the characteristics. Combining these two measures by a "sum of the products" procedure, an estimated attitude score is computed. The correlation between this estimated score and actual attitude scores obtained via semantic differential procedure, was found to be quite high (.80) (Fishbein, 1963). The correlations of obtained attitude scores with value scores only and belief scores only were .47 and .02 respectively. Evidently measures of values alone or of "attributional beliefs" alone are not as effective for estimating attitudes as the combination of the two. In addition to the foregoing study of attitudes toward Negroes (1963) Fishbein has also obtained high correlations in predicting group leaders' attitudes toward group members (1965b) and individuals' attitudes toward political candidates (1966), through these procedures. These studies provide strong support for a slightly different type of belief system interconnection,

i.e. between values and attitudes through what might be called "attributional beliefs." These may be seen to differ somewhat from what we have termed "instrumentality beliefs." The difference has to do with the nature of the values in question. Thus Rosenberg has pointed out that we may distinguish two classes of values, and differentiate their relationships with attitudes:

The objects to which attitude objects are linked in relevant cognitions tend to be of different classes depending on the type to which the attitude object itself belongs. Thus, attitudinal cognitions about liked or disliked persons and groups are usually concerned with their positive or negative attributes and "defining characteristics." On the other hand, cognitions about the actions of a person or about favored or disfavored social actions, proposed policy changes, legislative developments, and so on, are usually concerned with positive or negative goals or with general values whose attainment is seen as fostered or hampered through the agency of the attitude object. (1965: 122).

Thus we may readily see that Fishbein's focus is on the former type of value-attitude relationships, while the other studies reviewed focus on the latter. This distinction between two classes of values parallels Rokeach's distinction between "instrumental values" (modes of behavior) and "terminal values" (end-states of existence).

Until recently, few attempts had been made to study the effect of value change on change in related attitudes. This was probably because it has been assumed that it would be difficult or impossible to induce a change in value in the single, brief encounter characteristic of most experimental treatments. However, two studies recently conducted by Rokeach (1971b) with the help of the present author provide evidence that the importance of a personal value can successfully be increased through experimental manipulation. Both studies utilized the same design and materials. The relative importance assigned to the values Equality and Freedom were measured by administration of a value ranking scale containing

these values along with a number of others. Then subjects were shown some results from earlier studies, and were given the experimenter's interpretations of these results. The purpose of this treatment was to arouse an awareness of inconsistency among those who had ranked Equality "low" on the scale, by linking Equality with Freedom and with an attitude (Civil rights demonstrations). It was proposed to the subjects that if they valued Freedom highly (which most college students do) they should also value Equality highly. In addition, if they favored civil rights demonstrations (which many of them did) they should value Equality highly. The results of all three studies showed significant positive changes in the relative position of Equality on post-tests taken at a number of intervals up to 15 months later. Subjects' attitudes toward a number of specific Equality-related issues (housing integration, school integration, racial intermarriage, etc.) were pre-tested and later post-tested by a different experimenter, on separation occasions, under different auspices. It was found that the experimental manipulation was successful in inducing significant immediate changes in value importance. These value changes were followed by significant attitude changes which were found to be present on the delayed post-tests but which were not present at the time of the immediate post-tests. In addition, the changes in values and attitudes were accompanied by significant changes in behavior in the experimental subjects. The results show a significant increase in actions undertaken in support of the induced values and attitudes, including responses to solicitations to join the NAACP. These studies paved the way for the present study, by indicating that value change could be obtained through experimental manipulation and that it does lead to changes in related attitudes, as well as in behavior.

A study recently conducted by Homant (1970) found that a communication linking an attitude object to an important value produced a significant increase in favorability toward the attitude object. Subjects' attitudes toward a "sliding scale tuition plan" were measured. Then one group of subjects were given a persuasive message arguing that sliding scale tuition would be instrumental to the attainment of Freedom, a highly important value. Another group received a message linking sliding scale tuition to the attainment of A Comfortable Life, a relatively unimportant value for these subjects. It was found that attitudes toward the tuition plan increased significantly among those who received the high value (Freedom) communication. The outcome of Homant's study was interpreted in terms of changes in perceived instrumentality. However, perceived instrumentality was not measured. Therefore the presence of perceived instrumentality changes, and the extent to which they may have led to attitude changes, is purely a matter of speculation. The study does show that an attitude may be manipulated by specifically invoking its instrumental relationship to an important value.

Additional evidence regarding value change and attitude change is provided by a study conducted by Penner (1971). White subjects were given an experimental manipulation similar to that used in Rokeach's studies (1968b, 1971b) designed to increase the importance of the value Equality. Later their attitudes and behavior toward a black person were measured. It was found that, in comparison to a control group which received no such manipulation, the experimental subjects showed somewhat more favorable attitudes and behaviors toward the attitude object. The differences were not all significant, but the results were in the predicted direction. The results were interpreted as supportive of the relation between value change and attitude/behavior change. As in the Homant (1970)

study, the degree of instrumentality between value and attitude was assumed, rather than explicitly measured.

### Definitions of Terms Used in This Research

In the theoretical viewpoint which guided this investigation, values are seen as part of the belief system of an individual (Rokeach, 1968a). A belief is considered to be "any simple proposition, conscious or unconscious, inferred from what a person says or does, capable of being preceded by the phrase 'I believe that...'" (1968a: 113). A belief system consists of "the total universe of a person's beliefs about the physical world, the social world, and the self" (1968:a 123). In this system, a value is "an enduring belief that a specific mode of conduct or end-state of existence is personally and socially preferable to alternative modes of conduct or end-states of existence" (1968a: 160). A value system is "an hierarchical organization--a rank ordering--of ideals or values in terms of their importance" (1968: 124). Finally, an attitude is defined as "a relatively enduring organization of beliefs around an object or situation predisposing one to respond in some preferential manner" (1968a: 112).

### Hypotheses

On the basis of the previous evidence and the theoretic rationale presented earlier, the following hypotheses are advanced as the focus of this inquiry:

1. A significant change in the relative importance of a particular value to an individual may be induced by presenting a persuasive message which makes the individual aware of an inconsistency between his own value ranking and those of significant others.

2. An induced increase in the importance of a value will lead to increases in favorable attitudes toward objects which are perceived as

facilitating the attainment of that value and increased disfavor toward objects perceived as hindering the attainment of the value.

3. Given an induced value change, the amount of change in each instrumentally-related attitude will be in direct proportion to the degree of perceived instrumentality possessed by that attitude object, i.e. the degree to which that attitude object is perceived as instrumental to the attainment of the value.

In other words, we may change a person's attitudes indirectly, by changing his values. An increase in the importance ascribed to a particular value will lead to an increase in favorability toward objects seen as facilitating the attainment of that value, and a decrease in favorability toward objects seen as hindering the attainment of that value. (It may also be postulated that a decrease in value importance should lead to decreases in favorability toward instrumentally related attitude objects. This will not, however, be tested in the present study.) The amount of positive or negative attitude change should be relatively greater in the case of objects which are perceived as highly instrumental, either positively or negatively, to the attainment of a value, and less in the case of objects whose "perceived instrumentality" is relatively slight.

## METHOD

Overview of Method

An experiment was conducted to test the hypotheses, using questionnaires administered to volunteer college student subjects. There were three experimental sessions, the first consisting of the pre-tests and the second, one week later, including the experimental treatment and the immediate post-tests. The third experimental session, administered to a subgroup of the subjects one month later, consisted of the same post-tests.

Initial attitude position was measured by asking subjects to indicate their degree of agreement or disagreement with each of a series of attitudinal statements, each one proposing some social action. Second, initial value importance was measured by asking subjects to rank a set of 18 values from most to least important. Third, perceived instrumentality was measured by asking subjects to respond again to the same set of attitude statements, this time by indicating to what extent they felt each social action would help or hinder the attainment of a particular value. Statements pertaining to two values were included, the value to be manipulated (A World of Beauty) and a "control" value (A World at Peace). This concluded the first experimental session. One week later, subjects in the experimental group were given a written persuasive message designed to increase the importance of the value, A World of Beauty. After receiving the persuasive message, subjects were administered post-tests of value importance and attitude position, using the same questions which had been used in the pre-tests. One month later, a subgroup of the subjects were given the post-tests for a second time, in order to measure the persistence of the induced changes.

Value change was then computed by taking the difference between the pre-test and post-test rankings of each of the values. Attitude change was similarly computed, by taking the difference between the pre- and post-measures for each attitude item. Perceived instrumentality was taken directly from subjects' ratings.

### Subjects

Michigan State University students enrolled in Introductory Psychology served as subjects in this experiment. In the Introductory Psychology course, students are required to spend a certain number of hours as subjects in experiments. They choose among the available experiments by signing their names on a sheet posted on the bulletin board which states the nature of the experiment. The present experiment was listed as "A Study of Values and Attitudes."

The experiment was administered in groups to a total of 320 subjects. Subjects were randomly assigned to the experimental and control groups. The experimental group consisted of 176 subjects, and the control group contained 143 subjects. (The experimental group was deliberately made somewhat larger than the control group in order to insure sufficient data to perform the desired analytical breakdowns.) Of the subjects, 56% were males and 44% were females. Males and females were approximately equally distributed between the experimental and control groups. A large majority of the subjects (57%) were freshmen, a minority were sophomores (26%), with a small percentage of juniors and seniors (17%).

### Materials and Procedure

Subjects were initially given a brief set of verbal instructions (See Appendix A). They were told that that the experiment consisted of



two sessions, and that they should report for the second session a week later. Then they were given a six-page questionnaire and told to read the instructions carefully, fill it out, and return it. This questionnaire was labeled "Values and Attitudes Questionnaire" and began with a set of instructions describing the experiment as "a scientific study of students' values and attitudes" and soliciting their cooperation. (See Appendix B). Subjects were first asked to answer a brief series of "background" questions, pertaining to their age, sex, grade point average, political and religious affiliations, etc. These questions were included primarily to mask the pretest-treatment-posttest nature of the design by making it appear to be a survey.

#### Attitude Pre-Test

The attitude pre-test consisted of 16 statements, each one proposing some social action (e.g. "The U.S. should promptly and completely withdraw its military forces from Vietnam"). Subjects were asked to "mark each statement on the line to the left of the statement number, according to how much you agree or disagree with it." They were provided with the following "key":

+1 I agree slightly	-1 I disagree slightly
+2 I agree moderately	-2 I disagree moderately
+3 I agree quite a bit	-3 I disagree quite a bit
+4 I agree strongly	-4 I disagree strongly
+5 I agree very strongly	-5 I disagree very strongly

Eight attitude items pertained to A World of Beauty, proposing actions such as increased air and water pollution control, restrictions on hunting and fishing, a ban on non-returnable bottles, etc. Another eight items pertained to A World at Peace, and included withdrawal from Vietnam, a strong nuclear arsenal, increased foreign aid, a strengthened Peace Corps, etc.

The sixteen items were mixed together in random order. Within each of the two sets of eight "value-instrumental" items, six were "positive," i.e. were intended to be perceived as facilitating the attainment of the value, and two were "negative," i.e. were intended to be perceived as hindering the attainment of the value. This was done in order to test whether increased value-importance would not only lead to enhanced favorability toward "positively instrumental" actions, but also would lead to increased disfavor toward actions perceived as "negatively instrumental" to the value in question.

#### Value Importance Pre-Test

The pre-test of value importance consisted of Rokeach's Terminal Value Ranking Scale, which had previously been developed and standardized (Rokeach; 1971a). Subjects are given a set of 18 values (A Comfortable Life, An Exciting Life, A Sense of Accomplishment, etc.--See Appendix B), each one printed on a gummed label, along with a brief defining phrase. Subjects are asked to peel off these labels and arrange them in rank order of importance "for you, as guiding principles in your life." Included in the 18 values are A World of Beauty and A World at Peace, the two values of particular interest in this study. Each value is accompanied by a brief defining phrase. A World of Beauty is defined as "beauty of nature and the arts," and A World at Peace is defined as "free of war and conflict."

#### Perceived Instrumentality Test

After the completion of the value-ranking task, subjects were asked to respond again to the same attitude statements used in the attitude pre-test. This time they were asked to rate each proposed action "according to how strongly you feel it would help or hinder the attainment of"

the particular value to which it pertains. The subjects were again asked to mark each statement on a line preceding the statement number, and were given the following "key":

+1 would help slightly	-1 would hinder slightly
+2 would help moderately	-2 would hinder moderately
+3 would help quite a bit	-3 would hinder quite a bit
+4 would help strongly	-4 would hinder strongly
+5 would help very strongly	-5 would hinder very strongly

Twelve of the sixteen actions, including the eight directly relevant to A World of Beauty plus four additional items randomly chosen from among the other eight, were rated according to how strongly they would help or hinder the attainment of A World of Beauty. Similarly, the eight items relevant to A World at Peace plus four randomly chosen beauty items, were rated according to their instrumental relationships to A World at Peace.

The purpose of obtaining instrumentality ratings for four "non-relevant" actions was to provide, for comparison purposes, some "control" items which should have little or no perceived relationship to the value in question, hence should not change as a result of a change in the importance of the value.

This concluded the first experimental session. On the last page of the questionnaire, subjects were given an opportunity to express any comments they wished to make about the questionnaire.

#### Second Experimental Session

One week later, at the beginning of the second session, subjects were again given a brief set of verbal instructions. (See Appendix C.) Then they were given a seven-page questionnaire entitled "Values and Attitudes Questionnaire - Part II," containing the experimental treatment and the post-tests. This questionnaire was described as "a continuation of the

study in which you participated previously." It began with a set of instructions, including the following:

We will be asking you some of the same questions again, which we asked you in Part 1. Please answer these questions carefully and honestly, according to how you feel about them today. Do not worry about how you may have responded to them previously.

#### Experimental Treatment

Next, the following instructions were presented:

First, we would like to know your opinions about an issue of major importance. Please read carefully the following selection. After you have finished it, you will be asked to give your reactions to it.

This is an excerpt from a speech given recently by Dr. Milton Rokeach, a professor of psychology at Michigan State. Dr. Rokeach is the author of the value ranking scale used in this questionnaire. In his speech, he discussed some findings from a previous study using the value scale;

Following this introduction, a brief (225 words) written message was presented, the purpose of which was to increase the importance to the subjects of A World of Beauty. In this message, the source (Dr. Rokeach) reports that the subjects in a previous study had ranked A World of Beauty unexpectedly low (unimportant). He expresses disappointment at this, and briefly advocates reasons why the value should be considered important by Americans. He draws the readers' attention to the fact that young people and better-educated people tend to rank A World of Beauty higher than the general public, and interprets these results as grounds for cautious optimism. (For the complete text of the persuasive message, see Appendix D.)

Included as part of the experimental induction were five questions immediately following the persuasive message. These questions were designed to focus and reinforce the effect of the persuasive message through a "Socratic" process. Subjects were asked to respond to each of

the following statements using the same +5 to -5 agree-disagree rating scale used on the attitude pre- and post-tests:

1. The spoiling or destroying of our natural environment is a serious problem in America today.
2. Especially in our large cities, the environment has already reached the point of being detrimental to the physical and psychological health of its inhabitants.
3. This problem will rapidly become worse unless we take immediate and substantial steps to solve it.
4. Most Americans place too little importance on preserving the beauty of nature.
5. This problem will become one of the most important ones facing our country during the next decade.

Control subjects received a substitute written message of comparable length which was followed by five "Socratic" questions. This message and the accompanying questions pertained to an unrelated topic (child rearing practices and student activism) and were designed to have no effect on their value for A World of Beauty and their attitudes toward the environmental issues. Questionnaires containing the "experimental" and "control" messages were randomly mixed together before passing them out to the subjects in group administrations.

#### Value Importance Post-Test

The post-test of value importance consisted of the same terminal value ranking scale administered in the pre-test, using the same instructions.

#### Attitude Post-Test

The attitude post-test consisted of the same 16 items used in the pre-test, and used the same +5 to -5 scale of agreement, disagreement.

#### Matching Questions

Next, the following instructions were presented:

Your answers to the following three questions will enable us to "match" this questionnaire with the one you filled out previously (Part 1) without requiring you to reveal your name. It is very important that you answer these questions again, even though you already answered them once before.

Then subjects were asked to indicate their sex, place of residence, and date of birth, which had been asked at the beginning of the Part 1 questionnaire. Subjects were not asked to give their names on either of the two questionnaires, in order to preserve the protection of their privacy through anonymity.

Finally, subjects were again offered the opportunity to comment on the questionnaire if they wished. This concluded the second experimental session.

### Third Experimental Session

A subsample of subjects were asked to report back for a third session one month later. These subjects were selected simply on the basis that they were the first batch of subjects who were run through the experiment. There were 70 subjects solicited for this purpose and of these, 61 were eventually successfully contacted and re-tested. Of these, 39 turned out to be experimental subjects and 22 were control subjects. At the time of the third experimental session, they were given a second post-test, consisting of the same set of value and attitude post-test items which were used in the first post-test, using the same instructions and procedures.

### Constructed Variables

An index of value change was constructed by subtracting each subject's post-test ranking of each of the values from his pre-test ranking of the same value. Thus if he ranked A World of Beauty 16th in order of importance initially and 8th on the post measure, this would represent a change of +8.

An index of attitude change was constructed for each of the 16 attitude items by subtracting a subject's pre-test rating from his post-test rating.

## RESULTS

Value Change

The results pertaining to Hypothesis 1 are of immediate and primary importance, since these results will indicate whether the experimental manipulation did in fact succeed in producing significant value change. Shown in Table 1 are the mean pre-test to immediate post-test changes in value rankings for all eighteen values, including the manipulated value, A World of Beauty. It should be noted that the signs of these changes are reversed, so that a change "upward" toward increased value importance is represented by a positive number.

It may be seen that the experimental subjects changed their rankings of A World of Beauty 3.34 units in a positive direction. Their mean ranking of the value on the pre-test was 11.77 and their mean post-test ranking was 8.43. The control group changed from a pre-test mean of 11.09 to a post-test mean of 11.00, a positive change of .09 units. A one-way analysis of variance of the change scores was conducted, and it was found that the difference in value change between experimental and control groups is highly significant ( $p < .001$ ).<sup>\*</sup> Significant differences between the two groups were also found on three of the other eighteen values. It may be seen that the control group's mean importance ranking of A World at Peace decreased .76 units, and their rankings of Family Security and

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<sup>\*</sup>In this analysis and all subsequent analyses, results are presented in terms of mean changes, and statistical comparisons are made in terms of analyses of variance of change scores. Preliminary analyses of variance conducted for all values and attitudes indicated that the experimental and control groups were not significantly different in their pre-test means. However, it was felt that, rather than using post-test comparisons, it would be simpler and more accurate to present the mean changes and the accompanying statistical tests.



Table 1. Mean changes in rank order of 18 terminal values for experimental and control groups.

Values	Experimental (N=176)	Control (N=143)
A comfortable life	-.54	-.15
An exciting life	-.11	.41
A sense of accomplishment	-.23	-.34
A world at peace	.44	-.76**
A world of beauty	3.34***	.09
Equality	.38	.03
Family security	-.12	.60*
Freedom	-.15	.55*
Happiness	-.53	-.31
Inner harmony	-.22	.11
Mature love	-.31	.23
National security	-.10	.15
Pleasure	-.23	-.02
Salvation	-.45	-.15
Self-respect	-.43	-.14
Social recognition	-.33	-.11
True friendship	-.40	-.15
Wisdom	-.01	-.03

\*p < .05, \*\*p < .01, \*\*\*p < .001, significant difference between experimental and control groups, one-way analysis of variance of change scores.

Freedom increased .60 units and .55 units, respectively. These changes in the control group may be due to the "control" message used in place of the "experimental treatment" message. In any case they are not important to the purpose of this study. Changes among the remaining values were slight, and did not differ significantly between the two groups.

In summary, the results shown in Table 1 indicate clearly that the experimental manipulation was successful in producing a highly significant positive change in the experimental subjects' rankings of A World of Beauty, on a post-test administered immediately following the experimental manipulation.

#### Value Change - Delayed Post-Test

The results shown in Table 2 were obtained from subgroups of 39 experimental and 22 control subjects who were tested immediately following the experimental manipulation along with all other subjects, and who were additionally retested approximately one month later. Table 2 shows the value changes for these groups on both the immediate and delayed post-tests. These results will be relevant to our subsequent presentation of attitude change results pertaining to Hypothesis 2.

As may be seen in the table, the experimental subjects had changed their rankings of A World of Beauty 3.31 units at the time of the immediate post-test and 3.87 units on the delayed post-test. Both these changes were highly significant ( $p < .001$ ) according to a one-way analysis of variance comparing the differences in amount of change between experimental and control groups.

None of the other 18 values changed significantly on either post-test, except for Pleasure, which was changed in a positive direction by the control group at the time of the second post-test.

Table 2. Mean changes in rank order of 18 terminal values for subgroups of experimental and control subjects tested immediately and one month later.

Values	Immediate		Delayed	
	Exper. (N=39)	Control (N=22)	Exper. (N=39)	Control (N=22)
A comfortable life	-1.25	-.32	-.46	-.41
An exciting life	-.72	.41	-.67	.14
A sense of accomplishment	-.54	-.59	-1.26	-.18
A world at peace	.92	-.23	1.51	-.41
A world of beauty	3.31***	.55	3.87***	-.14
Equality	.18	.05	.62	-.36
Family security	.13	-.18	.10	-.27
Freedom	-.92	-.73	-.28	-.19
Happiness	-.79	.23	-.21	-.18
Inner harmony	1.03	-.32	.51	.27
Mature love	-.56	.41	-.69	1.05
National security	-.33	.09	-.36	-.59
Pleasure	.36	.82	-.41	1.32*
Salvation	-.67	-.36	-.74	-.59
Self-respect	.05	1.32	-.54	.68
Social recognition	-.02	.18	.31	-.27
True friendship	-.10	-1.05	1.18	.14
Wisdom	-.03	-.27	-.13	-.01

\*p < .05, \*\*p < .01, \*\*\*p < .001, significant difference between experimental and control groups, one-way analysis of variance of change scores.

It should be noted that there was no substantial "delayed action effect" as far as value change was concerned. The immediate and the delayed changes in importance of A World of Beauty are not substantially different. Thus the experimental manipulation apparently took effect immediately, and this effect was sustained over time, increasing slightly during the month following the manipulation.

#### Attitude Change

Table 3 shows the mean changes in eleven\* attitudes for the experimental and control groups. Above the line are the seven attitudes relevant to A World of Beauty, and below the line are the four "control" items. It may be seen that the experimental manipulation was successful in producing significant changes in three of the seven attitudes. For attitudes toward highway beautification, banning automobiles from cities, and prohibiting nonreturnable bottles, the experimental group changed significantly more than did the control group, in a positive (more favorable) direction. For the two negatively-worded attitude items, unrestricted hunting and fishing and allowing trash burning, for which it was predicted that the experimental group would change negatively (i.e. become less favorable) the experimental group changed in a positive direction but less than the control group. The fact that on both of these items the experimental group changed very little and changed less than the control

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\*Here and elsewhere we originally planned to show attitude change results for twelve items, i.e. all eight Beauty items and the additional four "control" (Peace) items which were included in the instrumentality ratings. Thus we are concerned with all twelve items which were rated for perceived instrumentality. However, of the original twelve items, one, pertaining to water pollution, was found to be suffering from a severe ceiling effect on the pre-test, having been initially rated in the most extremely favorable category by a majority of the subjects. This precluded its use as a measure of attitude change. Therefore it was excluded from the analysis.

Table 3. Mean changes in agreement-disagreement ratings of 11 attitude statements for experimental and control groups.

Attitude	Experimental (N=176)	Control (=143)
Highway beautification	.69*	.13
Unrestricted hunting and fishing	.20	.41
Ban automobiles from cities	1.46**	.76
Abolish neon signs	.78	.49
Prohibit nonreturnable bottles	.56**	-.22
Allow trash burning	.02	.26
Limit children to two	.70	.41
Increase economic aid	.34	.13
Fight communist aggression	-.19	-.14
Liberate women	.08	-.15
Legalize marijuana	-.13	-.01

\* $p < .05$ , \*\* $p < .01$ , significant difference between experimental and control groups, one-way analysis of variance of change scores.

group may mean that the intended effect was present to some degree but was overbalanced by other influences such as agreement bias.

For the remaining two attitudes, toward neon signs and population control, the experimental group changed a greater amount than did the control group and in the predicted direction, but these changes were not statistically significant. The fact that some attitudes changed more than others was an anticipated and intended effect of this study. The differences in amounts of change among the various attitudes are a function of their differing amounts of perceived instrumentality, as will be shown in the subsequent section dealing with the relation between instrumentality and change.

Hypothesis 2 is partially supported by the results shown in Table 3. The hypothesis stated that an induced increase in the importance of a value will lead to increases in attitudes toward objects which are perceived as facilitating or hindering the attainment of that value. The results presented thus far show significant positive changes toward objects (social actions) seen as facilitating the attainment of A World of Beauty. They do not show significant negative changes toward objects seen as hindering the attainment of the value. However, results to be presented below will help to clarify this relationship. In addition, the following results will further clarify a particular implication of Hypothesis 2.

#### Attitude Change - Delayed Post-Test

Table 4 shows the immediate and delayed attitude change results, taken from the same subgroups of subjects whose changes in values were shown in Table 2. The obtained differences between experimental and control groups were significant in only one case, that of the attitude toward prohibition of non-returnable bottles. At first glance, it may seem

Table 4. Mean changes in attitudes for subgroups of experimental and control subjects tested immediately and one month later.

Attitudes	Immediate		Delayed	
	Exper. (N=39)	Control (N=22)	Exper. (N=39)	Control (N=22)
Highway beautification	.26	.02	.64	.01
Unrestricted hunting and fishing	.05	.45	-.05	1.03
Ban automobiles from cities	1.41	.68	2.08	1.14
Abolish neon signs	.82	.63	1.62	1.18
Prohibit nonreturnable bottles	.58*	-.95	.87*	-.41
Allow trash burning	.77	.18	.15	-.09
Limit children to two	.31	-.05	.49	.23
Increase economic aid	-.18	-.05	.28	.23
Fight communist aggression	-.97	-.86	-.87	-1.18
Liberate women	-.64	.55	-.44	.09
Legalize marijuana	.08	.14	.36	-.23

\* $p < .05$ , significant differences between the experimental and control groups, one-way analysis of variance of change scores.

strange that the changes in attitudes toward bottles are significant while the other numerically larger changes are not significant. However, it may be seen that for the bottles item, the control group changed in a negative direction while the experimental group was changing positively. Thus the difference between experimental and control groups is actually largest for the bottles item. The failure of the remaining items to achieve statistical significance may be due to the relatively small N's of these two groups (39 and 22). However, the results are crucial in that they show the presence of positive change and the presence of a delayed action effect on attitude change. For all but one of the seven relevant attitudes, the experimental group changed in the predicted direction more than did the control group. And in every case the experimental group had changed their attitudes substantially more at the time of the delayed post-test than they had on the immediate post-test. For example, highway beautification had changed .26 units immediately and .64 units a month later. Banning automobiles had changed 1.41 and 2.08 units respectively. Abolishing neon signs had changed .82 units immediately and 1.62 units during the following month. These results run strongly contrary to the usual findings of regression toward initial positions in delayed post-tests of attitude change.

#### The Relation Between Value Change and Attitude Change

If value change produces attitude change, then those subjects who changed their rankings of A World of Beauty the most should also have changed their attitudes significantly more than those subjects whose value rankings changed very little. These results are shown in Table 5. A comparison was made between subjects who changed their rankings of A World of Beauty very little (one unit or less), somewhat (2 to 5 units), or substantially (6 units or more). Table 5 shows that in nearly every



Table 5. Mean changes in attitude for experimental subjects grouped according to amount of value change.

Attitude	Low ( $\geq 1$ )	Med (2-5)	High ( $\leq 6$ )
Highway beautification	.15	.79	1.04*
Unrestricted hunting and fishing	.28	.21	.13
Ban automobiles from cities	.72	1.53	2.02**
Abolish neon signs	.52	.86	.92
Prohibit nonreturnable bottles	.05	.63	.98*
Allow trash burning	.58	-.12	-.38*
Limit children to two	.83	.38	.89
Increase economic aid	.55	.52	-.02
Fight communist aggression	.11	-.25	-.40
Liberate women	.19	.02	.05
Legalize marijuana	.02	-.22	-.17

\*p < .05, \*\*p < .01, significant difference between the three groups, one-way analysis of variance of change scores.

case those whose values changed more changed their attitudes more than did those whose values were not changed as substantially. These differences were significant in four instances, including a significant negative change on the trash burning issue, which was in the predicted direction. Again, as in the previous comparisons, one-way analyses of variance were used to compare the differences in the changes of the three groups. The differences between the groups were found to be significant for the attitudes toward highway beautification, banning automobiles from cities, prohibiting nonreturnable bottles, and allowing trash burning. For the attitudes toward unrestricted hunting and fishing, abolishing neon signs, and limiting family size, the differences were not significant. These results confirm the relation between value change and attitude change in the sense that the more an individual changes his value ranking, the more he changes his attitudes.

#### Perceived Instrumentality and Attitude Change

One of the foremost interests of this study is in the question of perceived instrumentality and attitude change. It was argued that, given an induced value change and resultant attitude changes, those attitudes which change the most should be those which are perceived to be most instrumental to the value. Results pertaining to this hypothesis are found in Table 6. Subjects had rated each of the eleven social actions according to its degree of value-instrumentality (i.e. how much it would help or hinder the attainment of A World of Beauty). For each of these attitudinal issues, the mean instrumentality rating was computed, for the experimental group. In addition, an "increment attitude change" was computed for each of the issues, by subtracting the mean attitude change of the control group from the mean change of the experimental group.

Table 6. Mean instrumentality ratings and mean incremental changes in attitudes of experimental subjects. (N=176)

Attitude	Mean Instru- mentality	rank order	Mean Incre- mental change	rank order
Prohibit nonreturnable bottles	3.30	1	.78	1
Highway beautification	3.18	2	.56	3
Ban automobiles from cities	3.01	3	.70	2
Limit children to two	1.91	4	.28	5
Abolish neon signs	1.77	5	.29	4
Increase economic aid	0.67	6	.21	7
Liberate women	0.38	7	.23	6
Legalize marijuana	0.15	8	-.12	8
Allow trash burning	-3.99	1	-.24	1
Unrestricted hunting and fishing	-3.73	2	-.21	2
Fight communist aggression	-1.13	3	-.05	3

The Spearman rank-order correlation between mean instrumentality and mean incremental change for the eight positively-instrumental items is .94.

The resultant figures comprise the most accurate representation of the effect of the experimental manipulation, since they represent the increment of change produced in the experimental group, using the control group as a baseline. Finally, both the instrumentalities and the increment changes were ranked in order from largest to smallest. The results are shown in Table 6. The eight positively instrumental items are listed and ranked separately from the three negatively-instrumental items. This was done because the changes occurring in the negative items are of a different order of magnitude than those occurring in the positive ones. For example, the item with the highest positive instrumentality (3.30) changed .78 units while the item with the highest negative instrumentality (3.99) changed only .24 units. Thus the changes were much less for the negative items. Evidently other influences (such as agreement bias) were present which partially counteracted the effects of the manipulation on the negatively-instrumental attitudes. It should be noted, however, that the changes taking place in the negative items are in the right direction, i.e. toward decreased favorability, as was predicted.

The Spearman rank-order correlation between instrumentality means and change means for the eight positive items is .94. For the three negative items, instrumentality and change are ordered correspondingly. These results indicate a very high degree of correspondence between the relative degrees of perceived instrumentality and attitude change. The greater the instrumentality, the greater the attitude change. Thus Hypothesis 3 is supported by these results. It appears that the degree of attitude change produced by a change in value importance is affected markedly by the extent to which the attitude object in question is seen as instrumental to the value in question.

Referring back to Table 3 for a moment, it may be seen that the three attitudes which changed significantly were those with the highest instrumentality ratings (i.e. mean instrumentality ratings of 9.30, 9.18, and 9.01, while the two positive attitudes which did not change significantly had much lower instrumentality ratings (i.e. 7.91 and 7.77). It is apparent that the degree of perceived instrumentality is a good predictor of the attitude change following a change in value importance.

## DISCUSSION

Value Change Through Persuasion

This study was conducted as part of an ongoing series of studies at Michigan State University investigating experimentally induced changes in values, attitudes, and behavior. Rokeach (1971) has pointed out that there are two well-known methods of inducing changes in an individual's attitudes or values. These are (a) to induce him to engage in behavior incompatible with his attitudes or values, and (b) to expose him to information about the attitudes or values of significant others which are incompatible with his own. A third approach, which has been used in the previous studies in this series, has been to expose the individual to information designed to bring to his awareness states of inconsistency existing within his own value-attitude system. This third type of approach is in contrast to the traditional persuasive message, in that it primarily emphasizes exposing the individual to information about himself rather than information about others or their views. This approach has been used in the previous attempts to experimentally induce changes in value importance, and has been highly successful.

The question arises, then, as to whether values, being more fundamental, stable, and resistant to change than attitudes, require special techniques of experimental manipulation, such as the "revealed inconsistency" approach described above. Or are values amenable to the more "traditional" types of persuasion? The present study offers the first opportunity to answer this question, since it is the first of the series of studies to utilize a traditional persuasive message.

Apparently value importance can be successfully changed using conventional persuasive techniques. Our results show that the importance

assigned to A World of Beauty was significantly changed immediately following the persuasive message and this change had persisted and slightly increased one month later. Previous studies have shown that changes in value importance are highly persistent over periods of a year or more (Rokeach, 1971b). Thus we may conclude that we may induce significant and persistent changes in value-importance through persuasion.

#### Value Change, Perceived Instrumentality, and Attitude Change

Previous studies have demonstrated the existence of perceived instrumentality as a linkage between values and attitudes (Rosenberg, 1956, 1960, Fishbein, 1966). Our results show that a change in value importance did produce changes in attitudes toward related issues. Moreover, the results showed that attitudes changed toward those actions which were seen as highly instrumental to value attainment. Thus the study provides further support for the conception of instrumental linkages between values and attitudes. Given an increase in value-importance, the more a particular action was seen as facilitating the attainment of that value, the more the individual's attitude toward that action changed toward increased favorability.

There was also a tendency, though not as clear-cut, for individuals who had changed their values to become less favorable toward actions seen as hindering the attainment of the value in question. Thus it would seem that it is possible to change a number of attitudes at once, through a single manipulation, by directing that manipulation toward a value to which the attitudes are seen as instrumental.

The manipulation may seem to have succeeded only partially, in that some of the related attitudes changed significantly but others did not.

However, it is important to note that this was an anticipated and intended effect of the experimental design. Attitude items were purposely preselected to represent attitudes both high and low in perceived instrumentality. This was done in order to show that a manipulated value change would lead to changes only in attitudes strongly instrumentally related to the value and not in attitudes weakly or negligibly related. Thus the mixture of significant changes, slight changes, and unchanged attitudes is entirely consistent with our expectations.

#### Delayed Action Effects in Value and Attitude Change

The results of this study pertaining to delayed effects are not entirely unequivocal, since because of the small N's tested, they did not achieve statistical significance. However, they show a partial trend toward increased attitude change over time, as a result of immediate value changes. These delayed increases in attitude change run counter to the usual tendency for attitude changes to regress on delayed post-tests. It would appear that the value changes tended to take place immediately, as a result of the experimental manipulation which was aimed directly at the value itself and did not mention the attitudinal issues. This change in value importance then apparently led to immediate changes in attitudes, which were also present at the time of the delayed post-test. There was a moderate (though not significant) tendency for attitude change to increase over time. However, we should emphasize that there were also significant immediate changes in attitudes as well, and that the delayed changes are only present as an increase beyond the immediate changes. Thus it would not be proper to conclude that the value change-attitude change process is entirely a matter of



delayed action. The finding of immediate attitude changes in this study is in conflict with some earlier results. In the study by Rokeach (1971b) described earlier, attitude change did not take place immediately. In fact, there was a slight negative change (boomerang effect) in the immediate post-test, which was then followed by a significant positive change on the delayed post-tests. By comparison, in Rokeach's study the attitude change took much longer to take effect, whereas in the present study it took place immediately and then continued to increase over time. Perhaps this difference is due to the fact that in Rokeach's study there was a greater distance in belief space between the manipulated cognition (value) and the indirectly affected cognitions (attitudes). Rokeach used civil rights attitudes and the value Equality, while the present study used A World of Beauty and related attitudes toward ecological issues. A more likely explanation is that civil rights attitudes are more entrenched and resistant to change. Issues such as banning non-returnable bottles, prohibiting trash burning, etc., were quite new and had not been subjected to public debate at the time that this study was conducted. Thus attitudes on these issues were less well formed and well defended, hence more easily and quickly changed.

Both in the present study and in Rokeach's earlier studies (1971b) attitude change increased over time. The results of studies of attitude change typically show decreases over time as the effects of the manipulation "wear off" and individuals' attitudes regress toward their initial positions. It is extremely interesting to note that in this study and in Rokeach's studies the opposite effect occurred.

### Changing Attitudes Through Value Change

On the basis of these findings, it may be argued that the "indirect" approach to changing attitudes (i.e. through changing values) used here is a potentially powerful method in that it results in more lasting changes. The theoretical rationale for this conclusion is as follows: First, it has been theoretically argued that value changes are more enduring than attitude changes, because values are more fundamental and stable elements in the cognitive system. (Rokeach, 1968a). Thus we may logically deduce that an attitude change brought about through a related value change will be more enduring than an attitude change induced "directly."

In addition, it may be argued that one likely cause of "regression" in attitude changes is value-inconsistency. If an individual changes his attitude without changing the importance he assigns to the value or values to which that attitude is instrumental, and without changing his "perceived instrumentalities," this will result in inconsistencies in his value-attitude system which will lead to a tendency to return to his original attitude position in order to restore consistency. This effect may be a testable, predictable one, and bears consideration as a focus of further inquiry.

It has earlier been suggested that persons wishing to effect lasting changes in attitudes might be more successful by directing their attention toward attempts to change values rather than limiting their efforts to changing attitudes themselves. The results of this study lend direct support to this assertion.

## Conclusions

The results of this study indicate that (a) individuals' values are amenable to influence through traditional persuasive methods, (b) changes in values bring about changes in attitudes toward instrumentally related objects, and (c) these changes in attitudes do not decrease over time. Thus it would seem to illustrate a potentially powerful means of persuasion and influence. First, changing attitudes indirectly through changing values would appear more economical for persuaders, in that a number of attitudes may be influenced "in one fell swoop" through the manipulation of a single value. Second, it would appear that attitude changes obtained through this indirect method may be more lasting than attitude changes obtained without regard to (or perhaps even in spite of) the individual's values.

Rokeach (1971) has previously discussed the ethical problems involved in direct attempts to influence values. Restraint and caution may be appropriate in setting out to manipulate values in the experimental laboratory. However, in the world outside the experimental laboratory attempts to influence values proceed apace. Every day, values are brought under great influence and pressure, often indirectly but sometimes directly and explicitly, in the churches, schools, and political forums of our society. It is this author's view that the most important effects of persuasion are the effects on individual's values. For example, every commercial message presented over television extols a product, directly or indirectly, in terms of that product's instrumentality to the attainment of a value, such as cleanliness, good health, pleasure, excitement, social acceptance, etc. In so doing, these

commercials constantly reinforce, by implication, the importance of the values. It may be that the effects of television commercials (and many other types of persuasive messages) in evoking and reinforcing values is far more powerful and lasting than the obviously intended effects on attitudes toward a particular product or brand. These effects on values may often be unintended by the communicator. Nevertheless they occur, and they have been neglected by social psychologists and other students of persuasion, attitude change, and social influence. In our emphasis on studies of attitude change, we have seemingly overlooked the more powerful, though subtle, effects on values which are a result of persuasion. We as yet know little about this potent source of influence. It should be obvious that further study of the process and effects of value change will prove eminently useful and beneficial to those who seek to understand and predict changes in attitudes and behavior and those who set out to change others' attitudes and behavior through persuasion.

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## APPENDIX A

### Verbal instructions for session one

Hello, my name is Charles Hollen. I'm conducting the experiment on values and attitudes that you signed up for. This experiment involves two sessions, one now and another one a week from today. Will it be possible for you to come back here a week from now at this same hour? All right.

The experimental task we're asking you to do is to fill out this questionnaire. This is not a test. It's a method we use to obtain information for our research. Also we hope that the time you spend thinking about your opinions and your goals in life in order to answer these questions will be a beneficial learning experience for you. Many of the students who have previously filled out the questionnaire commented that it was a very thought-provoking experience for them.

You are not required to sign your name to the questionnaire if you don't want to. This is to assure you that the information you are giving us will be confidential. We aren't going to be asking you anything particularly personal, but we make it a policy not to require names so that people will feel free to give their honest opinions.

Please read the instructions very carefully before you begin. If you have any questions feel free to come and ask me. When you have finished, bring the questionnaire back to me.

Don't forget that in order to complete the experiment and receive your credit for it, you must report back for the second session a week from now.



APPENDIX B

VALUES AND ATTITUDES QUESTIONNAIRE

Instructions - Please read carefully before proceeding further.

This is a scientific study of students' values and attitudes. Your honest cooperation would be deeply appreciated. In addition to providing us with information, we hope that this questionnaire may help you to learn something about yourself.

In the course of filling out the questionnaire, you will be asked to answer the same questions several times in different contexts. Although this may seem repetitious, it is necessary so that we may make certain comparisons. Each time you answer a particular set of questions, please answer them carefully and honestly, without worrying about how you may have responded to them previously.

Each set of value and attitude questions is preceded by some instructions. Please read the instructions carefully and make sure you understand them before answering any questions. Please answer each page of the questionnaire in the order in which it is given; do not skip ahead or turn back.

First, we are interested in knowing something about your background. Please answer all the questions asked below.

Sex: \_\_\_\_\_ Place of Residence: \_\_\_\_\_ city \_\_\_\_\_ state

Date of Birth: \_\_\_\_\_ month \_\_\_\_\_ day \_\_\_\_\_ year

Grade Point Average: \_\_\_\_\_ Class: \_\_\_\_\_ Freshman  
\_\_\_\_\_ Sophomore  
\_\_\_\_\_ Junior  
\_\_\_\_\_ Senior

Which of the following most closely exemplifies your political viewpoint in general?

- \_\_\_\_\_ Radical
- \_\_\_\_\_ Liberal
- \_\_\_\_\_ Middle-of-the-road
- \_\_\_\_\_ Conservative

C

Religious Preference:	_____ None	Do you attend religious services?	_____ Never
	_____ Catholic		_____ A few times a year
	_____ Jewish		_____ About once a month
	_____ Protestant		_____ Twice a week or oftener

Given the choice between reading a good book or attending a party, which would you rather do?

\_\_\_\_\_ Read a book  
 \_\_\_\_\_ Attend a party

Below you will find 18 statements, each one proposing some social action. We would like to know how you feel about each of these issues. We have tried to cover different and opposing points of view. You may find yourself agreeing with some of the statements and disagreeing with others. Whether you agree or disagree with any statement, you can be sure that many other people feel the same as you do.

Mark each statement on the line to the left of the statement number, according to how much you agree or disagree with it. Mark it with a + (plus sign) if you agree or a - (minus sign) if you disagree, and a number from 1 to 5 according to how strongly you feel in each case, from 1 (slightly) to 5 (very strongly). Thus, for example, if you agree slightly with a statement, mark it +1; if you disagree very strongly, mark it -5, etc.

Please read each statement carefully and be sure you understand its meaning before responding to it.

+1	I agree slightly	-1	I disagree slightly
+2	I agree moderately	-2	I disagree moderately
+3	I agree quite a bit	-3	I disagree quite a bit
+4	I agree strongly	-4	I disagree strongly
+5	I agree very strongly	-5	I disagree very strongly

- \_\_\_\_\_ 1. The U.S. should promptly and completely withdraw its military forces from Vietnam.
- \_\_\_\_\_ 2. Factories which pollute the air or water should be forced to clean up or shut down.
- \_\_\_\_\_ 3. The U.S. should appropriate the necessary funds for a continued strong and active program of space exploration.
- \_\_\_\_\_ 4. More funds should be spent on highway beautification (landscaping, etc.).
- \_\_\_\_\_ 5. The United Nations should be given stronger powers to help settle disputes among member nations.
- \_\_\_\_\_ 6. Restrictions on hunting and fishing should be decreased.
- \_\_\_\_\_ 7. Automobiles should be banned from the downtown areas of cities.
- \_\_\_\_\_ 8. The U.S. should continue to build up its arsenal of nuclear weapons, as a deterrent force against potential aggressors.
- \_\_\_\_\_ 9. The Peace Corps should be expanded and strengthened.

+1	I agree slightly	-1	I disagree slightly
+2	I agree moderately	-2	I disagree moderately
+3	I agree quite a bit	-3	I disagree quite a bit
+4	I agree strongly	-4	I disagree strongly
+5	I agree very strongly	-5	I disagree very strongly

- \_\_\_ 10. Neon signs should be abolished.
- \_\_\_ 11. The U.S. should increase its economic aid to developing countries.
- \_\_\_ 12. Nonreturnable bottles should be prohibited.
- \_\_\_ 13. The U.S. and Russia should stop experimenting with chemical and biological warfare.
- \_\_\_ 14. All forms of discrimination against women should be ended.
- \_\_\_ 15. Penalties for the possession of marijuana should be reduced.
- \_\_\_ 16. People should be allowed to burn trash or leaves.
- \_\_\_ 17. Families should limit themselves to two children.
- \_\_\_ 18. The U.S. should continue helping other nations such as Vietnam in their struggles against Communist aggression.
- 

#### VALUE SURVEY - INSTRUCTIONS

On the next page are 18 values listed in alphabetical order. We are interested in finding out the relative importance of these values for you, as guiding principles in your life.

Each value is printed on a gummed label which can be easily peeled off and pasted in the boxes on the left-hand side of the page.

Study the list carefully and pick out the one value which is most important for you. Peel it off and paste it in Box 1 on the left.

Then pick out the value which is second most important for you. Peel it off and paste it in Box 2. Then do the same for each of the remaining values. The value which is least important goes in Box 18.

Work slowly and carefully. If you change your mind, feel free to change your answers. The labels peel off easily and can be moved from place to place. The end result should truly show how you feel about these values.

1		<b>A COMFORTABLE LIFE</b> (a prosperous life)
2		<b>AN EXCITING LIFE</b> (a stimulating, active life)
3		<b>A SENSE OF ACCOMPLISHMENT</b> (lasting contribution)
4		<b>A WORLD AT PEACE</b> (free of war and conflict)
5		<b>A WORLD OF BEAUTY</b> (beauty of nature and arts)
6		<b>EQUALITY</b> (brotherhood, equal opportunity for all)
7		<b>FAMILY SECURITY</b> (taking care of loved ones)
8		<b>FREEDOM</b> (independence, free choice)
9		<b>HAPPINESS</b> (contentedness)
10		<b>INNER HARMONY</b> (freedom from inner conflict)
11		<b>MATURE LOVE</b> (sexual and spiritual intimacy)
12		<b>NATIONAL SECURITY</b> (protection from attack)
13		<b>PLEASURE</b> (an enjoyable, leisurely life)
14		<b>SALVATION</b> (saved, eternal life)
15		<b>SELF-RESPECT</b> (self-esteem)
16		<b>SOCIAL RECOGNITION</b> (respect, admiration)
17		<b>TRUE FRIENDSHIP</b> (close companionship)
18		<b>WISDOM</b> (a mature understanding of life)

Below you will find 12 statements, each one proposing some social action. We are interested in finding out how much you feel each of these actions would help or hinder the attainment of the value, A WORLD AT PEACE.

Regardless of whether you favor or oppose each of the actions, your judgments should be based on how strongly you feel they would help or hinder the attainment of A World at Peace. Please rate each one according to the following +5 to -5 scale.

If you feel that a particular action would have no effect (would neither help nor hinder the attainment of A World at Peace) rate it "0."

+1	would help slightly	-1	would hinder slightly
+2	would help moderately	-2	would hinder moderately
+3	would help quite a bit	-3	would hinder quite a bit
+4	would help strongly	-4	would hinder strongly
+5	would help very strongly	-5	would hinder very strongly

- \_\_\_\_\_ 1. The U.S. should promptly and completely withdraw its military forces from Vietnam.
- \_\_\_\_\_ 2. The United Nations should be given stronger powers to help settle disputes among member nations.
- \_\_\_\_\_ 3. The U.S. should appropriate the necessary funds for a continued strong and active program of space exploration.
- \_\_\_\_\_ 4. Automobiles should be banned from the downtown areas of cities.
- \_\_\_\_\_ 5. The Peace Corps should be expanded and strengthened.
- \_\_\_\_\_ 6. Families should limit themselves to two children.
- \_\_\_\_\_ 7. Neon signs should be abolished.
- \_\_\_\_\_ 8. The U.S. should increase its economic aid to developing countries.
- \_\_\_\_\_ 9. The U.S. and Russia should stop experimenting with chemical and biological warfare.
- \_\_\_\_\_ 10. The U.S. should continue to build up its arsenal of nuclear weapons, as a deterrent force against potential aggressors.
- \_\_\_\_\_ 11. Penalties for the possession of marijuana should be reduced.
- \_\_\_\_\_ 12. The U.S. should continue helping other nations such as Vietnam in their struggles against Communist aggression.

Below are 12 statements, each one proposing some social action. We are interested in finding out how much you feel each of these actions would help or hinder the attainment of the value, A WORLD OF BEAUTY.

Regardless of whether you favor or oppose each of the actions, your judgments should be based on how strongly you feel they would help or hinder the attainment of A World of Beauty. Please rate each one according to the following +5 to -5 scale.

If you feel that a particular action would have no effect (would neither help nor hinder the attainment of A World of Beauty) rate it "0."

- |    |                          |    |                            |
|----|--------------------------|----|----------------------------|
| +1 | would help slightly      | -1 | would hinder slightly      |
| +2 | would help moderately    | -2 | would hinder moderately    |
| +3 | would help quite a bit   | -3 | would hinder quite a bit   |
| +4 | would help strongly      | -4 | would hinder strongly      |
| +5 | would help very strongly | -5 | would hinder very strongly |

- \_\_\_\_\_ 1. Automobiles should be banned from the downtown areas of cities.
- \_\_\_\_\_ 2. More funds should be spent on highway beautification (landscaping, etc.).
- \_\_\_\_\_ 3. Restrictions on hunting and fishing should be decreased.
- \_\_\_\_\_ 4. The U.S. should increase its economic aid to developing countries.
- \_\_\_\_\_ 5. Nonreturnable bottles should be prohibited.
- \_\_\_\_\_ 6. Families should limit themselves to two children.
- \_\_\_\_\_ 7. The U.S. should continue helping other nations such as Vietnam in their struggles against Communist aggression.
- \_\_\_\_\_ 8. Neon signs should be abolished.
- \_\_\_\_\_ 9. Factories which pollute the air or water should be forced to clean up or shut down.
- \_\_\_\_\_ 10. Penalties for the possession of marijuana should be reduced.
- \_\_\_\_\_ 11. People should be allowed to burn trash or leaves.
- \_\_\_\_\_ 12. All forms of discrimination against women should be ended.

If you would like to make any comments, either general or specific, about this questionnaire, please use the back of this page. Your comments will be carefully read and heeded.

Thank you for your participation in this study.

## APPENDIX C

### Verbal instructions for second session

Hello. You're here for the second experimental session, aren't you? May I have your name, please? (Check second session signup sheet, to verify that subject has already participated in session 1). Today I'm going to ask you to fill out another questionnaire. This questionnaire is very similar to the one you filled out last time. In fact, part of it is exactly the same questions you were asked before. One of the things we're interested in is to find out again how you feel about these values and social actions. Your answers may be the same as before or they may be different. Please don't worry about whether they are the same as before or not. Just answer each question as carefully and honestly as you can.

When you have finished the questionnaire, bring it back to me and I'll sign your card to give you credit for participating in the experiment. Don't forget to read the instructions carefully before you begin.

## APPENDIX D

### VALUES AND ATTITUDES QUESTIONNAIRE - PART II

Instructions - Please read carefully

This is a continuation of the study in which you participated previously. If you did not already complete Part I, you should not fill out this portion.

In this portion of the questionnaire, we will be asking you some of the same questions again which we asked you in Part I. Please answer these questions carefully and honestly, according to how you feel about them today. Do not worry about how you may have responded to them previously.

First, we would like to know your opinions about an issue of major importance. Please read carefully the following selection. After you have finished it, you will be asked to give your reactions to it.

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This is an excerpt from a speech given recently at an environmental teaching by Dr. Milton Rokeach, a distinguished professor at Michigan State. Dr. Rokeach is the author of the value ranking scale used in this questionnaire. In his speech, he discusses some findings from a previous study using the value scale:

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"I recently conducted a survey of the values of the American public. We obtained the value rankings of a national sample of American citizens from all walks of life.

I was disheartened to find that most Americans rank A World of Beauty as one of the least important values. Apparently most Americans have not yet realized the vital importance of cleaning up and preserving our natural environment.

We are suddenly confronting a new man-made peril--the poisoning of our environment with noxious doses of chemicals, garbage, fumes, noise, sewage, heat, ugliness and urban overcrowding.

We Americans are by far the worst polluters in the world. The average American in his lifetime uses up 35 times as much of the world's resources and produces 50 times as much garbage and waste pollution as an average citizen of the rest of the world.

The challenge of the '70's will be to stop polluting and destroying our world. We must face the deadly chemical and physical changes wrought by wanton pollution of earth, sky, and water.

If we lack the inclination to deal with these problems, the effects will lie heavy on ourselves and our children--on their lives, their health, their right to a wedge of happy space in the crowd, their access to a tree, air to breathe, and water the right color.



In the past, man could always leave his own depredations behind and move on to some part of the planet still unspoiled. Today there is no escape. Our cities, where most of us live, are ugly and dirty. Ten more years of doing nothing will make them much worse.

The earth is limited in its natural bounty. A World of Beauty must become as important to us as A World at Peace. We must cherish this earth and save it.

The results of my study along with other evidence shows that many Americans appear indifferent toward the threat to their future. This is partly due to ignorance and partly because of apathy--"Let someone else worry about it."

However, our study did reveal some sources of hope. Even though the American public, as a whole, ranked A World of Beauty very low on the list, we found that young people and the better-educated people ranked it higher than did the older and less well-educated.

Perhaps our nation's young people, particularly our college students, will lead us in the campaign to restore and preserve our environment. Recently we have witnessed rapidly increasing interest in this issue among college students.

Young people should be more concerned because they have longer to live in this world. But the task of restoring and maintaining a world of beauty should be of utmost concern, not just to the young, but to every American."

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We are interested in finding out your opinions about this issue. Please rate each statement below from +5 to -5, according to how much you agree or disagree with it.

- |    |                       |    |                          |
|----|-----------------------|----|--------------------------|
| +1 | I agree slightly      | -1 | I disagree slightly      |
| +2 | I agree moderately    | -2 | I disagree moderately    |
| +3 | I agree quite a bit   | -3 | I disagree quite a bit   |
| +4 | I agree strongly      | -4 | I disagree strongly      |
| +5 | I agree very strongly | -5 | I disagree very strongly |

- \_\_\_\_\_ 1. The spoiling or destroying of our natural environment is a serious problem in America today.
- \_\_\_\_\_ 2. Especially in our large cities, the environment has already reached the point of being detrimental to the physical and psychological health of its inhabitants.
- \_\_\_\_\_ 3. This problem will rapidly become worse unless we take immediate and substantial steps to solve it.
- \_\_\_\_\_ 4. Most Americans place too little importance on preserving the beauty of nature.

\_\_\_\_\_ 5. This problem will become one of the most important ones facing our country during the next decade.

If you wish, you may use the space below for additional comments.

## VALUE SURVEY - INSTRUCTIONS

On the next page are 18 values listed in alphabetical order. We are interested in finding out the relative importance of these values for you, as guiding principles in your life.

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Then pick out the value which is second most important for you. Peel it off and paste it in Box 2. Then do the same for each of the remaining values. The value which is least important goes in Box 18.

Work slowly and carefully. If you change your mind, feel free to change your answers. The labels peel off easily and can be moved from place to place. The end result should truly show how you feel about these values.

1	
2	
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14	
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16	
17	
18	

Below you will find 18 statements, each one proposing some social action. We would like to know how you feel about each of these issues. We have tried to cover different and opposing points of view. You may find yourself agreeing with some of the statements and disagreeing with others. Whether you agree or disagree with any statement, you can be sure that many other people feel the same as you do.

Mark each statement on the line to the left of the statement number, according to how much you agree or disagree with it. Mark it with a + (plus sign) if you agree or a - (minus sign) if you disagree, and a number from 1 to 5 according to how strongly you feel in each case, from 1 (slightly) to 5 (very strongly). Thus, for example, if you agree slightly with a statement, mark it +1; if you disagree very strongly, mark it -5, etc.

Please read each statement carefully and be sure you understand its meaning before responding to it.

+1	I agree slightly	-1	I disagree slightly
+2	I agree moderately	-2	I disagree moderately
+3	I agree quite a bit	-3	I disagree quite a bit
+4	I agree strongly	-4	I disagree strongly
+5	I agree very strongly	-5	I disagree very strongly

- \_\_\_ 1. The Peace Corps should be expanded and strengthened.
- \_\_\_ 2. Nonreturnable bottles should be prohibited.
- \_\_\_ 3. Families should limit themselves to two children.
- \_\_\_ 4. The U.S. should increase its economic aid to developing countries.
- \_\_\_ 5. People should be allowed to burn trash or leaves.
- \_\_\_ 6. More funds should be spent on highway beautification (landscaping, etc).
- \_\_\_ 7. The U.S. should continue to build up its arsenal of nuclear weapons, as a deterrent force against potential aggressors.
- \_\_\_ 8. Automobiles should be banned from the downtown areas of cities.
- \_\_\_ 9. Penalties for the possession of marijuana should be reduced.
- \_\_\_ 10. Neon signs should be abolished.
- \_\_\_ 11. All forms of discrimination against women should be ended.
- \_\_\_ 12. The U.S. should appropriate the necessary funds for a continued strong and active program of space exploration.
- \_\_\_ 13. Restrictions on hunting and fishing should be decreased.

- |    |                       |    |                          |
|----|-----------------------|----|--------------------------|
| +1 | I agree slightly      | -1 | I disagree slightly      |
| +2 | I agree moderately    | -2 | I disagree moderately    |
| +3 | I agree quite a bit   | -3 | I disagree quite a bit   |
| +4 | I agree strongly      | -4 | I disagree strongly      |
| +5 | I agree very strongly | -5 | I disagree very strongly |

- \_\_\_\_ 14. The United Nations should be given stronger powers to help settle disputes among member nations.
- \_\_\_\_ 15. The U.S. should continue helping other nations such as Vietnam in their struggles against Communist aggression.
- \_\_\_\_ 16. The U.S. and Russia should stop experimenting with chemical and biological warfare.
- \_\_\_\_ 17. Factories which pollute the air or water should be forced to clean up or shut down.
- \_\_\_\_ 18. The U.S. should promptly and completely withdraw its military forces from Vietnam.

For scientific reasons, we need to know what impression you have formed of the purpose of this study. In the space below, please explain as thoroughly and specifically as you can, the purpose of this study, as you understand it.

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Your answers to the following three questions will enable us to "match" this questionnaire with the one you filled out previously (Part I) without requiring you to reveal your name. It is very important that you answer these questions again, even though you already answered them once before.

Sex: \_\_\_\_\_ Place of Residence: \_\_\_\_\_ city \_\_\_\_\_ state

Date of Birth: \_\_\_\_\_ month \_\_\_\_\_ day \_\_\_\_\_ year

If you would like to make any comments, either general or specific, about this questionnaire, please feel free to do so, in the space below or on the back of this page. Your comments will be carefully read and heeded.

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Thank you for your participation in this study.

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