ABSTRACT

THE EFFECTS OF TRUTH AND DESIRABILITY EVIDENCE ON JUDGEMENTS OF THE TRUTH AND DESIRABILITY OF A PROPOSITION

By

Ted J. Smith III

One of the most basic precepts of rhetorical theory is that evidence should have a strong and reliable impact on belief. The vast majority of the empirical studies designed to test this precept have, however, produced only negative or conflicting results. It was this problem which gave rise to the present study. Our inquiry began with a critical review of both rhetorical theory and previous evidence research. On the basis of this review we identified a number of theoretical, definitional and methodological shortcomings of the earlier research which may have contributed to the disappointing results of that research. We then developed a new model of the relation of evidence to belief, grounded primarily in a set of distinctions drawn from the rhetorical theories of Aristotle and Richard Weaver, which seemed capable of overcoming those shortcomings. In our research we tested four hypotheses derived from the model and two hypotheses suggested by earlier empirical research. Specifically, we sought to determine: (1) the effects of truth and desirability evidence on rational and desirable belief; (2) the effects of training in evidence usage and argumentation on the link between rational and desirable belief; and (3) the effects of general education level on the link between rational and desirable belief.

Our research began with the construction of six evidencebased messages. Three of the messages supported a single experimental proposition and three opposed the same proposition. One of each type of message was supported by no evidence statements, one of each was supported by desirability evidence statements, and one of each was supported by truth evidence statements. Nine experimental treatments were then constructed using all possible combinations of the two types of messages. In Phase 1 of the study these treatments were randomly distributed to 273 undergraduate students who read the messages and completed scales measuring their estimates of the truth and desirability of the proposition. Several weeks later, after the students had read, discussed and applied material on the proper structure of arguments and the use of evidence in argumentation, the same nine treatments were again randomly distributed to 166 undergraduates, most of whom had participated in the earlier manipulation.

The first two experimental hypotheses, which predicted rank orders of rational belief and desirable belief ratings, were largely supported by the data. The next two hypotheses, which predicted the effects of training and education level on the correlation between rational and desirable belief, were not supported. The last two hypotheses, which predicted rank orders of rational and desirable belief ratings for the Phase 2 subjects, also were not supported.

The findings were interpretted as generally supportive of the proposed model, although three potential modifications to the model were discussed. A number of research extensions suggested by the results of this study were also discussed.

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CHAPTER I

INTRODUCTION

Historically, rhetoric has been understood to operate as the ground for communication in the quest of truth (Grimaldi, 1958). Rhetoric, then, by its very nature gives careful attention to the rational aspects of proof. To build a rational proof, speakers need evidence to establish premises and lay down foundations for statements from which inferences can be made. In this context, theories of evidence are largely prescriptive, in that statements about evidence are cast in terms of the validity of arguments. Theories of rhetoric traditionally have held that the proper use of evidence is central to establishing belief in the validity or probable truth of a proposition.

Purposes of the Study

This study was designed to fulfill three major purposes: (1) to determine the effects of different forms of evidence on judgements of the truth and desirability of a proposition; (2) to determine the effect of training in evidence usage and argumentation on the correlation between judgements of the truth and desirability of a proposition; and (3) to determine the effects of general education level on the correlation between judgements of the truth and desirability of a proposition.

Divisions of the Thesis

The thesis will be divided into the following four chapters: (1) The remainder of this chapter will be devoted to (a) a statement of the problem which gave rise to this study, (b) a critical evaluation of previous empirical research dealing with the relationship between evidence and belief, (c) a theoretical and operational reformulation of this relationship, and (d) a statement of the hypotheses tested in this study. (2) Chapter II will discuss the methodology employed in this study. (3) Chapter III will present the results of our inquiry. (4) Chapter IV will discuss conclusions that may be drawn from the study and make recommendations for future research.

Statement of the Problem

While rhetorical theory provides a significant rationale for the relationship between evidence and belief, the results of a number of empirical studies have cast doubt on the validity of this traditional position. Taken as a whole, the empirical studies investigating the relation of evidence to belief have either (1) reported that the impact of evidence on belief is insignificant, or (2) been conflicting in their results. The following is a brief summary of the conclusions of this research.

First, several studies investigated the effects of evidence-plus-assertion and assertion-only speeches on attitude change. Cathcart (1955), Bostrom and Tucker (1969) and Kline (1969) found that a speech containing assertions supported by evidence is more effective in changing attitudes than a speech containing only generalizations and

assertions. On the other hand, Costley (1958) and Wagner (1958) found no significant differences in attitude change between the same two types of speeches.

Second, several studies investigated the effects of evidence-plus-assertion-plus-qualified-authority and assertion-only speeches on attitude change. Cathcart (1955) and Bostrom and Tucker (1969) found that speeches containing evidence attributed to qualified authorities were significantly more effective in changing attitudes than speeches containing only unattributed assertions. Ostermeier (1967) and Whitehead (1971), however, found no significant differences in attitude change between the same two types of speeches. McCroskey (1967, 1970) reported that evidence-plus-assertion-plus-qualified-authority speeches were significantly more effective in changing attitudes than assertion-only speeches when the speaker was originally perceived as low or moderately credible, but were not significantly more effective when the speaker was perceived as highly credible. One researcher, Bettinghaus (1953), discovered that speeches containing evidence-plus-assertion-plus-qualified-authority produced significantly more attitude change than speeches containing only evidence-plus-assertion, but his findings have never been replicated. Cathcart (1955), Gilkinson, Paulson and Sikkink (1954), Sikkink (1956) and Bostrom and Tucker (1969) all found no significant differences between the same two types of speeches. Further, Bostrom and Tucker (1969) reported that a speech containing evidence-plus-assertion-plus-authority was significantly less effective in changing attitudes than speeches containing evidence-plus-assertion-plus-authority-and-qualifications (i.e., the "qualified authority" treatments

discussed above) or evidence-plus-assertion alone. This confirmed a similar, but non-significant, trend in the 1955 Cathcart study.

Third, several studies investigated the effects of speeches containing high and low quality evidence on attitude change. Warren (1971) found that speeches containing testimony attributed to highly credible authorities produced significantly more attitude change than speeches in which the same testimony was attributed to authorities of low credibility. Dresser (1963) and Gardner (1966) found no significant differences in attitude change between messages containing evidence rated as high in quality by a panel of judges and those containing low quality evidence. These latter results are consistent with the findings of a study be Harte (1971) in which he discovered that: "...audiences are not notably successful at applying the appropriate tests of evidence to material offered as proof of an assertion" (p.112). Wagner (1958) and Ostermeier (1967) manipulated the amount of evidence in experimental messages but found no significant differences in the resulting attitude change scores.

Fourth, several studies investigated the effects of evidence on variables other than immediate attitude change. McCroskey (1967) found that in a number of his experiments a source who was initially perceived as low-to-moderate in credibility was rated significantly higher in credibility if he included evidence in his speech than if he did not. This finding has been at least partially supported by the studies of Ostermeier (1967) and Whitehead (1971). Next, McCroskey (1967) also discovered that the inclusion of evidence in a persuasive message resulted in significantly greater delayed attitude change,

regardless of the initial credibility of the source. A final discovery by McCroskey (1967) was that evidence served as an effective inhibitor to immediate counterpersuasion attempts.

In the great majority of the above studies, the experimenters asked whether, as proof becomes "better" in the prescriptive sense, it also becomes more effective in changing the attitudes or beliefs of an audience. The findings of these studies are sufficiently conflicting or negative to demand a careful re-examination of the relationship between evidence and belief. A detailed review of rhetorical theory and the prior empirical research suggests three general factors which may account for these findings. They are: (1) an inadequate theoretical formulation of the relation of evidence to belief; (2) inadequate conceptual and operational definitions of evidence and belief; and (3) inadequate control over certain critical intervening variables. We will now discuss each of these factors in detail.

Inadequate Theoretical Formulations

A careful review of rhetorical theory suggests at least three sources of problems in the previous empirical research investigating the relation of evidence to belief. These are: (1) a failure to distinguish between different types of belief; (2) a failure to distinquish between different types of evidence; and (3) a failure to deal with the theoretically posited and empirically verified link between rational belief and desirable belief.

Since Aristotle's time, rhetoric has been viewed as the counterpart of dialectic. As such, it aims at securing judgements in the realm of

the contingent. Thus at the very center of rhetorical theory is the idea of the audience as judge, as that which is to exercise the act of judgement. Rhetoric does not effect persuasion in the sense of manipulation, but rather it creates an atmosphere wherein the judge or audience may make its own decision. This prescription has been well articulated by Grimaldi (1958, p.374):

> The art or technique of the rhetorician is to perceive and present those things which make decision, and a definite decision, possible, but to stop with the presentation. The audience at this point must come in to accept or reject, to make its particular judgement to execute or refrain from action. Rhetoric, then, is preparatory for action.

In this context, rhetorical theory distinguishes between proof which argues for the truth of a given proposition by presenting evidence in favor of the probable truth of the premises from which the proposition flows, and proof which seeks to establish the desirability of a given proposition by appealing to the passions or desires from which support of the proposition flows (Aristotle, 1941, pp.1329 - 1330). Although the distinction is commonplace, its full implications have generally been ignored. It is critical to note that so-called rational and emotional proofs differ not only in form but also in intent. Rational proof seeks to establish rational belief in the proposition. That is, it aims at establishing the validity or truth value of a proposition. Emotional proof seeks to establish what we will call desirable belief, or belief in the desirability of the proposition or its consequences. Researchers investigating the relation of evidence to belief have failed theoretically and operationally to make the distinction between rational and desirable belief.

That is, while they have tried to manipulate only the elements of logical proof, they have invariably employed some generalized measure of belief (e.g., Likert scales, semantic differentials) in assessing the impact of those manipulations. As a result, judgements regarding the truth value of a proposition are confused with general attitudes toward the acceptance of the proposition, and the effects of rational proof are suppressed. This is especially disturbing because empirical support for the validity of this distinction may be found in research reported by McGuire (1960b). McGuire, while investigating the persuasive effects of dissonance-producing messages, was able to account for more than 90% of the variance in attitude change by measuring just two variables: (1) the probability that a set of propositions were true, and (2) the desirability of the consequences of those propositions.

The second source of problems is that previous researchers have failed to distinguish between different types of evidence. In addition to the basic distinction between rational and emotional proofs, rhetorical theory also distinguishes between different types of emotional proofs. Aristotle suggests (1941, pp.597 - 599) that emotional proof can effect persuasion through either (1) appeals to appetitive desire, or (2) appeals to intelligence or reason in the service of desire. The first type of appeal is the one Aristotle treats so contemptuously in the Rhetoric (1941, p.1330). As for the second, Cushman (1968) concludes after an examination of Aristotle's broader philosophical position that "The standard of excellence in the functioning of emotional proof is the appeal to intelligence in the service of desire" (p.5). For our purposes, the critical point of the distinction is that

the second type of emotional proof requires the use of evidence to establish the rational desirability of a proposition or its consequences. Thus we are forced to differentiate between evidence which argues for the truth of a proposition by establishing the truth or probable truth of the premises from which it flows (truth evidence) and evidence which argues for the desirability of a proposition or its consequences (desirability evidence). Previous research on emotional proofs has failed to make the distinction between the two types of emotional appeals. Both the research on logical versus emotional appeals (summarized by Becker, 1963) and so-called fear appeals (summarized by Miller, 1963, and updated by Miller and Hewgill, 1966) have invariably mixed together elements of the two types of emotional appeals in their manipulations. Research on the relation of evidence to belief, which developed independently, has failed to make the distinction both between different types of emotional appeals and, resultingly, between truth evidence and desirability evidence. Instead, evidence has been treated as a purely unitary concept, appropriate only in the context of rational proof. Classifications of evidence have been made solely on the basis of structural criteria (e.g., fact versus opinion, presence or absence of the qualifications of the source, logical consistency) rather than on the basis of the type of appeal supported. This failure is especially disturbing because we would expect desirability evidence to have a different impact on general attitude than truth evidence, both because desirability evidence would seem to be more powerful than truth evidence under certain conditions (as will be argued more fully below) and because the contributions of rational and

desirable belief to general attitude are unclear. In short, the failure of previous researchers to distinguish between the different types of evidence, and their inclusion of the two types of evidence in single appeals, makes it impossible to either accurately predict or interpret the impact of their experimental messages on attitudes.

The third source of problems is the failure of previous evidence researchers to take account of the theoretically posited and empirically verified influence of desirable belief on rational belief. This idea is implicit in both the rhetorical and philosophical works of Aristotle (1941, pp.1403 - 1407 and 1025 - 1027) but has been made explicit and fundamental in the works of the modern rhetorical theorist Richard Weaver. According to Weaver, man participates in culture at three levels of conscious reflection: "...his specific ideas about things, his general beliefs or convictions, and his metaphysical dream of the world" (1948, p.18). Of these, the highest level is the metaphysical dream, which Weaver sees as "...an intuitive feeling about the imminent nature of reality, and this is the sanction to which both ideas and beliefs are ultimately referred for verification" (1948, p.18). Further, as Cushman and Hauser (In Press) have argued:

> Each of these levels holds man as imposing something upon the raw data of the world to order, shape and evaluate his experience of it. Confronted by raw data his initial reaction is one of wonder. In this state where phenomena are without order, reason is impossible. Rational activities commence only after an appropriate perspective is gained: one which orders and shapes the phenomena into a meaningful whole. This perspective comes from one's sentiment toward the world. Sentiment draws us to the world. It is an affective interest. Moreover, it is what man superimposes upon raw experience to make it personally meaningful and fit material for rational activity. For Weaver, sentiment is anterior to reason. (p.4)

Thus it is man's desires, ultimately embodied in his metaphysical dreams, that give meaning to reality. This conceptualization has two major implications for evidence research. First, it suggests that factual evidence, in and of itself, should have little impact unless it can be easily interpretted within the framework of the auditor's metaphysical dream. Second, it suggests that desirability arguments, if (and only if) they link with the auditor's metaphysical dream, should influence not only his belief in the desirability of a proposition but also his belief in the truth of the proposition, for it is only through perceptions of desirability that truth acquires meaning for him. In short, Weaver's position holds that belief in the desirability of a proposition influences belief in the truth of that proposition. Empirical support for the validity of this distinction may be found in the research of McGuire (1960a,b) and Dillehay, Insko, and Smith (1966). These researchers found, with one exception, that judgements of the truth of a proposition were determined in part by judgements of the desirability of the proposition. The single exception was among upper level college students in one experiment in the Dillehay, Insko and Smith study. These students seemed to be making the judgements independently.

Although this distinction is critical to the theoretical formulation underlying the present study, it would not be strictly necessary in a study of the effects of truth evidence on rational belief. Previous evidence researchers, however, have not restricted themselves solely to truth evidence and rational belief. Instead, they have looked at the effects of evidence in general on attitudes in general.

Given this approach, the causal relationship between desirable belief and rational belief does become critical. Let us assume that a given subject's general attitude on a proposition is some composite function of his rational belief and desirable belief on the proposition. If this subject were then presented with truth evidence in favor of the proposition, we would expect his general attitude to change in direct relation to the amount of change in rational belief induced by the evidence. If, however, this subject were presented with desirability evidence on the proposition, we would expect his general attitude to change both in response to the change in desirable belief induced by the evidence and in response to the change in rational belief induced by the change in desirable belief. Thus, once again, to the extent that previous evidence researchers failed to distinguish between different types of evidence and belief it becomes impossible to interpret their results.

Inadequate Conceptual and Operational Definitions

Closely related to the problems which follow from the failure of previous evidence researchers to draw the theoretical distinctions noted above are those which follow from the failure of these researchers to develop adequate conceptual and operational definitions of certain key concepts. In general, previous evidence research is marked by failures to adequately conceptualize and operationalize (1) "evidence" treatments, (2) "no evidence" treatments, and (3) belief.

As we argued above, one major theoretical shortcoming of prior evidence research was the failure to distinguish between truth evidence and desirability evidence. This, of course, represents a serious

conceptual problem as well. Even if we were to accept the earlier conceptualizations of "evidence" treatments, however, we would still be faced with several grave operational problems. In most previous studies, "evidence" treatments consisted of a verbal matrix in which a number of pieces of evidence were embedded. Each piece of evidence usually consisted of three distinct parts: (1) the evidential data, (2) the source of the evidential data, and (3) the qualifications of the source of the evidential data. Thus each piece of evidence had at least separate and possible interacting sources of persuasive potential. In most prior research it is impossible to be sure which of these various elements in the "evidence" treatments is or is not producing the persuasive effect. Empirical support for the validity of this distinction may be found in the research of Cathcart (1955) and Bostrom and Tucker (1969). These researchers discovered significant (but not necessarily cumulative) differences in the amount of attitude change produced by speeches containing only evidential data, data-plus-source, and data-plus-source-plus-qualifications of the source.

A second, and hopefully more restricted, problem with previous operationalizations of "evidence" treatments is the use of evidence that does not logically support the proposition. For example, Kline (1969), in studying the effects of "specific", "nonspecific" and "no" evidence treatments on attitude change, used the following piece of evidence as major support for the proposition "The popularity of classical music has increased over the past ten years". "Specific evidence: Among all types of musical performers, two classical performing artists, Leonard Bernstein and Arturo Rubenstein, are among the ten musicians

most in demand" (p.409). In this and all similar cases it would be extremely difficult to interpret observed changes in the dependent variable, especially if these changes were found to be non-significant.

"No evidence" treatments suffer from similar definitional difficulties. Actually the term "no evidence" is a misnomer because these treatments retain, with only slight modifications, the essential component of evidence--the data in the case of truth evidence, or the assertion of desirability or undesirability in the case of desirability evidence. The modifications usually consist of: (1) deletion of the source's name and qualifications, (2) generalization of the data, or (3) both of the above. To give a flavor for these manipulations, consider Table 1. It compares three fairly representative samples taken from actual "evidence" and "no evidence" treatments (McCroskey, 1966, pp. 170 - 183).

The samples of "no evidence" treatments in Table 1 probably fail to meet the logical or prescriptive tests of adequacy imposed by some audiences. Nevertheless, these treatments do consist of data, and this data does have the potential to induce attitude change. Thus it is hardly surprising that the "no evidence" speeches from which these samples were taken produced significant changes in attitude in comparison with no-message control groups (McCroskey, 1966, p.55). In other studies, messages containing "evidence" were compared solely with messages containing "no evidence" with regard to attitude change. In such cases a finding of no significance could simply reflect the failure to develop an adequate operational definition of "no evidence" treatments.

Table 1. Comparison of "evidence" and "no evidence" treatments

"Evidence" treatments	"No evidence" treatments
According to figures released by the Department of Health, Education and Welfare of the Federal Government, over one-third of the nation's high schools do not offer such essential college preparatory subjects as chemistry or physics, and about the same number don't even offer one foreign language.	Many of our schools do not offer such essential college preparatory subjects as chemistry or physics, and others don't even offer one foreign language.
In their report entitled The Financial Status of Public Schools the committee on educational finance of the National Education Association reports that last year the nation was short 118,000 qualified teachers just to meet minimum standards.	Across the nation we are short more than 100,000 teachers just to meet minimum standards.
According to figures released by the United States Office of Education in January of this year, 25.4% of the nation's classrooms are, in their words, "obsolete and unacceptable" for public schools because of such things as fire hazards. ...we find that over 375,000 classrooms are presently unacceptable.	A very large percentage of the classrooms presently in use are obsolete and unacceptable for public schools because of such things as extreme fire hazards. Over three hundred thousand of our present classrooms are unacceptable.

Turning next to the definitions of belief employed in previous evidence research, we are again met with several problems. First, as we noted above, the distinction between rational and desirable belief has been systematically ignored, resulting in the use of such generalized measures of attitude change as the Woodward Shift-of-Opinion Ballot, Likert scales and semantic differential batteries. This, we have argued, has tended to suppress the effects of rational proof and is quite probably a contributing factor in the negative or conflicting findings of earlier evidence research. A second and more specialized problem arises, however, when the semantic differential is used as the dependent measure of attitude change. Fortunately, only one researcher, McCroskey (1967, 1970), has used the semantic differential extensively to measure attitudes, although he has been by far the most prolific of all the evidence researchers. The semantic differential was developed (Osgood, Suci and Tannenbaum, 1957) in connection with studies of connotative meaning. Specifically, it was devised to get some measure of the hypothesized $r_m...s_m$ bonds in Osgood's mediational learning hypothesis. A semantic differential scale is usually composed of seven points bounded by a pair of polar adjectives. These adjective pairs, when used to rate an object, concept or proposition, are found to group into three primary factors--evaluative, potency and activity. Although in attitude measurement primary concern is with the evaluative dimension, use of all three factors generally results in higher predictability of attitude change. When semantic differential scales are used to measure the effects of evidence, two questions become critical. First, one must ask whether the semantic differential is capable of reliably

Military activities in South Viet Nam should be significantly expanded.

Good___:___:___:___:___:___:___:___Bad

Weak___:___:___:___:___:___:___:___Strong

Fast___:___:___:___:___:___:___:___Slow

Worthless___:___:___:___:___:___:___:___Valuable

Pleasant___:___:___:___:___:___:___:___Unpleasant

Figure 1. Example of semantic differential battery

detecting changes in rational belief. We have addressed this question previously. Second, one must ask whether the specific collection of dimensions operationalized are capable of tapping relevant antecedents in the message. To illustrate the issue we are raising, we have constructed a semantic differential battery in Figure 1 similar to those employed by McCroskey (1967, 1970) in his evidence research. Our argument is that certain pieces of evidence employed in support of the experimental proposition may not seem to induce attitude change because of the failure of the evidence to link with the proposition in such a manner as to involve the dimensions of evaluation cited. For example, desirability evidence supporting expanded military activity as the only "honorable" course of action might produce significant attitude changes that were not detected by the measurement instrument shown in Figure 1. In such cases, a finding of "no significance" would simply reflect a defeat in either the operational definition of evidence, the operational definition of belief, or both.

Inadequate Control

In addition to the theoretical and definitional problems that we have outlined, the great majority of previous evidence studies failed to exercise adequate control over the following variables: (1) source credibility, (2) familiarity with the evidence, and (3) redundancy.

McCroskey (1969) has argued that source credibility interacts with evidence to account for the conflicting results apparent in previous evidence research. McCroskey's research demonstrates that a high credibility source produces as much or more attitude change from an assertion unsupported by evidence as a low credibility source who supports his assertion with evidence. McCroskey concludes:

> Including good evidence has little, if any, impact on immediate audience attitude change or source credibility if the source is initially perceived to be high-credible.
> Including good evidence may significantly increase immediate audience attitude change and source credibility when the source is initially perceived to be moderate-to-low credible, when the message is well delivered, and when the audience has little or no prior familiarity with the evidence. (1969, p.175)

Since source credibility has seldom been explicitly controlled, especially in the earlier evidence studies, we must conclude with McCroskey that differences in levels of source credibility may have interacted with evidence to produce the conflicting results of previous evidence research.

Arguing from a dissonance theory position, McCroskey (1967, 1969) has also proposed that if subjects were aware of evidence before it was presented by a speaker, the evidence might not have a significant impact on either their attitudes on the topic or their perceptions of the source. The results of a single study conducted by McCroskey (1967)

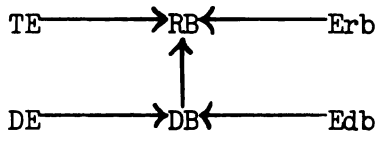
suggest that this may indeed be the case. Thus another possible source of confusion in the evidence treatments of previous studies is the failure to control for audience familiarity with the evidential data so that its persuasive effects can be measured free from other influences.

Finally, in several of the evidence studies reviewed above, the researchers attempted to control for message length by repeating or restating assertions in the "no evidence" treatments. In most of the remaining studies, the messages containing evidence were somewhat longer than the "no evidence" messages (cf., Table 1, above). Although the effects of minor variations in message length are unknown, attention has been directed recently to the effects of redundancy on attitude change. For example, Troldahl, Costello and Robeck (1969) have reported that redundant messages produce more attitude change than non-redundant messages. This suggests that in those studies where redundancy was not explicitly controlled, redundancy effects may have been confounded with the effects of evidence.

In summary, our analysis of previous research suggests the need for reformulations of (1) the theoretical bases for examining the relation of evidence to belief, (2) the conceptual and operational definitions of evidence, no evidence and belief, and (3) control procedures. The next three sections of this paper will be devoted to these reformulations.

Theoretical Reformulation

Our theoretical reformulation is concerned with the relation of evidence to belief. It derives primarily from the theoretical distinctions that were discussed in some detail above. These are: (1) the distinctions between rational belief and desirable belief; (2) the distinction between truth evidence and desirability evidence; and (3) recognition of the impact of desirable belief on rational belief. Combining these distinctions we have developed the model of the relation of evidence to belief which is reproduced in Figure 2



TE = Truth Evidence
DE = Desirability Evidence
RB = Rational Belief
DB = Desirable Belief
Erb = Error: Rational Belief
Edb = Error: Desirable Belief

Figure 2. Model of the relation of evidence to belief

Several features of the model bear comment. First, we have incorporated the traditional rhetorical argument that the use of (truth) evidence is central to establishing belief in the validity or truth value of a proposition (i.e., rational belief). We have, however, rejected on both theoretical and empirical grounds the notion that the only way in which rational belief can or should be affected is through the use of truth evidence. Second, by including the error terms (Erb and (Edb) we explicitly acknowledge the effects of variables other than evidence on belief, some of which may be more powerful than evidence.

In short, our purpose is not to create a general model of persuasion, but rather to create a model of the persuasive impact of evidence. Third, by including the relationship between desirability evidence and desirable belief, we hope to focus attention on an area of evidence usage that has not yet been systematically explored (although some recent work has been done in the area by Clark and Hynes, 1970, and Infante, 1971).

Before turning to our conceptual definitions, we must first meet an obvious set of objections to our position. Ever since the attacks of Woolbert (1917) and Yost (1917) on Winans' (1915) theory of persuasion, it has been fashionable to reject any rhetorical distinction between "logic" and "emotion" as a return to faculty psychology. More recently, adherents of this position have pointed to Becker's (1963) conclusion that research on logical and emotional proofs has been generally unproductive and Ruechelle's (1958) discovery that subjects in his experiment were unable to distinguish between logical and emotional appeals as proof of the invalidity of this type of distinction. Without wishing to become embroiled in this controversy, we would emphasize the following three points. First, while rational belief and desirable belief are seen as largely independent, we have acknowledged their interdependence by including the non-reciprocal link between them in our model. We therefore claim a theoretical position somewhere between the extremes in the controversy. Second, there is empirical, as well as theoretical, support for the validity of our distinction between rational belief and desirable belief. Studies by McGuire (1960a,b), Dillehay, Insko and Smith (1966), and Cushman and

Smith (In Preparation) all indicate that the distinction is both valid and scientifically interesting. Third, there is ample empirical and theoretical support for the validity of our distinction between truth and desirability evidence. Cronkhite (1961), using "logical" and "emotional" appeals that are remarkably similar to our truth and desirability treatments, found that subjects were consistently able to differentiate between them. In a study related to the present one, Filion (1972) found that subjects were able to reliably categorize statements as truth evidence, desirability evidence or no evidence. Finally, as Cronkhite (1964) has pointed out, Ruechelle's oft-quoted finding consisted of nothing more than a failure to disprove the null hypothesis, and thus was doomed from the start.

Reformulation of Conceptual Definitions

In this section, we will develop conceptual definitions for the four concepts in our model. Operational definitions for these terms will be reported in Chapter II. In general, we will define evidence as anything offered by a speaker or writer which is intended to support a proposition. Using this as a base, we would then define truth evidence as anything offered by a speaker or writer which is intended to support the truth of a proposition, and desirability evidence as anything offered by a speaker or writer which is intended to support the desirability of a proposition. Two observations about these definitions, which were strongly influenced by Miller's (1966) definition of evidence, are in order. First, the term "anything" has been purposefully chosen to avoid the plethora of empirically indefensible prescriptions

as to what constitutes "good" or "bad", "adequate" or "inadequate" evidence. In our formulation, personal assertions of fact or value, quotations from authorities, logical deduction and skillful analysis, and so on, are all considered as possible forms of evidence. Our sole criterion for designating something as evidence is whether the speaker or writer intends it to support the proposition in question. Second, the word "support" is used in our definition in the sense of "providing a foundation for" the proposition. That is, the speaker or writer must intend for his manipulation to provide a foundation or basis for the proposition to which the message recipients may refer in making their judgements on the proposition.

Although the literature abounds with definitions of evidence, the exact reverse is true of definitions of belief. Of the works reviewed for this study, the vast majority simply left belief conceptually undefined. Of the remainder, some (e.g., Bettinghaus, 1966) merely elaborate on dictionary definitions. Others (e.g., Kruger, 1967) provide prescriptive definitions of what certain forms of belief should be, or how they should be attained. A very few (e.g., Miller, 1966) report or develop definitions which, while philosophically sound, seem too broad to link well with our operationalizations. Given the abstractness and complexity of the concept involved, this collective approach is understandable and, perhaps, unavoidable. Any definition of belief can be expected to draw criticism from at least some quarter. Regardless, we have developed a set of definitions which, for our purposes, seem apposite. In general, we will define belief as <u>a feeling of variable certainty with regard to a proposition, manifested in one or more</u>

judgements on the proposition. Using this as a base, we will define rational belief as a feeling of variable certainty with regard to the truth of a proposition, manifested in a judgement on the truth of the proposition. Desirable belief is defined as a feeling of variable certainty with regard to the desirability of a proposition, manifested in a judgement on the desirability of the proposition.

Reformulation of Control Procedures

Because several variables tend to interact with evidence and belief and thus bias experimental results, the following controls were introduced into the study. More precise details of the control procedures followed will be reported in Chapter II. First, in order to control for the effects of varying levels of source credibility on belief, written messages with no specific source attribution were used. General attribution was to the Department of Communication at Michigan State University, which was assumed to be moderate-to-high in credibility. Second, to control for the effects of audience familiarity with the evidence, fictional data were used in all messages. Third, to control for the effects of message length and redundancy, all messages were of approximately the same length and non-redundant.

Overview of Research Design and Procedures

In the final section of this chapter we will report the hypotheses tested in this study and their derivations. First, however, it would be helpful to briefly describe our research design and some of the more salient experimental procedures followed. The study was in the form of

		Attack		
		No	Des.	Truth
Constructive	No	1	2	3
	Des.	4	5	6
	Truth	7	8	9

Figure 3. Experimental design

a 3x3, replicated, after-only design. The primary independent variable was evidence; the primary dependent variables were rational belief and desirable belief. The study was executed in two phases. All subjects in both phases of the study were undergraduate students enrolled in the basic Communication course at Michigan State University. In the first phase, each subject was given an experimental message consisting of a proposition and two one-paragraph arguments--one supporting the proposition (Constructive Argument) and one opposing the proposition (Attack Argument). Three forms of both the Attack and Constructive arguments were identified, based on the type of evidence (i.e., truth evidence, desirability evidence or no evidence) used to support the argument. All possible combinations of Attack and Constructive arguments were employed, thus generating the nine-cell treatment matrix shown in Figure 3. After reading the experimental message, each subject then rated the truth and desirability of the proposition, justified his ratings in a one-paragraph essay, and answered a series of questions on demographic variables.

Several weeks after completion of Phase I data collection, all students in the basic Communication course were given training in the structure of arguments (following the model proposed by Toulmin, 1959) and the proper use of evidence, as part of their required coursework. This seemed to present a unique opportunity to study the effects of this type of training on evidence impact and the link between rational belief and desirable belief. Consequently, after the students had been tested on the critical material, a somewhat smaller sample was presented with experimental messages and measurement items identical to those used in Phase I. These constituted the Phase II manipulations.

Rationale for Hypotheses

The conceptualization of the relation of evidence to belief developed in this chapter represents a rather radical departure from the more simplistic notions of previous evidence researchers. This study and its immediate predecessor (Cushman and Smith, In Preparation) were therefore designed primarily to provide descriptive bases for an ongoing research endeavor rather than to test specific deductions from the theory of evidence being developed. Nevertheless, the design of the study does permit tests of a number of preliminary hypotheses. These hypotheses and their derivations are outlined below.

The most basic issue in evidence research is the question of how much impact various forms of evidence have on belief. In our study, nine combinations of attack and constructive evidence-based arguments were developed and their effects on rational and desirable belief were measured. On the basis of the model presented in Figure 2 and a number

of theoretically based assumptions (which are reported below) we will predict rank orders of rational belief and desirable belief scores across all nine treatments. Separate predictions will be made for Phase I and Phase II. Before detailing these predictions, however, several preliminary points should be noted. First, on the basis of pretest results, it was assumed that subjects would load quite heavily on the attack side of the proposition regardless of the evidence treatment employed. As a result, the great majority of our predictions will be phrased in terms of a decrease in rational belief and desirable belief. Second, all desirability arguments were generated by pretest subjects drawn from the same general population as the subjects in the larger study. Desirability evidence was then devised to support these arguments. This insures that, in general, desirability evidence will link with the value systems (metaphysical dreams) of message recipients on the same side of the proposition as the evidence. Third, all belief predictions will be phrased in terms of the cell numbers assigned in Figure 3 above. The addition of the letter "A" to the number designates the appropriate cell in Phase II.

Our first hypothesis relates to the effects of evidence on rational belief for Phase I subjects. Our predictions are derived from the model presented in Figure 2 and the following five assumptions. Where appropriate, the source or sources for the assumption will be listed parenthetically.

1. Treatment 1 (No Evidence versus No Evidence) will provide baseline ratings of rational belief on the proposition.

2. The link between rational and desirable belief is non-reciprocal (Weaver, 1948; McGuire, 1960a,b; Dillehay, Insko and Smith, 1966).

3. Desirability evidence that fails to link with the value system of the message recipient will have the same effect on rational belief as no evidence (Weaver, 1948; Cushman and Smith, In Preparation).

4. In general, supportive desirability evidence will have a stronger impact on rational belief than truth evidence (Weaver, 1948, 1963; Filion, 1972; Cushman and Smith, In Preparation).

5. Truth evidence, in the absence of desirability evidence, will have an impact on rational belief regardless of the initial position of the message recipient.

On the basis of these assumptions and the general model we have derived the following major hypothesis:

H1: Posttest ratings of rational belief for phase I subjects will display the following pattern: 7 > 1, 4, 9 > 3, 6 > 8 > 2, 5.

Our next hypothesis relates to the effects of evidence on desirable belief. Once again, our predictions are based on the model presented in Figure 2 and the following three assumptions (cf., Assumptions 1, 2 and 3 above).

1. Treatment 1 will provide baseline ratings of desirable belief on the proposition.

2. The link between rational belief and desirable belief is non-reciprocal.

3. Desirability evidence, if it fails to link with the value system of the message recipient, will have the same effect on desirable belief as no evidence.

On the basis of these assumptions and the general model we have derived the following hypothesis:

H2: Posttest ratings of desirable belief for Phase I subjects will be higher in treatments 1, 3, 4, 6, 7 and 9 than in treatments 2, 5 and 8.

In addition to investigating the effects of different forms of evidence on different forms of belief, the current study was also

intended to discover the effects of certain variables on the link between rational belief and desirable belief. This approach was suggested by the finding of Dillehay, Insko and Smith (1966) that the link between truth and desirability ratings in one of their experiments virtually disappeared when upper level college undergraduates were used as subjects, although it was quite prominent when lower level undergraduates were used. The authors argued, somewhat nebulously, that either intelligence or education was the critical intervening variable. After a careful review of the Dillehay, Insko and Smith study and its predecessor, McGuire (1960b), we have rejected the former possibility while retaining the latter as a working hypothesis. Our reasons for rejecting intelligence as the intervening variable are twofold. First, it seems unlikely that the difference in intelligence between upper and lower level undergraduates is sufficiently large to produce the observed differences in correlations of truth and desirability ratings. Second, even though McGuire used high school seniors and college freshmen with a modal high school grade average below the 30th percentile for their state, and Dillehay, Insko and Smith used a more representative sample of lower level undergraduates, the expected link between truth and desirability ratings was found in both studies. The link largely disappeared only when Dillehay, Insko and Smith moved to upper level undergraduates. We have therefore decided to test only the effect of education level on the link between rational belief and desirable belief. Before articulating our hypothesis, however, we must add one theoretical refinement. According to Weaver's theory, the influence of a man's metaphysical dream on his beliefs about

reality is both pervasive and permanent. Thus, while it might be possible to suppress the link between rational belief and desirable belief, we would never expect the link to disappear entirely. This contention receives some support from the Dillehay, Insko and Smith study. They found that the correlation between truth and desirability ratings for their upper level undergraduates did not disappear entirely but was instead reduced to the non-significant (for their sample) value of .21 (1966, p.651). On the basis of these arguments, then, we may now propose the following hypothesis:

> H3: Across all treatments, for both Phase I and Phase II subjects, the correlation between rational belief and desirable belief ratings will be lower for upper level undergraduates (i.e., Juniors and Seniors) than for lower level undergraduates (i.e., Freshmen and Sophomores), but will always be significantly greater than zero.

Confirmation of the foregoing hypothesis would have a profound influence on future theories of evidence, but it would do little to explain the phenomenon in question. Simply knowing that more highly educated people are better able to separate rational belief from desirable belief tells us nothing about how they acquired that capability. One major possibility is that the average upper level undergraduate has had at least some formal training in reasoning, while the average lower level undergraduate has not. In order to test this possibility, subjects were drawn from the same population both before (Phase I) and after (Phase II) receiving training in argumentation and the proper use of evidence. On the assumption that this training indirectly contributed to the subjects' ability to separate rational belief from desirable belief (subject of course to the theoretical limitation noted above)

we have derived the following exploratory hypothesis:

H4: Across all treatments, the correlation between rational belief and desirable belief will be lower for Phase II subjects than for Phase I subjects, but in both cases will be significantly greater than zero.

Our final two hypotheses relate to the effects of evidence on rational and desirable belief for Phase II subjects. Unfortunately, the hypothesized suppression of the link between rational and desirable belief for these subjects makes predictions as to the effects of desirability evidence on rational belief problematic. Depending on the magnitude of this suppression, desirability evidence could be more powerful, less powerful, or approximately as powerful as truth evidence in its effects on rational belief. Solely on the basis of the rather meager evidence provided by the Dillehay, Insko and Smith (1966) study, we have chosen the last alternative in phrasing our hypothesis. Thus while Assumptions 1, 2, 3 and 5 are still applicable, Assumption 4 must be changed as follows:

4a: Supportive desirability evidence will have approximately the same impact on rational belief as truth evidence.

On the basis of these five assumptions and the general model, we may now derive the following hypothesis:

H5: Posttest ratings of rational belief for Phase II subjects will display the following pattern:
7A > 1A, 4A, 8A, 9A > 2A, 3A, 5A, 6A.

Although the hypothesized suppression of the link between rational belief and desirable belief should have a significant effect on the relation of desirability evidence on rational belief, it should have no effect on the relation between evidence and desirable belief. Therefore, on the basis of the three assumptions reported for

Hypothesis 2 above and the general model, we may derive the following final hypothesis:

H6: Posttest ratings of desirable belief for Phase II subjects will be higher in treatments 1A, 3A, 4A, 6A, 7A and 9A than in treatments 2A, 5A and 8A.

CHAPTER II

METHODOLOGY

Pretest

On the twin bases of the experience gained in conducting the first experiment in this series (Cushman and Smith, In Preparation) and the theoretical position developed in this study, three criteria were derived to guide the construction of theoretically and empirically adequate message treatments. First, it was decided that the experimental proposition should relate to an issue of high interest and importance to the experimental audience. This would not only insure a closer correspondence between the experimental situation and the idela rhetorical situation (Bitzer, 1967) which it should approximate, but would also increase the pragmatic utility of the findings. Second, the experimental proposition should be one on which the audience loaded heavily on either the positive or negative side. This would permit generation of a single set of belief predictions and would eliminate the problem of posttest division into similar belief groups. On the other hand, it was recognized that with such a proposition any experimentally induced changes in belief on the proposition would tend to be both small and in the same direction as original belief. Third, any desirability evidence and arguments would have to link with the general value systems of at least a majority of the experimental audience. As we argued in Chapter I, this is a necessary condition for

the effective use of desirability evidence in any kind of rhetorical situation.

In order to gather the information necessary to meet these three criteria, a pretest was conducted in January, 1972, approximately four months before the beginning of Phase I data collection. Subjects in the pretest were 32 undergraduate students enrolled in one section of the Communication 100 course at Michigan State University. The subjects were presented with a seven-page booklet (see Appendix A) which contained five propositions and scales for rating the truth, desirability and importance of each proposition. In addition to completing these scales, each subject was also asked to list one major reason why he or she felt each proposition was desirable, and one major reason why he or she felt the proposition was undesirable. On the basis of the information gathered in the pretest, a single proposition ("University administrators must be given the right to search student dormitory rooms for drugs.") was chosen for use in the larger study. This proposition received a mean pretest truth rating of 3.11 on a ten-point scale ranging from "0 - 10% true" to "91 - 100% true", a mean pretest desirability rating of 1.68 on a four-point scale ranging from "Very undesirable" to "Very desirable", and a mean pretest importance rating of 4.36 on a five-point scale ranging from "Very unimportant" to "Very important". Desirability evidence and arguments on the proposition were generated on the basis of the responses to the two open-ended questions. In the pretest, 91% of the subjects listed "loss of freedom" or "violation of individual rights" as the most undesirable feature of the proposition, while 56% listed "rehabilitation of drug users"

as the most desirable feature. The lower percentage for the desirable feature reflects both a broader range of responses and the inability of some subjects to foresee any desirable consequences to the proposition.

Samples

The subjects for Phase I of the study were 273 undergraduate students enrolled in eleven sections of the Communication 100 course at Michigan State University. The sample was about evenly divided between males and females (50.19% versus 49.81%). All questionnaires were usable although eleven subjects failed to answer one or more demographic items. Phase I data collection took place from May 8 to May 10, 1972.

The subjects for Phase II of the study were 166 undergraduate students enrolled in seven of the same eleven sections of the Communication 100 course as in Phase I. It was assumed that most if not all of the Phase II subjects had also participated in Phase I of the study. Once again, the sample was about evenly divided between males and females (50.63% versus 49.37%). All questionnaires were usable although nine subjects failed to answer one or more demographic items. Phase II data collection took place from May 31 to June 2, 1972.

Operationalizations of Independent Variables

The primary independent variable in both phases of the study was evidence. Three types of evidence were identified--no evidence, desirability evidence and truth evidence. Each type of evidence was used to support one constructive argument and one attack argument on the

proposition. Thus, a total of six evidence treatments were constructed. Each treatment is outlined below (see also Appendix B).

1. No Evidence - Constructive Argument: This treatment consisted of a 71-word paragraph containing an introductory sentence, two one-sentence authority-based definitions of terms appearing in the proposition, and a concluding sentence calling for support of the proposition.

2. No Evidence - Attack Argument: This treatment consisted of a 73-word paragraph containing an introductory sentence, two one-sentence authority-based definitions of terms appearing in the proposition, and a concluding sentence calling for opposition to the proposition.

3. Desirability Evidence - Constructive Argument: This treatment consisted of a 79-word paragraph containing an introductory sentence, two one-sentence authority-based opinion statements testifying to the desirability of the proposition, and a concluding sentence calling for support of the proposition.

4. Desirability Evidence - Attack Argument: This treatment consisted of an 80-word paragraph containing an introductory sentence, two one-sentence authority-based opinion statements testifying to the undesirability of the proposition, and a concluding sentence calling for opposition to the proposition.

5. Truth Evidence - Constructive Argument: This treatment consisted of an 84-word paragraph containing an introductory sentence, two one-sentence authority-based statements of fact supporting the truth of the proposition, and a concluding sentence calling for support of the proposition.

6. Truth Evidence - Attack Argument: This treatment consisted of a 78-word paragraph containing an introductory sentence, two one-sentence statements by authorities citing facts to support the falsity of the proposition, and a concluding sentence calling for opposition to the proposition.

The second independent variable in the study was training in evidence usage and argumentation. This training was conducted as an integral part of the Communication 100 course structure. The training sequence was divided into four parts. First, all Communication 100 students were required to read a brief paper outlining the model of an argument developed by Toulmin (1959) and stressing the proper use of

evidence in argumentation. Second, each instructor led a 15-20 minute classroom discussion on the content of the article. Third, all students were required to participate in the construction of written cases urging adoption of a specific solution to a problem. These cases were then critiqued and graded, partially on the basis of how well the student had been able to apply the principles of argumentation expounded in the assigned article. Fourth, student comprehension of the material on argumentation and evidence usage was tested as part of a broader course-wide examination. The training sequence was initiated three-to-five days after completion of Phase I data collection and was terminated approximately one week before the beginning of Phase II data collection.

In order to test our third hypothesis, it was necessary to distinguish between upper and lower level undergraduates. In this study, all subjects who checked the categories "Freshman" or "Sophomore" in response to the demographic question "What is your college class?" were classified as lower level undergraduates. All subjects who checked the categories "Junior" or "Senior" in response to the same question were classified as upper level undergraduates. Of the Phase I sample, 72.93% were classified as lower level undergraduates, while the corresponding figure for the Phase II sample was 68.79%.

Operationalizations of Dependent Variables

The two dependent variables in both phases of the study were rational belief and desirable belief. Our operationalizations of these variables were based on measurement instruments developed by McGuire

Part A:

(a)_____ 0 - 10% true
(b)_____11 - 20% true
(c)_____21 - 30% true
(d)_____31 - 40% true
(e)_____41 - 50% true
(f)_____51 - 60% true
(g)_____61 - 70% true
(h)_____71 - 80% true
(i)_____81 - 90% true
(j)_____91 -100% true

Part B:

(a)_____Very desirable
(b)_____Desirable
(c)_____Undesirable
(d)_____Very undesirable

Figure 4. Dependent measurement instruments

(1960b) to measure judgements of the truth and desirability of syllogistic premises and conclusions. In our study, rational belief was operationally defined as the response to the question "How true is the proposition that University administrators must be given the right to search student dormitory rooms for drugs?" measured on the scale shown in Part A of Figure 4. Subjects were instructed to place an "X" in the blank that most accurately described their evaluation of the truth of the proposition. Responses were scored from 1 to 10, with 10 representing a judgement of 91 - 100% true.

Desirable belief was operationally defined as the response to the question "How desirable is it that University administrators be given the right to search student dormitory rooms for drugs?" measured on the scale shown in Part B of Figure 4. Subjects were instructed to place an "X" in the blank that most accurately described their estimate of the desirability of the proposition. Responses were scored from 1 to 4 with 4 representing a judgement of Very desirable.

Measurement instruments quite similar to those shown above were used in studies by McGuire (1960a,b) and Dillehay, Insko and Smith (1966); instruments identical to those shown above were used in the first study in this series (Cushman and Smith, In Preparation). Before adopting these instruments for use in our evidence studies, however, several checks of their face validity were accomplished. These checks were conducted as part of a pretest for the Cushman and Smith study. In this pretest, 36 high school students were interviewed in depth to determine (1) how they normally conceptualized truth and desirability, and (2) whether they normally applied these categories in evaluating propositions similar to the one employed in this study. Results of the pretest indicated that these subjects (1) generally conceptualized truth in probabilistic terms, (2) generally conceptualized desirability in terms of a small number of broad verbal categories, and (3) normally applied these categories (i.e., truth and desirability) in evaluating diverse propositions. It was assumed in this study that these findings could be generalized to a college student population.

Questionnaire Construction

Each subject in both phases of the study received a four-page booklet containing instructions, evidence treatments and dependent measures. There were a total of nine versions of the basic booklet, which differed only on the combination of attack and constructive arguments included (e.g., Constructive Argument - No Evidence versus Attack Argument - No Evidence, Constructive Argument - No Evidence versus Attack Argument - Desirability Evidence, and so on). Each version

of the booklet therefore corresponded to one of the nine basic treatment groups in either phase of the study. The first page of each booklet contained general instructions, an example of the type of proposition used in the study, and specific instructions on how to complete the dependent measures of rational belief and desirable belief (see Appendix B for full versions of all booklets). The second page of each booklet contained a statement of the proposition, a one paragraph constructive argument on the proposition, a one-paragraph attack argument on the proposition, and four completion questions about the substantive content of each of the pieces of evidence used in the arguments. The constructive argument preceded the attack argument in all nine versions of the booklet. The third page of each booklet contained the dependent measures of rational belief and desirable belief and a request for verbal justification of the subject's judgements. The fourth and final page of each booklet contained eight demographic questions.

Data Collection Procedures

The sequence of data collection procedures for Phase I of the study was as follows. All copies of the blank questionnaires were assembled as a single set, and the order of appearance of the nine different treatments was randomized within the set. Treatments 1, 5 and 9 (see p. 25 above) were overrepresented within the set to provide additional information on these critical cells. The randomized set of questionnaires was then divided into eleven subsets of approximately equal size. Each of the eleven instructors of daytime Communication 100 sections for Spring term, 1972, was given one subset of booklets

for administration to his class. All instructors were asked to: (1) distribute the questionnaire booklets approximately fifteen minutes before the end of the scheduled class period, (2) introduce the questionnaire as part of an opinion survey being conducted by the Department of Communication, and (3) answer any questions about the questionnaire with the statement "I don't know".

Data collection procedures for Phase II of the study were identical to those for Phase I with two exceptions. First, treatments 1, 5 and 9 were not overrepresented in the second set of questionnaires. Second, questionnaires were distributed in only seven of the original eleven Communication 100 sections. This occurred because four of the instructors were behind schedule (Phase II data collection took place during the last week of classes for Spring term)and could not allot class time for questionnaire administration. It could be argued that the seven instructors who were able to distribute the Phase II questionnaires were more efficient than the four who could not, and were therefore more effective teachers as well. If this were the case, we would expect the hypothesized impact of training on the relation between rational belief and desirable belief (Hypothesis 4) to be greater than if all eleven instructors had participated in Phase II data collection. This would tend to increase the probability of confirming Hypothesis 4.

Control Procedures

In Chapter I we identified several uncontrolled intervening variables which may have confounded the results of previous studies of the

effects of evidence. With one exception, each of these variables was explicitly controlled in both phases of this study. The first variable, source credibility, was controlled by using written anonymous messages. The only attribution of the messages was to the Department of Communication, which we assumed would be perceived as moderately high in credibility. On the basis of McCroskey's (1969) findings, we would therefore expect source credibility to depress the effects of evidence in all treatment groups, if it had any effect at all. This would make it more difficult for us to confirm Hypotheses 1, 2, 5 and 6. The second variable, audience familiarity with the evidential data, was controlled in Phase I by creating all the evidence used in the experimental messages. Thus all subjects in Phase I received equally new and unfamiliar evidence. Unfortunately, it was not possible to completely control for familiarity in Phase II of the study. The same messages used in Phase I were randomly distributed to subjects in Phase II, the vast majority of whom had participated in Phase I. As a result, we must assume that a substantial minority of Phase II subjects were familiar with one or both of the messages they received. The third variable, redundancy, was controlled by simply constructing non-redundant messages. This was facilitated in the two "no evidence" messages by our use of authority-based definitions in place of evidence. In addition, an attempt was made to control for message length. The six messages used in the study varied from 71 to 84 words, with a mean length of 78 words. A fourth control problem relates to the structure of evidential statements. As we pointed out in Chapter I, each piece of evidence used in previous evidence studies generally contained three separate

Table 2. Evidence sources and their qualifications

Argument	Source	Qualifications
Constructive	Dr. Joseph Elder	Professor of Sociology, University of Wisconsin
Constructive	Peter Leonard	Associate Director, National Education Association
Attack	Dr. Joseph Woelfel	Professor of Sociology, University of Illinois
Attack	James Small	Research Assistant, American Association of University Professors

and possibly interacting sources of persuasive potential--the evidential data, the source of the evidential data and the qualifications of the source of the evidential data. In our study, each piece of evidence was also made up of data, source and qualifications, but sources and qualifications were held constant across all forms of evidence on each side of the proposition. These sources and their qualifications are listed in Table 2.

The four control problems discussed above are common to most studies of the effects of evidence. In addition to these, three possible sources of bias were identified that were more or less unique to the type of experimental procedure followed in our study. First, there may have been critical differences in the way the eleven instructors administered the questionnaire booklets. Second, there may have been critical differences in the way individual instructors presented the training materials on argumentation and evidence usage. Third,

the various classroom sections may have differed on one or more critical population parameters. All of these three possible sources of bias were controlled in our study by randomizing the experimental treatment booklets before distributing them to the eleven instructors.

Design

The study was in the form of a 3x3, replicated, after-only design. All experimental treatment groups received some combination of experimental messages, however the No Evidence versus No Evidence cells in both phases of the study (cells 1 and 1A in Figure 5 below) were treated as no-manipulation control groups. The design is summarized in Figure 5 below, which also includes data on the total sample sizes and the sizes of each treatment group.

Phase I: N = 273

Constructive		Attack: No	Attack: Des.	Attack: Truth
	No	(1) n=35	(2) n=29	(3) n=26
	Des.	(4) n=21	(5) n=46	(6) n=24
	Truth	(7) n=24	(8) n=23	(9) n=45

Phase II: N = 166

Constructive		Attack: No	Attack: Des.	Attack: Truth
	No	(1A) n=20	(2A) n=19	(3A) n=18
	Des.	(4A) n=16	(5A) n=19	(6A) n=18
	Truth	(7A) n=18	(8A) n=19	(9A) n=19

Figure 5. Full experimental design with sample sizes

CHAPTER III

RESULTS

Effects of Evidence: Phase I

The major hypotheses in this study relate to the effects of evidence on rational belief and desirable belief. Specifically, we predicted in our first hypothesis that, for subjects in Phase I, posttest ratings of rational belief would display the following pattern: 7 > 1, 4, 9 > 3, 6 > 8 > 2, 5. The actual pattern of rational belief ratings for Phase I is shown in Table 3. In this Table, as in Tables 4, 6 and 7 below, we have chosen to describe our findings with two sets of figures instead of the conventional single set. First, the number in parentheses in each cell of the treatment matrix indicates the mean value of rational belief for that cell. Second, the centered number in each cell indicates the product-moment correlation between a dichotomous variable representing that particular treatment and posttest ratings of rational belief, computed across the entire (N = 273 or 166) sample. Each of these correlation coefficients therefore indexes the apparent impact of each treatment relative to all other treatments in the matrix. The advantage of this technique is that it tends to highlight extremely small treatment differences, an important consideration in a primarily descriptive study such as this one. Unless otherwise indicated, all statistical tests reported in this chapter will be based

Table 3. Rational belief ratings for Phase I subjects

		Attack		
		No	Desirable	Truth
Constructive	No	(3.03) .113	(1.41) -.157	(2.12) -.042
	Desirable	(2.90) .069	(1.78) -.127	(2.75) .052
	Truth	(2.33) -.008	(2.13) -.037	(3.04) .135

Predicted: 7 > 1, 4, 9 > 3, 6 > 8 > 2, 5

Discovered: 9 > 1 > 4 > 6 > 7 > 8 > 3 > 5 > 2

on the correlational data rather than the treatment means. The level of significance used for all analyses was .05.

The most obvious conclusion that may be drawn from Table 3 is that none of the evidence combinations had a very great impact on rational belief. This finding, which was not unexpected, will be discussed in some detail in Chapter IV. Nevertheless, comparison of the "Predicted" and "Discovered" inequalities reveals that the pattern of belief ratings discovered closely approximates the predicted pattern. This similarity is reflected in a significant Spearman rank correlation coefficient of .769. A careful inspection of the data discloses only two substantial deviations from the predicted pattern. First, the correlation between treatment and rational belief ratings for Treatment 7 is much smaller than predicted. Second, the correlations for Treatments 3 and 6, which we expected would be of nearly equal magnitude, are

Table 4. Desirable belief ratings for Phase I subjects

		Attack		
		No	Desirable	Truth
Constructive	No	(1.60) .076	(1.17) -.143	(1.38) -.035
	Desirable	(1.71) .104	(1.24) -.144	(1.38) -.038
	Truth	(1.48) .007	(1.42) -.020	(1.76) .187

actually separated by a fairly large, albeit non-significant, margin. Bearing these deviations in mind, we must conservatively conclude that Hypothesis 1 is only partially supported by the experimental data.

Our second hypothesis predicted that posttest ratings of desirable belief would be higher in treatments 1, 3, 4, 6, 7 and 9 than in treatments 2, 5 and 8. The mean values of desirable belief and the correlations between treatment and desirable belief ratings for Phase I subjects are shown in Table 4. In order to evaluate our hypothesis, the general prediction statement was broken down into the eighteen two-element inequalities that it implies (e.g., 1 is greater than 2). Each of these inequalities was then compared against the experimental data, using simple numerical magnitude as the criterion for determing the direction of the actual relationship. Sixteen of the eighteen inequalities were in the direction predicted by Hypothesis 2. The two deviant cases were 3 and 6 smaller than 8. If we assume that the random probability of confirming any one of these eighteen predictions is equal

to .50, then the probability of confirming sixteen or more of the eighteen predictions is less than .001. We may therefore conclude that Hypothesis 2 is supported by the experimental data. We must note, however, that the data suggest a more complex relationship between evidence and desirability belief than that envisioned in our model. Specifically, while our model would lead us to expect only small, random differences in ratings of desirable belief and the corresponding treatment/belief correlations within the two treatment subsets (i.e., 1, 3, 4, 6, 7, 9 and 2, 5, 8), our data reveal a number of relatively large and often significant differences between treatments within the same subset. Thus, while the predictions derived from the model are generally accurate, they would also seem to be incomplete. We will discuss this finding at some length in Chapter IV.

Effects of Education Level and Training

In addition to the hypotheses relating to the effects of evidence on belief, we also formulated two hypotheses about the effects of outside variables on the relation between rational belief and desirable belief. In Hypothesis 3, we predicted that the correlation between rational belief and desirable belief would be higher for lower level undergraduates (LLU) than for upper level undergraduates (ULU) in both phases of the study. The actual correlations are shown in Table 5. In both Phase I and Phase II, the predicted relationship is reversed--rational belief and desirable belief are correlated more highly for upper level undergraduates than for lower level undergraduates, although the difference between correlations is non-significant in

Table 5. Belief correlations

Sample	N	r	Difference	p
Phase I - LLU	194	.486	-.169	---
Phase I - ULU	72	.655		
Phase II - LLU	108	.482	-.174	---
Phase II - ULU	72	.656		
Phase I	273	.530	-.031	---
Phase II	166	.561		

both cases (using Fisher r to Z transformations, the z value for Phase I is 1.802 and for Phase II is 1.465). We must therefore conclude that Hypothesis 3 is not supported by the data.

In Hypothesis 4 we predicted that the correlation between rational belief and desirable belief would be higher for Phase I subjects than for Phase II subjects, due to the effects of training in argumentation and evidence usage. The actual correlations are also shown in Table 5. Once again, the predicted relationship is reversed--the correlation between rational belief and desirable belief is slightly higher for Phase II subjects than for Phase I subjects. We must therefore conclude that Hypothesis 4 is not supported by the experimental data.

Effects of Evidence: Phase II

Based on the postulated impact of training on the relation between rational belief and desirable belief, we fomulated a separate set of

Table 6. Rational belief ratings for Phase II subjects

		Attack		
		No	Desirable	Truth
Constructive	No	(2.35) -.004	(3.00) .103	(1.89) -.078
	Desirable	(2.25) -.019	(1.74) -.105	(3.11) .118
	Truth	(2.33) -.006	(2.32) -.010	(2.37) -.001

Predicted: 7A > 1A, 4A, 8A, 9A > 2A, 3A, 5A, 6A

Discovered: 6A > 2A > 9A > 1A > 7A > 8A > 4A > 3A > 5A

predictions in Hypothesis 5 as to the effects of the various evidence combinations on rational belief for Phase II subjects. Given the apparent failure of the training manipulation, however, we would not expect to find much confirmation for Hypothesis 5. Such is indeed the case. As shown in Table 6, there is a wide disparity between the predicted pattern of results and the pattern discovered. For example, although we expected only small, random differences between treatments 2A, 3A, 5A and 6A, in reality the correlations for treatments 2A and 6A are the highest of all the nine treatments, while the correlations for treatments 3A and 5A are the lowest. We must therefore conclude that Hypothesis 5 is not supported by the data. Of course, given the failure of the training manipulation, it could be argued that the appropriate set of predictions for Phase II subjects would be that set formulated in Hypothesis 1. Unfortunately, comparison of the treatment

Table 7. Desirable belief ratings for Phase II subjects

		Attack		
		No	Desirable	Truth
Constructive	No	(1.55) .072	(1.53) .057	(1.33) -.047
	Desirable	(1.25) -.085	(1.68) .143	(1.39) -.017
	Truth	(1.28) -.076	(1.47) .028	(1.26) -.086

order predicted by Hypothesis 1 with the discovered order yields a non-significant Spearman rank order correlation coefficient of .121. Thus we are forced to reject this alternative hypothesis as well.

Our last hypothesis, which is identical to Hypothesis 2, predicted that posttest ratings of desirable belief would be higher in treatments 1A, 3A, 4A, 6A, 7A and 9A than in treatments 2A, 5A and 8A. The actual means and correlations for Phase II subjects are shown in Table 7. As before, the general prediction statement was broken down into eighteen two-element inequalities for evaluation. Only two of the eighteen inequalities were in the direction predicted. We must therefore conclude that Hypothesis 6 is not supported by the data. The probability of confirming two or less predictions out of eighteen, however, if the random probability of confirming any single prediction is equal to .50, is less than .001. Thus we must consider the possibility that the observed pattern of results was strongly influenced by one or more

uncontrolled intervening variables operating in opposition to the hypothesized relationships, or superceding them in this instance. We will discuss this possibility at some length in the following chapter.

CHAPTER IV

DISCUSSION

Summary

One of the most basic tenets of rhetorical theory is that evidence should have a strong and reliable impact on belief. Unfortunately, the great majority of empirical studies of the relationship between evidence and belief have produced conflicting or negative results. It was this problem that gave rise to the present study. We began our inquiry with a critical review of both rhetorical theory and previous evidence research. On the basis of this review we identified nine theoretical, definitional and procedural shortcomings of the earlier research which may have contributed to the disappointing results of that research. We then developed a model of the relation of evidence to belief, grounded in a set of distinctions drawn primarily from the rhetorical theories of Aristotle and Richard Weaver, which seemed capable of overcoming those shortcomings. In our research, we tested four hypotheses derived from the model as well as two hypotheses derived from the empirical studies of McGuire (1960a,b) and Dillehay, Insko and Smith (1966) concerning the effects of certain outside variables on one of the links in the model. In particular, we sought to determine: (1) the effects of different forms of evidence on rational and desirable belief; (2) the effects of training in argumentation and evidence usage on the link

between rational and desirable belief; and (3) the effects of general education level on the link between rational and desirable belief.

Our research began with the construction of six evidence-based messages. Three of the messages supported a single experimental proposition, while three opposed the same proposition. One of each type of message was supported by no evidence statements, one of each was supported by desirability evidence statements, and one of each was supported by truth evidence statements. Nine experimental treatments were then composed using all possible combinations of the two types of messages. In Phase I of the study, these treatments were randomly distributed to 273 undergraduate students who read the messages and completed scales measuring judgements of the truth and desirability of the proposition. Several weeks later, after the students had studied, discussed and applied material on the proper structure of arguments and the place of evidence in argumentation, the same nine treatments were again randomly distributed to 166 undergraduates, most of whom it was assumed had participated in the Phase I manipulation. A total of six hypotheses were tested in Phases I and II of the study. The first two hypotheses predicted rank orders of rational belief and desirable belief ratings by treatment for the Phase I subjects. Both of these hypotheses were at least partially supported. The next two hypotheses predicted the effects of training and education level on the correlation between rational and desirable belief. Neither of these hypotheses was supported. The last two hypotheses predicted rank orders of rational belief and desirable belief ratings by treatment for the Phase II subjects. Once again, neither of these two hypotheses was supported. The

following two sections of this chapter will be devoted to a more thorough discussion of these results.

Effects of Evidence on Belief: Conclusions

Perhaps the most obvious conclusion that may be drawn from our results is that none of the evidence combinations had a particularly marked impact on either rational or desirable belief. This is reflected in the uniformly low correlations between treatment and belief ratings. We must emphasize, however, that this finding does not necessarily imply that evidence is only a minor determinant of belief. By our analysis, three factors in the experimental situation most probably acted to suppress the effects of evidence across all treatment groups. First, the evidence-based messages used in the study were not intended to be especially powerful manipulations. Each subject was exposed to a total of only eight sentences of persuasive material, four sentences on each side of the proposition. Given the magnitude of our manipulation attempts, therefore, we would not expect to find dramatic changes in belief. Second, the proposition used in the study was one that was known to be extremely important to the experimental subjects. We would expect beliefs on this type of proposition to be more resistant to change than those on less salient topics. Third, the vast majority of our experimental subjects loaded heavily on the extreme negative side of the proposition. While this loading permitted us to more clearly observe the overall pattern of evidence effects, it also insured that the magnitude of those effects would be minimal. This is because: (a) extreme beliefs are known to be highly resistant to change, and (b)

ceiling effects often preclude the possibility of discovering or even producing any intensification in the original beliefs. The scope of the latter problem is indicated by the fact that 38% of the subjects in the baseline No Evidence versus No Evidence treatment in Phase I rated both the truth and desirability of the proposition at the extreme lower ends of the respective measurement scales. If we assume that this figure is representative of the pre-manipulation beliefs of the entire sample, then we must conclude that more than a third of our subjects could not possibly have shown any response to the Attack arguments. In short, when these three factors are considered, the finding that none of the evidence treatments was particularly effective in changing beliefs should hardly be either surprising or discouraging. What is encouraging is that a number of evidence combinations did produce significant changes in both rational and desirable belief ratings. For example, posttest ratings of rational belief for treatments 2 and 5 differed significantly in the predicted direction from the baseline rating in treatment 1 ($\underline{t}$ = 3.2091 and 2.8064 respectively, $p < .01$), as did posttest ratings of desirable belief for the same treatments ($\underline{t}$ = 2.8122 and 2.8481 respectively, $p < .01$). Still, our focus in this study is not on the amount of difference between specific pairs of treatments, but rather on the overall pattern of results regardless of the magnitude of the observed differences. It is for this reason that all of our belief hypotheses were phrased in terms of rank order predictions rather than difference predictions. We will now consider the implications of the patterns of results discovered in the study.

By far the most important finding of our study was that the

patterns of mean posttest ratings of rational belief and desirable belief for Phase I subjects corresponded rather closely to the patterns predicted in Hypotheses 1 and 2. There were, of course, several deviations from our predictions, but with one exception these were of relatively minor importance to the theoretical position taken in this study. These deviations will be discussed in detail below. Prior to that, however, we must first consider our total failure to confirm the belief predictions for Phase II subjects (Hypotheses 5 and 6). There are three plausible explanations for this failure: (1) the training manipulation had strong and unforeseen effects on the relation between evidence and belief; (2) the results accurately reflect the actual impact of evidence on belief, therefore implying that our theoretical position is in error; or (3) the results were biased by the introduction of one or more critical uncontrolled variables. The true explanation for our failure to confirm Hypotheses 5 and 6 can only be determined by future research. Pending the completion of such research, however, we will tentatively accept the third explanation as the most plausible. This descision was based largely on the fact that we were not able to effectively control for audience familiarity with the evidence in Phase II, even though, as McCroskey (1967) has demonstrated, this variable can have a fairly strong impact on the relation between evidence and belief. As a result of this decision, we will not attempt either to analyze the Phase II results in depth or evaluate our theoretical position with regard to those results. We should note, however, that neither the rational nor desirable belief ratings for Phase II seem to display any meaningful pattern.

Unlike the belief patterns for Phase II, those for Phase I correspond quite closely to our predictions. As is usually the case, however, the data do suggest that the actual relation of evidence to belief is somewhat more complex than we had originally anticipated. Specifically, there are three deviations from our predictions which, if substantiated by future research, would lead us to propose three modifications to our theoretical assumptions or model. The first anomaly involves the impact of treatment 7 (Constructive Truth Evidence versus Attack No Evidence). In Hypothesis 1 we predicted that the mean rating of rational belief in treatment 7 would exceed the same rating in the baseline cell, treatment 1. In reality, the mean rating for treatment 7 was substantially, although non-significantly, lower than that for treatment 1. Further, the mean rating of desirable belief in treatment 7, which we expected would be approximately the same as that for treatment 1, was also substantially lower than that for treatment 1. In short, it appears that treatment 7 had a "boomerang" effect on both rational belief and desirable belief. One possible explanation for this finding is that the subjects in treatment 7, who loaded heavily on the Attack side of the proposition, felt cheated by having their views represented by a No Evidence argument while the opposing views were supported by a Truth Evidence argument. They may have then manifested their displeasure in lower ratings of the truth and desirability of the proposition. This explanation receives some support from an analysis of the subjects' one-paragraph justifications of their judgements. Unlike any other treatment, the modal response in treatment 7 was to dismiss the Attack argument as "ridiculous" or "useless" and

supply a totally new set of arguments in opposition to the proposition. Regardless, more research is needed both to establish the existence of the boomerang effect and to discover its underlying causes.

The second unexpected finding in our results was that the non-supportive Constructive Desirability Evidence message, which we had assumed would have only a negligible impact on belief, actually appeared to have a moderately strong impact on both rational and desirable belief. This effect is shown most clearly by a comparison of the rational belief ratings for treatments 3 and 6. The relationship is far from perfect, however, as can be seen by comparing the desirable belief ratings for the same two treatments. Given that both the Attack and Constructive desirability arguments were generated by a pretest sample drawn from the same general population as our experimental sample, this finding should perhaps not be surprising. The only theoretical requirement for the effectiveness of a desirability argument is that it must link with the value system of the message recipient. Once again, however, we must await the results of future research to determine the generality of our finding.

The third, and potentially the most important, deviation from our position is the finding that the link between rational belief and desirable belief may actually be reciprocal rather than non-reciprocal. This is indicated by the consistent effects of both Attack and Constructive truth evidence on desirable belief. If the link between rational and desirable belief were really non-reciprocal, we would of course not expect truth evidence to have any impact on desirable belief. In addition, comparison of the rank orders of rational belief and desirable

belief ratings of Phase I subjects yields a highly significant Spearman rank order correlation coefficient of .850 ($p < .01$). We would not expect this correlation to be as high as it is unless the link between the two belief ratings were reciprocal. Unfortunately, this evidence provides only indirect support for the existence of a reciprocal link. Direct support can come only from future research designed specifically to test for such a relationship. A technique developed by Blalock (1969), which uses simultaneous differential equations to test for mutual causation loops among endogenous variables in a path analytic model, could provide the methodological basis for this research.

Aside from these deviations, the results from Phase I of the study provide rather strong empirical support for our theoretical formulation of the relation between evidence and belief and, more broadly, for the potential importance of evidence as a variable in any future theories of persuasion. Practically, the most important finding of our study is that truth and desirability evidence have a differential impact on belief, depending upon the initial position of the message recipient. For our sample, the most effective type of supportive evidence was desirability evidence. With one exception (treatment 7), the most effective type of non-supportive evidence was truth evidence. This finding alone, if replicated, would represent a significant increment in our knowledge of the process of persuasion.

Effects of Outside Variables: Conclusions

In our third hypothesis we predicted that as the education level of our subjects increased, the correlation between judgements of the

truth and desirability of the proposition would decrease. Not only did our results fail to provide any support for this hypothesis, they actually suggested that the reverse relationship might be true. For both our Phase I and our Phase II subjects, as education level increased the correlation between rational and desirable belief ratings increased as well, although in both samples the increase was just short of being statistically significant. This finding could reflect an increased desire for cognitive consistency among the more highly educated students, a decreased ability to separate the truth and desirability of a proposition, or some other factor. Regardless of the cause, however, substantiation of this finding would have profound theoretical and social implications. For this reason, we feel that future research in this area is imperative.

In Hypothesis 4, our only exploratory hypothesis, we predicted that training in argumentation and evidence usage would suppress the link between rational and desirable belief. Our results failed to show any effects due to the training variable. This failure could reflect an inadequate operationalization of training, insufficient control of audience familiarity with the evidence, inability of the subjects to apply the training in a realistic judgement situation, rejection of the training, or the effects of some other variable or combination of variables. Even given our failure to confirm the hypothesis, however, we feel that this approach is potentially fruitful. Thus, at least one more study, preferably using a stronger training manipulation and more adequate control procedures, should be conducted to test the hypothesis.

Research Implications

Throughout this chapter we have emphasized the need for extensive additional research in order to clarify and replicate our findings. Much of this research will be accomplished in future studies in the present series. Beyond this, we believe that our findings are strong enough to justify calling for new research in the following five areas. First, largely descriptive studies similar to this one should be carried out using subjects other than high school or college students, in order to discover whether the effects of evidence vary by population. The need for this kind of research is underscored by the results of early comparisons of the belief data collected in this study with similar data collected in the Cushman and Smith (In Preparation) study. These comparisons indicate that high school and college students may differ in the type of evidence they find most convincing in a given situation. Second, research should be conducted to quantify the effects of the various types of evidence on rational and desirable belief across a number of topics and, if necessary, population groups. One of the key questions in this research should be whether different categories of topics demand the use of different types of evidence. Third, much of the earlier evidence research should be repeated, using the operational definitions of evidence and belief developed in this study, to determine the effects of variations in the amount and quality of the two types of evidence. Fourth, and only after the precise relationship between evidence and belief has been established, additional variables such as source credibility, audience knowledge of the topic, familiarity of the evidence, and delivery characteristics should be added to

the basic model and their effects tested. In this way, the present theory of evidence can be expanded into a comprehensive theory of persuasion. Fifth, but certainly not least important, a massive research effort is needed to determine the nature of the relations between rational and desirable belief and action, and the influence of evidence on these relations.

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APPENDICES

APPENDIX A

PRETEST QUESTIONNAIRE

OPINION PROFILE

INSTRUCTIONS

The purpose of this profile is to obtain your opinions regarding the probable truth and desirability of several propositions. On each of the following pages you will find a proposition followed by a series of questions. For example, here is a proposition similar to the one you will see in the questionnaire.

SAMPLE PROPOSITION

Detergents are polluting our nation's rivers.

QUESTIONS

The first question after each proposition will ask you to rate the probable truth of the proposition on a scale ranging from 0% to 100% true. Please place an "X" in the blank that most accurately describes your evaluation of the truth of each proposition.

The second question will ask you to rate the desirability of each proposition on a scale ranging from "Very Desirable" to "Very Undesirable". Once again, please place an "X" in the blank that most accurately describes your estimate of the desirability of each proposition.

The last question on each page will ask you to writeone major reason why you think the proposition is desirable and one major reason why you think the proposition is undesirable. Even if you feel very strongly one way or the other about the proposition, please try to answer both parts of each of these questions.

ORDER

Please complete all of one page before proceeding to the next page. Once you have completed a page please do not return to it. You may, however, return to this page at any time in order to clarify any instructions that are unclear to you.

Proposition - University administrators must be given the right to search student dormitory rooms for drugs.

1. How true do you believe this proposition is?

(a)_____ 0 - 10% true
(b)_____11 - 20% true
(c)_____21 - 30% true
(d)_____31 - 40% true
(e)_____41 - 50% true
(f)_____51 - 60% true
(g)_____61 - 70% true
(h)_____71 - 80% true
(i)_____81 - 90% true
(j)_____91 -100% true

2. How desirable do you believe this proposition is?

(a)_____Very desirable
(b)_____Desirable
(c)_____Undesirable
(d)_____Very undesirable

3. Please write the major reason why you believe this proposition is desirable and the major reason why you believe this proposition is undesirable.

(a) I believe this proposition is desirable because:

(b) I believe this proposition is undesirable because:

Proposition - The University must be given the right to expel any student convicted of a crime committed during a violent demonstration.

1. How true do you believe this proposition is?

(a)_____ 0 - 10% true
(b)_____11 - 20% true
(c)_____21 - 30% true
(d)_____31 - 40% true
(e)_____41 - 50% true
(f)_____51 - 60% true
(g)_____61 - 70% true
(h)_____71 - 80% true
(i)_____81 - 90% true
(j)_____91 -100% true

2. How desirable do you believe this proposition is?

(a)_____Very desirable
(b)_____Desirable
(c)_____Undesirable
(d)_____Very undesirable

3. Please write the major reason why you believe this proposition is desirable and the major reason why you believe this proposition is undesirable.

(a) I believe this proposition is desirable because:

(b) I believe this proposition is undesirable because:

Proposition - The University must take a strong institutional stand against American participation in the Viet Nam war.

1. How true do you believe this proposition is?

(a)_____ 0 - 10% true
(b)_____11 - 20% true
(c)_____21 - 30% true
(d)_____31 - 40% true
(e)_____41 - 50% true
(f)_____51 - 60% true
(g)_____61 - 70% true
(h)_____71 - 80% true
(i)_____81 - 90% true
(j)_____91 -100% true

2. How desirable do you believe this proposition is?

(a)_____Very desirable
(b)_____Desirable
(c)_____Undesirable
(d)_____Very undesirable

3. Please write the major reason why you believe this proposition is desirable and the major reason why you believe this proposition is undesirable.

(a) I believe this proposition is desirable because:

(b) I believe this proposition is undesirable because:

Proposition - University police must be prohibited from carrying firearms on campus.

1. How true do you believe this proposition is?

(a)_____ 0 - 10% true
(b)_____11 - 20% true
(c)_____21 - 30% true
(d)_____31 - 40% true
(e)_____41 - 50% true
(f)_____51 - 60% true
(g)_____61 - 70% true
(h)_____71 - 80% true
(i)_____81 - 90% true
(j)_____91 -100% true

2. How desirable do you believe this proposition is?

(a)_____Very desirable
(b)_____Desirable
(c)_____Undesirable
(d)_____Very undesirable

3. Please write the major reason why you believe this proposition is desirable and the major reason why you believe this proposition is undesirable.

(a) I believe this proposition is desirable because:

(b) I believe this proposition is undesirable because:

Proposition - The university should prohibit all military recruiting on campus.

1. How true do you believe this proposition is?

(a)_____ 0 - 10% true
(b)_____10 - 20% true
(c)_____21 - 30% true
(d)_____31 - 40% true
(e)_____41 - 50% true
(f)_____51 - 60% true
(g)_____61 - 70% true
(h)_____71 - 80% true
(i)_____81 - 90% true
(j)_____91 -100% true

2. How desirable do you believe this proposition is?

(a)_____Very desirable
(b)_____Desirable
(c)_____Undesirable
(d)_____Very Undesirable

3. Please write the major reason why you believe this proposition is desirable and the major reason why you believe this proposition is undesirable.

(a) I believe this proposition is desirable because:

(b) I believe this proposition is undesirable because:

1. How important is the proposition "University administrators must be given the right to search student dormitory rooms for drugs"?

   (a)_____Very important
   (b)_____Important
   (c)_____Neutral
   (d)_____Unimportant
   (e)_____Very Unimportant

2. How important is the proposition "The University must be given the right to expel any student convicted of a crime committed during a violent demonstration"?

   (a)_____Very important
   (b)_____Important
   (c)_____Neutral
   (d)_____Unimportant
   (e)_____Very Unimportant

3. How important is the proposition "The University must take a strong institutional stand against American participation in the Viet Nam war"?

   (a)_____Very important
   (b)_____Important
   (c)_____Neutral
   (d)_____Unimportant
   (e)_____Very unimportant

4. How important is the proposition "University police must be prohibited from carrying firearms on campus"?

   (a)_____Very important
   (b)_____Important
   (c)_____Neutral
   (d)_____Unimportant
   (e)_____Very unimportant

5. How important is the proposition "The University should prohibit all military recruiting on campus"?

   (a)_____Very important
   (b)_____Important
   (c)_____Neutral
   (d)_____Unimportant
   (e)_____Very unimportant

APPENDIX B

EXPERIMENTAL QUESTIONNAIRE

OPINION PROFILE

INSTRUCTIONS

The purpose of this profile is to obtain your opinions regarding the probable truth and the desirability of a proposition. In the following pages you will find a proposition and several messages, followed by a series of questions. For example, here is a proposition similar to the one you will see:

SAMPLE PROPOSITION

Detergents are polluting our nation's rivers.

MESSAGES

Two messages will then comment on the proposition. The first message will support the proposition; the second message will attack the proposition.

QUESTIONS

The first set of questions will ask you to write down the important aspects of both the attack and support messages.

The next question will ask you to rate the probable truth of the proposition on a scale ranging from 0% to 100% true. Please place an "X" in the blank that most accurately describes your evaluation of the truth of the proposition.

The following question will ask you to rate the desirability of the proposition on a scale ranging from "Very desirable" to "Very undesirable". Once again, please place an "X" in the blank that most accurately describes your estimate of the desirability of the proposition.

The last question will ask you to write a one paragraph statement indicating why you thought the proposition was or was not true, and why you thought the proposition was or was not desirable.

ORDER

Please complete all of one page before proceeding to the next page. Once you have completed a page please do not return to it. You may, however, return to this page at any time in order to clarify any instruction that is unclear to you.

Proposition - University administrators must be given the right to search student dormitory rooms for drugs.

The reason that some people believe this is that narcotics are drugs. According to Dr. Joseph Elder, professor of sociology at the University of Wisconsin, narcotics are legally defined as addictive drugs. Addictive drugs may appear in many forms--pills, liquids, powders, etc. According to Peter Leonard, associate director of the National Education Association (N.E.A.), student dormitory rooms are temprorary domiciles in which students keep books, clothes and other personal belongings. Thus, university administrators must be given the right to search student dormitory rooms.

Some people, however, believe that university administrators must not be given the right to search student dormitory rooms because administrators are systems analysts. According to Dr. Joseph Woelfel, professor of sociology at the University of Illinois, university administrators are normally defined as the president, provost, registrar and deans of the various colleges. James Small, research assistant for the American Association of University Professors (A.A.U.P.), argues that an educator functioning as a systems analyst must have expertise in the social, psychological and maintenance systems of universities. Thus, university administrators must not be given the right to search student dormitory rooms.

Proposition - University administrators must be given the right to search student dormitory rooms for drugs.

The reason some people believe this is that narcotics are drugs. According to Dr. Joseph Elder, professor of sociology at the University of Wisconsin, narcotics are legally defined as addictive drugs. Addictive drugs may appear in many forms--pills, liquids, powders, etc. According to Peter Leonard, associate director of the National Education Association (N.E.A.), student dormitory rooms are temporary domiciles in which students keep books, clothes and other personal belongings. Thus, university administrators must be given the right to search student dormitory rooms.

Some people, however, believe that university administrators must not be given the right to search student dormitory rooms because this would be a violation of individual rights. According to Dr. Joseph Woelfel, professor of sociology at the University of Illinois, the right to search a student's dormitory room would violate the student's right of freedom from unlawful search and seizure. James Small, research assistant for the American Association of University Professors (A.A.U.P.), argues that student might come to fear, rather than respect, the authority of the administration if it were allowed to search student dormitory rooms. Thus, university administrators must not be given the right to search student dormitory rooms.

Proposition - University administrators must be given the right to search student dormitory rooms for drugs.

The reason that some people believe this is that narcotics are drugs. According to Dr. Joseph Elder, professor of sociology at the University of Wisconsin, narcotics are legally defined as addictive drugs. Addictive drugs may appear in many forms--pills, liquids, powders, etc. According to Peter Leonard, associate director of the National Education Association (N.E.A.), student dormitory rooms are temporary domiciles in which students keep books, clothes and other personal belongings. Thus, university administrators must be given the right to search student dormitory rooms.

However, some people believe that university administrators must not be given the right to search student dormitory rooms because most students do not store drugs in their rooms. According to Dr. Joseph Woelfel, professor of sociology at the University of Illinois, a study of three Illinois colleges revealed that none of the students interviewed had used their rooms to store drugs. James Small, research assistant for the American Association of University Professors (A.A.U.P.), found in a nationwide study that none of the 800 students he interviewed had stored drugs in their dormitory rooms. Thus, university administrators must not be given the right to search student rooms.

Proposition - University administrators must be given the right to search student dormitory rooms for drugs.

The reason some people believe this proposition is that one consequence of the early identification and counseling of drug users is that they are less likely to become serious drug abusers. According to Dr. Joseph Elder, professor of sociology at the University of Wisconsin, the initiation of an effective drug user identification program would lead to a sharp decline in the number of student drug addicts. Peter Leonard, associate director of the National Education Association (N.E.A.), states that if students can be identified in the early stages of drug usage, educational and psychological counseling can frequently prevent drug addiction. Thus, university administrators must be given the right to search student dormitory rooms.

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However, some people believe that university administrators must not be given the right to search student dormitory rooms because most students do not store drugs in their rooms. According to Dr. Joseph Woelfel, professor of sociology at the University of Illinois, a study of three Illinois colleges revealed that none of the students interviewed had used their rooms to store drugs. James Small, research assistant for the American Association of University Professors (A.A.U.P.), found in a nationwide study that none of the 800 students he interviewed had stored drugs in their dormitory rooms. Thus, university administrators must not be given the right to search student dormitory rooms.

Proposition - University administrators must be given the right to search student dormitory rooms for drugs.

The reason some people believe this proposition is that students have been found to store drugs in their dormitory rooms. According to Dr. Joseph Elder, professor of sociology at the University of Wisconsin, in-depth interviews with twenty-two students who were treated for drug addiction revealed that student rooms were among the most frequently used places for storing drugs. Peter Leonard, associate director of the National Education Association (N.E.A.), conducted a nationwide survey which produced similar results. His survey of 1,200 college drug users revealed that 68.5% of the students listed student rooms as one of the most commonly used places for storing drugs. Thus, university administrators must be given the right to search student dormitory rooms.

Some people, however, believe that university administrators must not be given the right to search student dormitory rooms because administrators are systems analysts. According to Dr. Joseph Woelfel, professor of sociology at the University of Illinois, university administrators are normally defined as the president, provost, registrar and deans of the various colleges. James Small, research assistant for the American Association of University Professors (A.A.U.P.), argues that an educator functioning as a systems analyst must have expertise in the social, psychological and maintenance systems of universities. Thus, university administrators must not be given the right to search student dormitory rooms.

Proposition - University administrators must be given the right to search student dormitory rooms for drugs.

The reason some people believe this proposition is that many students have been found to store drugs in their dormitory rooms. According to Dr. Joseph Elder, professor of sociology at the University of Wisconsin, in-depth interviews with twenty-two students who were treated for drug addiction revealed that student rooms were among the most frequently used places for storing drugs. Peter Leonard, associate director of the National Education Association (N.E.A.), conducted a nationwide survey which produced similar results. His survey of 1,200 college drug users revealed that 68.5% of the students listed student rooms as one of the most commonly used places for storing drugs. Thus, university administrators must be given the right to search student dormitory rooms.

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However, some people believe that university administrators must not be given the right to search student rooms because most students do not store drugs in their rooms. According to Dr. Joseph Woelfel, professor of sociology at the University of Illinois, a study of three Illinois colleges revealed that none of the students interviewed had used their rooms to store drugs. James Small, research assistant for the American Association of University Professors (A.A.U.P.), found in a nationwide study that none of the 800 students he interviewed had stored drugs in their dormitory rooms. Thus, university administrators must not be given the right to search student dormitory rooms.

1. In supporting the above proposition, Dr. Elder said_____

_____

_____

2. Peter Leonard said_____

_____

_____

3. In attacking the above proposition, Dr. Woelfel said_____

_____

_____

4. James Small said_____

_____

_____

1. How true is the proposition that: "University administrators must be given the right to search student dormitory rooms for drugs"?

   (a)_____ 0 - 10% true
   (b)_____11 - 20% true
   (c)_____21 - 30% true
   (d)_____31 - 40% true
   (e)_____41 - 50% true
   (f)_____51 - 60% true
   (g)_____61 - 70% true
   (h)_____71 - 80% true
   (i)_____81 - 90% true
   (j)_____91 -100% true

2. How desirable is it that university administrators be given the right to search student dormitory rooms for drugs?

   (a)_____Very desirable
   (b)_____Desirable
   (c)_____Undesirable
   (d)_____Very undesirable

3. Compose a one paragraph essay which states the reasons for your answers to questions <u>one</u> and <u>two</u>.

DEMOGRAPHIC INFORMATION

1. What is your age? _____years

2. What is your religion?

   ( ) Protestant ( ) Catholic ( ) Jewish ( ) Other_____
   (specify)

3. Are you... ( ) Male ( ) Female

4. What is your college class?

   ( ) Freshman ( ) Sophomore ( ) Junior ( ) Senior

5. What is your cumulative grade point average (GPA)?

   ( ) 3.51 - 4.00
   ( ) 3.01 - 3.50
   ( ) 2.51 - 3.00
   ( ) 2.01 - 2.50
   ( ) 2.00 or less

6. What is your major? _____

7. What are the education levels of your mother and father?

	Father	Mother
Grade school or less (grade 1 - 8)	1 ( )	1 ( )
Some high school	2 ( )	2 ( )
Graduated high school	3 ( )	3 ( )
Some college	4 ( )	4 ( )
Graduated college	5 ( )	5 ( )
Post-graduate work	6 ( )	6 ( )

8. Have you ever taken a course in persuasion or logic?

   ( ) Yes ( ) No