

Comparisons of Models of
Persuasive Effects of Types of Evidence Introductions

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This inquiry compares causal models predicting attitudes from a combination of variables including different forms of evidence. In addition to direct effects on attitudes, which were directly examined, two models were examined. The first model, based on past work in this area, treated perceptions of topic importance and source credibility competence as separate forces. When this model failed to fit all the predicted paths, a second model was constructed in which the chief difference was treating topic importance and competence as an interaction term. This model fit the data quite well. In such a model, attitudes could be predicted from a combination of evidence use, message believability, and source credibility ratings on the character dimension. Believability, in turn, was predicted from perceived message clarity and source character. Character was predicted from the use of evidence, perceived message clarity, and the interaction of topic importance with source competence. Message clarity was predicted from the interaction of topic importance with source competence. Thus, results suggested that evidence and credibility effects were somewhat complicated and influenced the ways the message was perceived as comprehensible and credible.

Comparisons of Models of Persuasive Effects of Types of Evidence Introductions¹

Evidence remains a popular part of the study of persuasive communication (see O'Keefe, 1998; Reynolds & Reynolds, 2003; Reinard, 1988). The current status of over 66 years of research on the subject suggests that the role of evidence as a foundation for persuasive argument is fairly well established. Yet, the questions for current evidence researchers are subtle ones affecting the issue of how evidence may be used, introduced, processed, and influenced by a host of moderating influences. This paper is designed to pursue one of these questions, not about evidence as a generally persuasive tool, but evidence as moderated by different ways to introduce forms of evidence. In particular, the paper will seek to compare competing causal models of the effects of different forms of evidence introduced in different ways.

Context of Inquiry

At present, there is no need to provide a general review of research on evidence. The recent review by Reynolds and Reynolds in *The Persuasion Handbook* (2002) shows that a host of evidence principles now can be considered as accepted: evidence enhances persuasion; evidence enhances credibility, at least on some dimensions. Yet, the research on the influence of ways to introduce evidence remains in its infancy. Granted, Cathcart's (1955) classic study on the subject contrasted whether introducing evidence with names only or with source names included could affect persuasion, most other researchers have been interested not in the ways of introducing persuasive evidence, but simply on demonstrating the persuasiveness of evidence. Reinard (1988) concluded that in the domain of opinion evidence at least, a great consistency existed in the research if one compared the methods of introducing evidence used by researchers, rather than accepting the conclusions they had drawn. In subsequent work (Reinard, 1998), this sort of evidence was meta-analyzed and shown to produce effects compatible with the initial thinking. In a summary of research, Reinard (1988) explained that, somewhat surprisingly, "perhaps the most obvious study of

all has not yet been completed" (p. 47). In this study there would be a 2 x 2 x 2 design in which evidence could be excluded or included, names of evidence sources unidentified or identified, and source qualifications could be left unstated or explicitly indicated. Several previously unidentified conditions emerged:

A message in which an advocate presents evidence from an unnamed source who nevertheless is explained to be a highly qualified authority.

A message in which an advocate announces the existence of evidence from an unnamed but highly qualified source (without actually quoting or summarizing the statement).

A message in which an advocate announces the existence of evidence from a named and highly qualified source (without actually quoting or summarizing the statement).

A message in which an advocate announces the existence of evidence from a source who is named but for whom qualifications are not provided. (Reinard, 1988, p. 47)

Stacy Geck completed such a study (1998) and made some additional advances of her own. Based on other work in the field and studies that made an effort to identify the limits of the Elaboration Likelihood Model, she included "topic importance" as an independent variable measure of interest. She had subjects respond to messages on two related topics, adopting national health insurance and setting caps on lawyers' fees. She found topic differences only on measures of message comprehensibility and source competence dependent measures. She also used a clever cross validation method to produce evidence of sampling adequacy. She found that evidence use or absence produced a main effect on attitude but not on other measures. She also found that perceived message importance was associated with attitude and source competence effects. Her search for clear patterns of interaction related to special combinations of evidence use was stymied by the absence of any more than one effect on attitudes stemming from an experimental manipulation of evidence.

Though the study was valuable, there were some difficulties the researcher had to face. First, creating a "no source" condition was difficult. In one case designed to include qualifications, but no source name, the actual induction stated, "A noted professor of health economics writing in the fall 1996 issue of *Health Economics . . .*" (p. 91). Another stated "A noted professor of law at the University of Wisconsin, writing in the spring 1996 issue of *Barrister . . .*" (p. 99). Though the Geck study was a solid effort, it may have been that the "no source" condition was not as clearly distinguished in the minds of receivers as the researcher (and her advisers) might have wished in retrospect. In particular, the naming of a publication may have been interpreted as a source named as responsible for the quotation. Because the "no source name" condition was restricted to identification of authors, but publication outlets were included, it is possible that an evidence source name was perceived nonetheless--it wasn't a person, but it was a corporate publication source. Of course, such guesswork is not proof, but if research were guided by some initial work with focus groups to isolated receiver interpretations of messages, it might be possible to identify the nature of perceptions and to design a study to overcome such difficulties.

This inquiry is designed to search for such moderating effects by the use of methods involving comparison of path models that explore mediating effects of evidence and related variables on attitude change. This work is an extension of a previous work ([names deleted]) that suggested the prospects for causal models of the subject. In this past inquiry, initial attempts at a model suggested that attitudes could be predicted from a combination of message believability and source credibility ratings on the character dimension. Believability, in turn, was predicted from perceived message clarity, source character, and source competence assessments. Character was predicted from the use of evidence, source competence, and perceived message clarity. Message clarity was predicted from competence assessments. But there were two difficulties. First, though not exceeding confidence intervals, some observed paths were perilously close to such limits.

Second, the model included a perplexing path from believability to source character. But in persuasion literature, believability is generally considered to be stimulated by source character, not a result of it. Third, the role of topic importance was treated as a discrete element, but in the tradition of persuasion theories, perceptions of importance often are viewed as part of an interaction with the matters of message elements and credibility perceptions. Thus, this paper explores two options in model construction with the purpose of explaining evidence effects.

For this inquiry, as an intermediate step, data analysis on the primary variable of attitude change was examined. Then, the analysis was followed by presentation and testing of the new causal model. The essential problem question posited by this work is:

RQ₁: Are the influences of evidence and related variables on attitude change moderated by variables producing intermediate paths to attitude change?

To be consistent with past work ([deleted]), a hypothesis positing that the evidence use would enhance persuasion was advanced:

H₁: Subjects exposed to persuasive messages with evidence will exhibit greater attitude change than subjects not exposed to persuasive messages with evidence.

A second hypothesis simply predicted that there would be a set of message conditions that would be more persuasive than others:

H₂: Subjects exposed to persuasive messages with different combinations of evidence type, identification of evidence sources, and qualifications of evidence sources will exhibit significantly different levels of attitude change

The tradition of evidence research also has suggested that other variables and elements should be included in the modern analysis. The role of "topic importance" as a significant variable bears attention. Whether as a separate predictor variable, as a moderator variable, or as part of an interaction, this variable seems, well, important. A practical reason for the vital quality of this

matter may be easy to identify. Those receivers who think the topic is important tend to be people who are interested in the topic. They are most likely to find the topic of interest. As such they are most likely to continue being sanguine to new information with which they are presented. If they were uninterested in the topic, of course, they would tend to eschew new information on it and pass by opportunities to cogitate on messages related to the topic. They might, therefore, tend to have more negative attitudes toward the topic than shown by others. Such a main effect pattern was observed by Geck (1998). Though not taking this line of reasoning, the Elastic Capacity Model of persuasion suggests that as issue involvement increases, content and evidence have an increasingly influential role to play (Stiff, 1986). Of course, the Elaboration Likelihood model takes a different approach in which those who consider the topic to be of greatest importance tend to be most influenced by content elements (the central route to persuasion). Conversely, those who consider the topic to be of relatively low importance tend to be most influenced by peripheral elements (such as perceptions of source credibility). Hence, viewing persuasion from the ELM perspective, an interaction of topic importance and source credibility is the best fit to persuasion data. Given past research and some suggestion from available theory, the following hypothesis about the role of topic importance was advanced:

H₃: Subjects rating the persuasive message topic as highly important will exhibit greater attitude change than subjects who rate the persuasive message topic as lowly important.

Though not the object of a direct hypothesis, the ELM approach would lead to a suggestion that any causal models would feature interactions of topic importance with the salience of source credibility dimensions.

A distinction among evidence types might be included. Such distinctions tend to be based on the operative conceptual definition used here is that "evidence is information used as proof [Reinard, 1991, p. 102] that " . . . consists of material that has not been created by the advocated

[after McCroskey, 1969, p. 171]." Thus, in a presentation that already includes its argumentative material, evidence is a form of supportive material from a source other than the principal communicator. A distinction often is drawn between statistical or quantitative evidence, and anecdotal or story evidence (Baesler & Burgoon, 1994; Kazoleas, 1993, Slater, 2002, pp. 183-184). Others regularly distinguish between evidence according to a traditional rubric of "facts" (including reports and statistics) and opinions (Reinard, 1991, pp. 102-113). In particular, differences between statistical and opinion (or sometimes just the subspecies called narrative evidence or anecdotes) evidence have been alleged to make distinct effects on receivers. Kazoleas (1993) found that the short-term effects of both qualitative and statistical evidence were equivalent, but that recall and some long-term resistance to decay were forthcoming for qualitative evidence. Though rarely interpreted as such, it seemed that Kazoleas suggested that the argumentative function of argument as resistance to subsequent rebuttal was most important. Some other evidence suggests that statistical evidence is more persuasive than story evidence (Allen & Preiss, 1997; Baesler & Burgoon, 1994; Hoeken, 2001), though vivid evidence may have greater influence for an extended time (Baesler & Burgoon, 1994). Yet, other research (Baesler, 1997) showed that neither story nor statistical evidence were superior to each other in persuasive messages. Some research suggests that messages with statistical evidence are less persuasive than narrative information (Cox & Cox, 2001). In a message advocating mammograms, negative anecdotes were more persuasive than positive anecdotes, which produced a somewhat surprising boomerang effect. Boster and his associates (2000) explored a path model approach and found that statistical evidence created secondary effects, rather than primary effects on attitude change. Other factors seem to have the ability to overpower evidence type effects. Rouner and Slater (1996) observed no significant differences for evidence types, but concluded most importantly that the type of evidence was not as important as the value involvement upon which evidence was based. Individuals whose

values supported the advocate's position were further influenced by statistical evidence. But when receiver values were challenged by the so-called "value protective" subjects, message and statistical evidence forms were not mediating variables, but anecdotal evidence created a significant path that led to believability and belief change.

Some other research suggests that presenting statistical evidence in court cases enhances litigation success (Wingate, Thornton, McIntyre, Frame, 2003). But statistical reports of DNA evidence seem not to influence jurors unless they can form an image of the guilty party in a way that is consistent with the statistics (Koehler, 2001). Overall, it seems to make sense for any study to take into account the potential that different types of evidence, especially opinion and statistical evidence, might have to influence attitudes.

Method

In the study described here involved multiple stages. Focus groups were organized to prepare feedback, interpret, and guide material development for the upcoming study. Then materials, measures, sample, design, and initial analysis matters were planned for the actual study. Then the path model was constructed after interpretation of result on the primary variable.

Focus Group Interviews

Because interpreting the study results in the Geck study seemed challenging, the materials in that study were duplicated and made available to members of two focus groups. Each focus group consisted of students similar to those who completed survey work in the original Geck study. One group had 10 members and the other had 13. The students were volunteers who were told of the need to help understand research in communication studies. The separate sessions went 25 minutes and 35 minutes. As a first step, students looked at the messages from the Geck study and completed a ranking according to their "general persuasiveness." Then they were asked for their explanations for their top three and the bottom three ranked items. Notes were taken of the interview sessions.

Suggestions were solicited about ways to introduce evidence that would be most compelling to them. Students finally were asked if they had any general questions or suggestions and they were thanked for participation and dismissed.

The results of the interviews were helpful. It became clear that the “no evidence source named” conditions were not always perceived as such. When group members were asked to identify the “absence of evidence names” conditions, none recognized that “A noted professor of health economics writing in the Fall 1996 issue of *Health Economics . . .*” and “A noted professor of law at the University of Wisconsin, writing in the spring 1996 issue of *Barrister . . .*” were such examples. They viewed the magazine titles as names of the sources. The students frankly perceived the sources to be identified by name—in short, they viewed such works as having a named source, even if it were not a person. This information was valuable because it suggested the importance of eliminating *all* source names when preparing message conditions.

The study messages did not seem to impress members of the focus groups when they were presented without complete documentary information. Two other matters emerged. First, the group members were critical of advocacy that used evidence without necessarily providing a clear link to the claims being made. Although they valued the use of evidence, they had no strong positive reaction to evidence that “just seemed to lay there” without a clear link to a claim. They expressed the view that with some of the evidence they were not sure what relevant point was being proven. Much of the evidence they disliked seemed like “background” to many of them. Second, they indicated that preferred either the arguers or the evidence sources to present some interpretation of the meaning of the evidence. Though most were comfortable with statistical information, they seemed to view it as occasionally lacking this interpretive element. They recommended that successful persuaders or quoted sources would be well-advised to present comments and explanations about the evidence's value in making an argument.

It might be mentioned that the focus groups indicated that the topic of national health insurance was well known to them, but the topic of caps lawyers' fees was not so popular an issue. Though this second topic had been related to a California state ballot proposition a few years previously, the topic of limiting lawyers' fees did not seem to be widely familiar to the audience. This fact meant that respondents probably would know more about the national health insurance topic than the lawyers' fees issue. Furthermore, they might be increasingly familiar with evidence available on the health care issue. This fact could affect the overall pattern of results since respondents might place a greater obligation on communicators speaking on the health care issue than they would on the lawyers' fees issue.

As a result of these interviews, three priorities emerged. First, since the evidence was perceived as having sources even when the specific names of sources were not present, it would be important to make sure that no names—even those of publications—would be provided for the "no names" conditions. Second, in the presentation of evidence, interpretation should be included. Thus, the evidence should include explanations showing the relevance of the evidence to a claim. Third, since a major role of evidence is to clarify the proof available for a claim, it made sense to say that the coherence and believability of the argument should be checked in any future study. Scales should be included to track this matter.

Materials

Materials were developed for the different patterns of introducing evidence. In particular, a questionnaire was constructed and the messages with the different evidence treatments were introduced in written form. In an effort to control for topic-message interaction, messages were prepared on two topics so that measurement could be made across introduction of evidence strategies, rather than in response to the particular message alone. The first of these topics involved national health insurance and the second topic involved messages that advocated setting caps on

lawyers' fees charged in civil cases. The message treatments were based on the ones used in the Geck (1998) study though, of course, some modifications were made to them (such as adding statistical information treatments). The materials included four message treatment variables.

The first message variable was the type of evidence. The first evidence type level consisted of "no evidence." The message was composed of a basic message without additional support. The second level consisted of the use of statistical evidence. Care was taken to attempt to link the statistic to the claim under consideration. The third evidence type was opinion evidence. In particular, the opinions were designed to converge on the proposition summarized at the end of the argument.²

The second message variable was the name of the source. For the "no names" conditions, care was taken to exclude not only the names of individuals quoted, but the names of any publications where the quotations may have appeared. The full named condition included the references to source by names.

The third message variable consisted of source qualifications. For the "no qualification" condition the material simply was excluded. For the qualification condition in which names were not present the source was identified as "a professor of health economics" or "a professor of law" without identifying the name of an institution that could be linked as a source. For the full citation with names, all such information was included. Hence, the law professor was identified as a professor at the University of Wisconsin and the medical economics professor was associated with the University of Minnesota.

Though not actually planned to be part of the hypothesized patterns, the message topic was included as a predictor variable as an effort for statistical control. The two levels were simply the two topics of the messages.

Measures

With the exception of the demographic information, all measured variables used seven-point semantic differential-type scales. The four items composing the attitude scales for the primary dependent variable were factor analyzed using a principal components solution. For all factor analyses in this study, the minimum eigenvalues for factor extraction were set at 1. For an item to be identified with a factor, the primary factor loading had to be at least .6 with no secondary loading of .4 or greater. A factor was considered meaningful if it included at least two items. When more than two factors were extracted, varimax orthogonal rotation was employed as an aid to interpretation. The attitude measure included four seven-point semantic differential-type scales loading on one factor accounting for 71.5% of the variance.³ Coefficient alpha reliability for the measure was .865.

The measure of perceived importance was composed of three seven-point semantic differential-type scales.⁴ One factor accounting for 76.3% of the variance emerged with a coefficient alpha reliability of .845.

The measures of source credibility were derived from McCroskey's scales to measure general credibility (McCroskey & Teven, 1999). Though the measures were designed to identify three dimensions (competence, character, and goodwill), even using McCroskey's factor analysis methods, only two dimensions could be identified. The first of these dimensions, competence, was composed of five seven-point semantic differential-type scales accounting 45.6% of the variance and evincing a coefficient alpha reliability of .812.⁵ The second dimension, character, accounted for 8.8% of the variance and consisted of four seven-point semantic differential-type items that showed an overall coefficient alpha of .824.⁶

Measures of message comprehension were computed by use of a set of eleven seven-point semantic differential-types scales. Subjects responded to the statement "The Message You Just Read" by use of the scales. The eleven scales were factor analyzed and found to produce two

underlying dimensions. The first dimension involved assessments of the probability or believability of the message content (such scales were similar to the Fishbein and Raven “B scales” developed as a counterpart to the attitude scales they used). This dimension accounted for 53.8% of the variance and was defined by four items.⁷ Coefficient alpha for this measure was .878. The second factor accounted for 11.4% of the variance and initially involved four items to measure general perceptions of message clarity.⁸ The resulting reliability as .794.

As an effort at control, a “check question” was added to the message comprehension scales. In particular, the item “correct-incorrect” was asked twice. The second time, the order was reversed (i.e., “incorrect-correct”). During screening of responses a check was made. A questionnaire packet was discarded if an individual responded to both items by use of scale positions 1, 2 or 3, or if an individual responded to both items by use of scale positions 5, 6 or 7. By definition, such subjects were not responding consistently to the content of the questionnaire and, hence, they could be excluded.

To score all the seven-point scales, a value ranging from 1 at the most negative pole response to 7 at the most positive pole response was applied. The scores on each item were averaged for the common factors to produce scores for each composite index. This step permitted the development of subsequent interaction terms. Demographic questions were asked of individuals to reveal their class standings, grade point average, sex, and age. Answers were taken as raw scores and were not grouped.

Sample

A final sample of 864 was taken from a larger sample of 967 composed of undergraduate student in the basic communication courses at a large Western university. Excluded subjects either refused to participate, gave incomplete responses (n = 84), or responded to check questions in ways that revealed a failure to show consistency of responses (n = 19). In addition, it was desired to

equalize cell sizes, which required that a number of events be dropped from the final sample. It might be noted, that the reject rate was high, over 8% and may have been a reflection of the fact that much of the data was collected near the ends of the academic terms. The pressures they felt at the end of the term may have distracted students.

Of the final sample, 37.5% were male and 62.5% were female. The mean age was 19.7 years (median 19, mode 18, standard deviation of 2.68 with a range from 18 to 54). The mean grade point average was 2.92 with a median and mode of 3 and a standard deviation of .53 (range 1.5 to 4.0). Though students were derived from all four undergraduate classes, 67.4% were freshmen, 8.3% were sophomores, 18.3% were juniors, and 6% were seniors.

Design

The study design was a 3 x 2 x 2 x 2 factorial design. The first four variables were manipulated variables and the last one was a measured variable. The first variable, type of evidence was composed of three levels: no evidence; statistical evidence; opinion evidence. The second variable was the treatment of the names of sources: no names mentioned; names provided. The third variable was the identification of source qualifications: no qualifications provided; qualifications provided. A fourth variable, introduced primarily for control purposes, was the topic of the message: national health insurance; caps on lawyers' fees.

A final variable was the perceived topic importance. The responses to the perceived importance scale were scored and a frequency distribution of scores was prepared. The researcher was prepared to complete a median split, but the overall pattern of results on this measure did not require this approach. The median for these scores was 4.33 on a seven point scale. Thus, the median split on the importance variable was virtually identical to what would have been expected if there had been a division at the "neutral" point on the scales. Thus, those who scored below 4.33 were listed in the "low importance" condition and those who scored 4.33 or higher were in the

“high importance” level.

Since different messages were used, it was desired to make some control on the language use and emotiveness of the measures. One measure of use is readability. The Gunning Fog (Gunning, 1952) index provides a measurement of readability based on the length of sentences and the number of syllables in the words. The Fog Index for these data was 6.9 with a standard deviation of 1.38 (possible range: 1 to 18). Thus, it seemed that the variability was within reasonable limits. In addition, the Lynch Human Interest Quotient (Lynch, 1968) was applied to the messages. This measure reveals how much personalized and comprehensible language is in the message. The possible range is from 0 to 77. In this case the mean was 11.2 with a standard deviation of 3.65. Such measures seemed to indicate limited variability among messages despite differences in message length.

Additional control was introduced into the study. Response set was controlled by the use of polarity rotation in which all items on a measure are not presented to respondents with positive items on the same side of the continuum. Second, subjects were randomly assigned to conditions. After the questionnaires were prepared with experimental messages included for subjects to read, the questionnaires were numbered, and placed in random order by use of a table of random digits (*A million random digits . . .*, 1955). Then, subjects received the questionnaires in random order when they were distributed to them in sequence. Hence, subjects were randomly assigned to conditions.

Analysis

Principal dependent variables were examined in the 3 x 2 x 2 x 2 x 2 factorial analysis of variance. Tukey’s HSD applied to the comparisons of the evidence types. Alpha was set at .05. Homogeneity of variance tests were applied. In the presence of heterogeneous variances, spread versus level plots (plots of the correlation between standard deviations and means) were computed to discern the presence or absence of ceiling or floor effects that might explain the heterogeneity.

Correlation coefficients between means and variances also are reported in the paper.

Following a significant F ratio, partial eta squared was computed. This effect size is the ratio of the variance (sums of squares) from the individual effect and the total variation of the remaining variation. Following a significant interaction effect, multiple comparison tests initially were to be completed by computing Scheffe's critical S , but when this conservative test was applied, no interactions on the attitude measure were found to have significant mean differences to explain the observed effect similar to that approach employed by Reinard and Arsenault (2000). Thus, the use of direct computation of confidence intervals was employed to contrast the mean groups. In each case, the larger confidence interval was used for the contrast. When only one set of two means was to be contrasted, a 95% confidence interval was computed. On the other hand, when two sets of means were to be compared, contrasts involved 97.5% confidence intervals. If three contrasts were to be made, a 98.36% confidence interval was used. If four contrasts were involved, a 98.7% confidence interval was employed. The reasoning is that with such reduction in alpha risk for individual tests, the overall experiment wise type I error rate could be kept constant (e. g., $.975 \times .975 = .951$; $98.36 \times 98.36 \times 98.36 = .952$). In such a way, the Type I error rate could be controlled and results reasonably interpreted.

Results

This report of results is divided into accounts of hypothesized and unhypothesized results. Each will be presented in turn.

Hypothesized Results

Hypothesis one suggested that the messages with evidence would produce more attitude change than messages without evidence. As Table 1 shows, this hypothesis was supported. The overall proportion of variance explained was 11.9%, the equivalent of a correlation of .35. There was a significant main effect from the type of evidence. Levene's test of homogeneity of variance

was not significant ($F=.959$, d.f., 47, 816), a fact that indicated that the assumption of homogeneous variances could not be rejected. Tukey's HSD indicated that the no evidence condition produced significantly lower levels of attitudes (mean = 4.69) than either the statistical evidence (mean = 5.05) or opinion evidence (mean = 5.2). No differences in attitude were found between the two types of evidence.

The second hypothesis asked an open-ended question that would be difficult not to support in some manner. Nevertheless, support could be claimed for it. The main effect for identifying evidence names showed that attitude ratings on the topic were higher when the names of sources were provided (mean = 5.05) than when the names were omitted (mean = 4.91).

The main effect for qualifications of sources revealed that attitudes were greater when the qualifications of sources were provided (mean =) than when the qualifications were omitted (mean = 4.84).

An interaction was found between importance and the names. Attitudes were lowest when both the topic was rated as lowly important and no evidence was present (mean = 4.74; 95% C.I. $4.39 < \mu < 4.71$). Otherwise the attitudes were higher (mean = 5.06), a mean that reflected a difference beyond the confidence interval bounds.

Two three-factor interactions were observed. The first three-way interaction was found from type of evidence, topic importance, and use of names for evidence sources. In essence, the lack of evidence combined with low topic importance and the failure to name sources produced a lower attitude (mean = 4.21; 95% C.I. $3.98 < \mu < 4.44$) than all other conditions (mean = 5.05). A second three-way interaction was found among importance, topic, and names. Among subjects who rated the national health insurance message topic as lowly important, a difference was observed depending on whether the sources were named. The absence of names produced the lowest mean (mean = 4.69; 95% C.I. $4.5 < \mu < 4.88$). But when the names of sources were mentioned, the low

importance and lawyers' fees topic produced the highest effects (mean: 5.25; 95% C.I. 4.68 μ <5.32). These two group means were outside each others' 95% confidence intervals.

Thus, support could be claimed for the second hypothesis. Aside from interactions involved differential effects of messages on the specific topics in the study, enhancements in attitudes were found: when were cited, when qualifications are cited. Reductions in average attitudes occurred when: the topic was rated as lowly important and no evidence was present; a lack of evidence combined was combined with low topic importance ratings and a failure to name sources.

The third hypothesis predicted that there would be a significant main effect from perceived topic importance. This effect was found as indicated expected. A significant *F* ratio revealed that an effect size accounting for a modest .6% of the variance. Though far from impressive, the effect was minimally sufficient to justify a modest claim of support for the third hypothesis.

Analyses of secondary variables were completed as part of a related study ([deleted]). For purposes of this study, however, the unhypothesized effects on secondary variables are not reported here. Excluding interaction effects for this report, main effects from on clarity ratings stemmed from topic importance. On believability ratings a main effect was found from the different topics. For the source character ratings, all main effects were statistically significant. The perceived competence ratings produced a main effect from perceived topic importance. Disturbingly, in each of the secondary variables listed, the tests of homogeneous variances were significant, indicating in the absence of ceiling or floor effects the presence of moderator variables to explain erstwhile main effects. Hence, it seemed that the value of such materials as part of moderated effects was more valuable than the search for simple main effects. Among demographic characteristics, slight positive correlations were found between attitudes and grade point average. Otherwise not meaningful effects were found.

Contrasts of Causal Models

An additional examination of the data was completed in an effort to develop a causal model of the mediated processes of evidence effects on the persuasiveness of messages. The process involved constructing path models. Several transformations of data were required. The categorical data on evidence type were cast into dummy variable categories. Since the results of this study revealed that the evidence forms were significantly different from "no evidence," but not significantly different from each other, the use of evidence was recoded simply: a value of 1 was assigned to identify "no evidence," and a value of 2 was assigned all other conditions that included evidence.

As a precursor to constructing the model, each of the potential variables of interest was subjected to a correlation analysis. Then, a model was constructed based upon these data. Efforts were made to examine models by checking the raw correlation matrix. The dependent variable was attitude toward the subject. Endogenous variables were source character, message clarity, source competence, and message believability. The model is presented in Figure 1.

The major exogenous variables were the use of evidence and the competence dimension of credibility. These variables were presumed to be uncorrelated with each other. In fact the correlation was a negligible .001. In the model, the patterns of evidence use influenced ratings of source character. Source competence ratings were assumed to influence an array of perceptions including those related to source character, message clarity, and overall message believability. Perceptions of source character were assumed to influence message believability and attitudes toward the topic. Perceived message clarity was assumed to influence both ratings of source character and message believability. Believability was assumed to influence attitude. The final model consisted of nine paths between pairs of variables, excluding the relationship between the two exogenous variables. The model posited six predicted correlations.

To explain these effects, final attitude toward the topic was regressed against message

believability and source character. The multiple correlation was .662. The R^2 was .438. When adjusted for shrinkage, this R^2 was .437. This correlation was statistically significant ($F=333.824$, d.f.: 3, 856, $p<.001$). Beta weights were significant for both message believability ($t= 19.688$, d.f.:859, $p<.001$) and source character ratings ($t= 5.254$, d.f.:859, $p<.001$). Source character was regressed against evidence type, competence rating, perceived clarity, and perceived believability. The multiple correlation was .629 with an R^2 of .396, which was .393 when adjusted for shrinkage. This correlation was statistically significant ($F=140.562$, d.f.: 4, 859, $p<.001$). Beta weights were significant for evidence type ($t= 7.115$, d.f.:863, $p<.001$), message clarity ($t= 5.466$, d.f.:863, $p<.001$), message believability ($t= 2.730$, d.f.:863, $p<.01$) and source competence ratings ($t= 10.812$, d.f.:863, $p<.001$). Believability was regressed against clarity and competence. The multiple correlation was .712 with an R^2 of .507, which was .505 when adjusted for shrinkage. This correlation was statistically significant ($F=441.961$, d.f.: 2, 861, $p<.001$). Beta weights were significant for message clarity ($t= 13.68$, d.f.:863, $p<.001$), and source competence ratings ($t= 14.24$, d.f.:863, $p<.001$).

The model was tested for “fit” to the data by using a set of predicted correlations computed following the method developed by Lewis-Beck (1974). These predictions were then placed in a matrix and contrasted with the observed correlations. To test the fit, a 95% confidence interval around the correlation coefficients was constructed. If the differences between the observed and predicted correlations were greater than the range permitted by the confidence interval, a violation of fit was claimed.⁹ For this set of data, the confidence interval was .067. The rather small confidence interval meant, of course, that the test would be particularly conservative. Unfortunately, two paths (use of evidence with attitude toward topic; issue importance with message clarity) were outside the bounds of the confidence interval around observed correlations. In addition, the mode suggested that believability would influence character. Hence, this model failed empirically, and

suggested the need to revise some thinking.

In contrast with the first model based on the thinking in the elastic capacity model a second model was constructed to show increasing consistency with the Elaboration Likelihood Model. A direct path between evidence and attitude was included (consistent with the observed main effect) was added. The path from believability to character was switched to be consistent with traditional persuasion theorizing about credibility as a trigger to believability. In addition, topic importance and source competence were treated as an interaction term. The interaction term was created by multiplying the two variables to create a new interaction term. This model is found on Figure 2.

The major exogenous variables were the use of evidence and the interaction of Topic Importance and the Source Competence dimension of credibility. These variables were presumed to be uncorrelated with each other. In fact the correlation was a negligible .045. In the model, the patterns of evidence use influenced ratings of source character. The importance/competence interaction ratings were assumed to influence an array of perceptions including those related to source character and message clarity. Perceptions of source character were assumed to influence message believability and attitudes toward the topic. Perceived message clarity was assumed to influence both ratings of source character and message believability. Believability was assumed to influence attitude. The final model consisted of nine paths between pairs of variables, excluding the relationship between the two exogenous variables. The model posited six predicted correlations.

To explain these effects, final attitude toward the topic was regressed against evidence introduction form, message believability and source character. The multiple correlation was .652. The R^2 was .425. When adjusted for shrinkage, this R^2 was .423. This correlation was statistically significant ($F=212.25$, d.f.: 3, 860, $p<.001$). Beta weights were significant for evidence introduction form ($t= 3.149$, d.f.: 863, $p<.01$), message believability ($t= 18.665$, d.f.: 863, $p<.001$) and source character ratings ($t= 5.388$, d.f.:863, $p<.001$). Believability was regressed against

clarity, and character ratings. The resulting correlation was .655. The R^2 was .43, which when adjusted for shrinkage was .428. This multiple correlation was, of course, statistically significant ($F=324.205$, d.f.: 2, 861, $p<.001$). Each beta weight also was statistically significant (character $t=7.695$, d.f.:863, $p<.001$; message clarity $t= 17.73$, d.f.:863, $p<.001$). Character was regressed against evidence used, message clarity, and the interaction of topic importance and source competence. The multiple correlation was .546. The R^2 was .298. When adjusted for shrinkage, this R^2 was .295. This correlation was significant ($F=121.495$, d.f.: 3, 860, $p<.001$) with each beta weight significantly different from zero (evidence use $t= 6.758$, d.f.:863, $p<.001$; message clarity $t= 12.253$, d.f.:863, $p<.001$; interaction of topic importance and source competence $t= 6.309$, d.f.:863, $p<.001$).

As can be seen from table accompanying the model, the overall fit was quite strong.¹⁰ The average absolute deviation for predicted scores was .014. Furthermore, none of the predicted correlations was beyond the range of the rather conservative confidence interval. Thus, the model reported here was a useful method to describe the method by which the posited exogenous and endogenous variables produced meaningful results.

Discussion

The results of this inquiry provided some surprises as well as some continuing support for a pattern that has begun to emerge in related research (see Geck, 1998, [deleted], 2004). On the attitude measure, evidence continues to be a persuasive force. In addition, the main effects observed for naming sources and providing qualifications suggested that the effects of evidence are meaningful and ways to introduce such material can be influential factors. The failure to find very many interaction effects stemming from the impact of message variables (apart for importance perceptions) also suggested that evidence effects on attitudes are additive and that some postulated interactions, such as evidence types and qualifications, though intuitively appealing, may need to be

reevaluated.

Finding that perceived importance was related to enhanced persuasion was consistent with the Geck and [deleted] study and it also seemed to carry with it some reason for further attention. In the first place, the observation that enhanced importance seemed to relate to the persuasive effects of evidence—both separately and in interactions—suggested that there may be support for the Elastic Capacity Model (Stiff, 1986), which has been applied to predict that perceived issue importance is associated with evidence persuasiveness. This matter raises some interesting prospects. If such matters are true, it may be that the perception of the importance of a topic brings with it a host of cognitive processing elements of interest. In addition to the fact that the Elastic Capacity Model may be supported, it also is the case that in the presence of importance, evidence may be viewed as an item in a speech that leads audiences to reflect on the content of a message. Put another way, it may be that as importance increases in the minds of audience members they may respond to evidence as a trigger to other information. This type of thinking is not really new, of course. One group of researchers has taken the view that evidence is really a set of cues or “heuristics” that may be relevant to target conclusions (Thompson, Kruglanski, & Spiegel, 2000). It may be that instead of considering how evidence research can help explore the Elaboration Likelihood Model, researchers might view topic importance as a separate part of evidence processes *sui generis*. One interesting approach has been the pursuit of “passionate reasoning” in which the role of evidence is conceptualized as an influence on the reasoning that occurs on emotionally rich topics (Huddy & Gunnthorsdottir, 2000). This view considers emotional appeals as stimulated by evidence appeals and suggests the importance of looking at evidence as a salient trigger to related attitudes. Such reasoning might be valuable to examine in future theoretically-based inquiries of evidence. Even so, the failure of the first causal model to support the Elastic Capacity Model suggests either that the theory should be revisited to posit an interaction of topic importance and

credibility or, the emergence of the second model may indicate that the Elaboration Likelihood model—at least in regard to this interaction—may merit renewed attention for evidence researchers.

The use of opinion evidence and its failure to be viewed as inferior to statistical evidence could be taken by some as surprising. But such a view may overstate that matter. The fact is that when the evidence was specific to the claim, it seemed to be taken seriously. When it is possible for audiences to interpret many different applications or conclusions, the evidence may not be so effective. In short, the use of opinion claims that interpret the meaning of relevant information may have greater linkage to an argumentative claim than simple use of statistics. The suggestion here is that the use of statistics *or* opinion evidence may be highly persuasive if care is taken to assure that the evidence is clearly relevant to the claims.

Interpretation of the Model

Thus, the second model seems to suggest that evidence use in persuasive communication produces both direct and mediated effects. Furthermore, the interaction of competence and topic importance seems to produce remarkably energizing influences that *combine* with evidence use to affect source character (in essence, source trust) ratings. This dimension of credibility also appears to be related strongly to the perception of message content. In particular, when the source is rated as highly trustworthy, the message tends to be rated as increasingly clear, increasingly believable and, hence, increasingly persuasive in producing attitude change. Source competence and topic importance interactions, viewed as starting points, may set boundaries for the potential impact of evidence in stimulating other persuasive effects. The emergent model also reinforces the importance of including credibility factors as major forces in future conceptualizations of evidence effects.

Among the most interesting findings implied by this model is that believability is a key that determines whether the attitudes will be changed, more than any other single factor. No only does this factor join with source character in producing sizable effects on attitude, but it also is stimulated

by a host of other variables including source character and perceived message clarity. It seems that influencing this element is a chief endogenous explanation of persuasive effects.

It should be remembered that this model was completed essentially to explain whether the influence of evidence were simple direct paths (as implied by analysis of variance results) or whether indirect moderated paths could be constructed. The presence of these moderated paths would indicate not a certain solution to evidence effect explanations. But they would suggest that the overall role of evidence is one that is also moderated by intermediate stages. Finding such support here suggests that future research should take into account such secondary paths to help explain evidence effects in both research and in the development of the related theory.

A purpose of such an inquiry as this one is to explain not only the presence of experimental results of interest alone. Such models also have the potential to offer explanations of *how* such effects come about and perhaps even *why* they do. In this case it seems that evidence produces its effects on attitudes in a moderated path that combines with perceptions of the interaction of source competence and topic importance as an energizing element. Then, these forces combine to influence source character or trustworthy ratings. This secondary element produces influences on attitudes and also affects and believability of the message. This model suggests that in addition to direct effects, evidence use affects attitude change by affecting trustworthiness of the source and the message's credibility.

Limitations to be placed on this study are substantial. In addition to the obvious restrictions of sample population, only one message per topic, and difficulties dealing with nonresponse rates, there are two other matters that deserve attention. First, the consistent finding of subjects-by-treatments interaction on the secondary variables suggests that at least one significant factor that was not included in this study created nonrandom influences on this study's results. Thus, the search should begin for a list of likely culprits that might have mediated the effects. The

search led to the examination of the demographic variables in this study, but they did not seem to be substantial influences on primary study variables, even though there were some intercorrelations, including some among themselves. In the meantime, the results of this study should be taken with a grain of salt. Second, subjects rating the overall clarity and believability of the message as only slightly above “neutral.” Thus, it seems that inquiry to improve the materials in this study is clearly invited. The lack of strongly credible message materials may be a reason that some of the effect sizes were disappointing on primary variables. Though in many studies such limitations are little more than afterthoughts, the author urges that these limitations be taken very seriously.

NOTES

¹The author wishes to acknowledge and thank Stacy Geck of the Marshall School of Business and the University of Southern California for her contributions to this work. Though she did not collect data or participate in this undertaking, the initial materials and the basic questions were based on her own work and represent an effort to extend on them.

²The messages were edited to meet the needs of experimental manipulations.

For instance, on the health care topic:

- The root message was:

The US should adopt a program of national health insurance because literally millions of working people are denied health care since they do not have private health insurance. These working people do not have other means to provide themselves with medical care.

- The full statistical evidence treatment was:

The US should adopt a program of national health insurance because literally millions of working people are denied health care since they do not have private health insurance. These working people do not have other means to provide themselves with medical care. According to Paul Dell, a professor of health economics at the University of Minnesota, writing in the Fall 2002 issue of *Medical Economics*, "without a program of national health insurance, it is most unlikely that those working people who currently are not covered by health insurance will secure it from their employers. Currently, some 41.2 million Americans—14.6% of the population—have lacked health insurance coverage for the entire year, up 1.4 million from 2000. Moreover, 8 of 10 uninsured people are in a family where at least one person is working."

- The names and qualifications without evidence condition was as follows:

The US should adopt a program of national health insurance because literally millions of working people are denied health care since they do not have private health insurance. These working people do not have other means to provide themselves with medical care. Paul Dell, a professor of health economics at the University of Minnesota, writing in the Fall 2002 issue of *Medical Economics*, explained these facts.

- The qualifications without sources named condition was:

The US should adopt a program of national health insurance because literally millions of working people are denied health care since they do not have private

health insurance. These working people do not have other means to provide themselves with medical care. A professor of health economics explained these facts.

- The opinion evidence treatment was:

The US should adopt a program of national health insurance because literally millions of working people are denied health care since they do not have private health insurance. These working people do not have other means to provide themselves with medical care. According to Paul Dell, a professor of health economics at the University of Minnesota, writing in the Fall 2002 issue of *Medical Economics*, "without a program of national health insurance, it is most unlikely that those working people who currently are not covered by health insurance will secure it from their employers. Based on any reasonable review of the facts, it is undeniable that we need national health insurance for the entire American population."

For the lawyers' fees topic:

- The root argument was:

There is a need to set limit on the fees lawyers can charge their clients. Under the current situation, plaintiffs in civil cases can find that nearly half the amount awarded to them by juries to compensate them for loss actually is skimmed off the top by their lawyers.

- The full statistical treatment was:

There is a need to set limit on the fees lawyers can charge their clients. Under the current situation, plaintiffs in civil cases can find that over half the amount awarded to them by juries to compensate them for loss actually is skimmed off the top by their lawyers. This fact is unfair since it undermines the decision of jury. According to Thomas Packard, professor of law at the University of Wisconsin, in the Spring 2002 issue of *Barrister*, "Given that juries award what they have decided plaintiffs require, the common practice of lawyers who take between a third and a half of awards means that plaintiffs actually do not receive the amounts that the justice system decides that they actually need and deserve. With current average non-economic damage award of \$400,000 in medical malpractice cases, the typical attorney fee is \$160,000 but since attorneys also bill court fees, copy fees, expert witness fees and other expenses to the plaintiff's remaining share, the typical expense is likely to add \$100,000 or more that victims thought the lawyers' contingency fees were supposed to cover. Thus, the typical attorney makes over a quarter of million dollars on the average non-economic damage award whereas the actual victim receives only \$140,000 of what was promised by the jury."

- The full opinion argument was:

There is a need to set limit on the fees lawyers can charge their clients. Under the current situation, plaintiffs in civil cases can find that nearly half the amount awarded to them by juries to compensate them for loss actually is skimmed off the top by their lawyers. This fact is unfair since it undermines the decision of jury. According to Thomas Packard,

professor of law at the University of Wisconsin, in the Spring 2002 issue of *Barrister*, “Given that juries award what they have decided plaintiffs require, the common practice of lawyers who take between a third and a half of awards means that plaintiffs actually do not receive the amounts that the justice system decides that they actually need and deserve. Caps should be placed on lawyers’ fees since plaintiffs and juries who see the award they found reasonable disappear in the overhead charged by lawyers. Indeed, unless some limits are set on contingency fees, the public will lose hope in the basic fairness of the judicial system.”

³The four items along with their factor loadings were foolish-wise (.843), bad-good (.909), harmful-beneficial (.835), and unfair-fair (.791).

⁴The three items along with their factor loadings were unimportant to me-important to me (.916), irrelevant to me-relevant to me (.883), and insignificant to me-significant to me (.82).

⁵The five items along with their rotated factor loadings were incompetent-competent (.687), unintelligent-intelligent (.81), inexpert-expert (.686), not understanding-understanding (.678), and stupid-bright (.736).

⁶The four items and their rotated factor loadings were dishonest-honest (.796), dishonorable-honorable (.615), immoral-moral (.721), insensitive-sensitive (.752).

⁷The four items and their rotated factor loadings were incorrect-correct (.749), improbable-probable (.856), false-true (.839), and unlikely-likely (.814).

⁸The four items and their rotated factor loadings were unclear-clear (.757), disorganized-organized (.751), confusing-understandable (.772), and illogical-logical (.66).

⁹The paths were as follows:

$$P_{13} = P_{23}r_{12}$$

$$P_{14} = P_{34}P_{23}r_{12}$$

$$P_{15} = P_{45}P_{23}r_{12} + P_{35}P_{23}r_{12}$$

$$P_{17} = P_{67}P_{16} + P_{67}P_{36}P_{23}r_{12} + P_{67}P_{46}P_{34}P_{23}r_{12} + P_{67}P_{56}P_{45}P_{34}P_{23}r_{12} + P_{67}P_{56}P_{35}P_{23}r_{12} + P_{57}P_{45}P_{34}P_{23}r_{12}$$

$$P_{57}P_{35}P_{23}r_{12}$$

$$P_{24} = P_{34}P_{23}$$

$$P_{25}=P_{45}P_{23}+P_{35}P_{23}$$

$$P_{26}=P_{16}r_{12}+P_{36}P_{23}+P_{46}P_{34}P_{23}+P_{56}P_{45}P_{34}P_{23}+P_{56}P_{35}P_{23}$$

$$P_{27}=P_{67}P_{16}r_{12}+P_{67}P_{36}P_{23}+P_{67}P_{46}P_{34}P_{23}+P_{67}P_{56}P_{45}P_{34}P_{23}+P_{67}P_{56}P_{35}P_{23}+P_{57}P_{45}P_{34}P_{23}+P_{57}P_{35}P_{23}$$

$$P_{37}=P_{67}P_{16}r_{13}+P_{67}P_{36}+P_{67}P_{46}P_{34}+P_{67}P_{56}P_{45}P_{34}+P_{67}P_{56}P_{35}+P_{57}P_{45}P_{34}+P_{57}P_{35}$$

$$P_{47}=P_{67}P_{16}r_{14}+P_{67}P_{36}P_{23}r_{14}+P_{67}P_{46}+P_{67}P_{56}P_{45}+P_{67}P_{56}P_{35}P_{23}r_{24}+P_{57}P_{45}+P_{57}P_{35}P_{23}r_{14}$$

¹⁰The paths were as follows:

$$P_{13}=P_{23}r_{12}$$

$$P_{14}=P_{34}P_{23}r_{12} + P_{45}P_{35}P_{23}r_{12}+P_{45}P_{25}r_{12}+P_{45}P_{15}$$

$$P_{24}=P_{34}P_{23}+P_{45}P_{35}P_{23}+P_{45}P_{25}+P_{45}P_{15}r_{14}$$

$$P_{26}=P_{16}r_{12}+P_{56}P_{15}r_{12}+P_{56}P_{25}+P_{56}P_{35}P_{23}+P_{46}P_{45}P_{15}r_{12}+P_{46}P_{45}P_{25}+P_{46}P_{45}P_{35}P_{23}+P_{46}P_{34}P_{23}$$

$$P_{36}=P_{16}r_{13}+P_{56}P_{15}r_{14}+P_{56}P_{25}r_{13}+P_{56}P_{35}+P_{46}P_{45}P_{35}+P_{46}P_{34}$$

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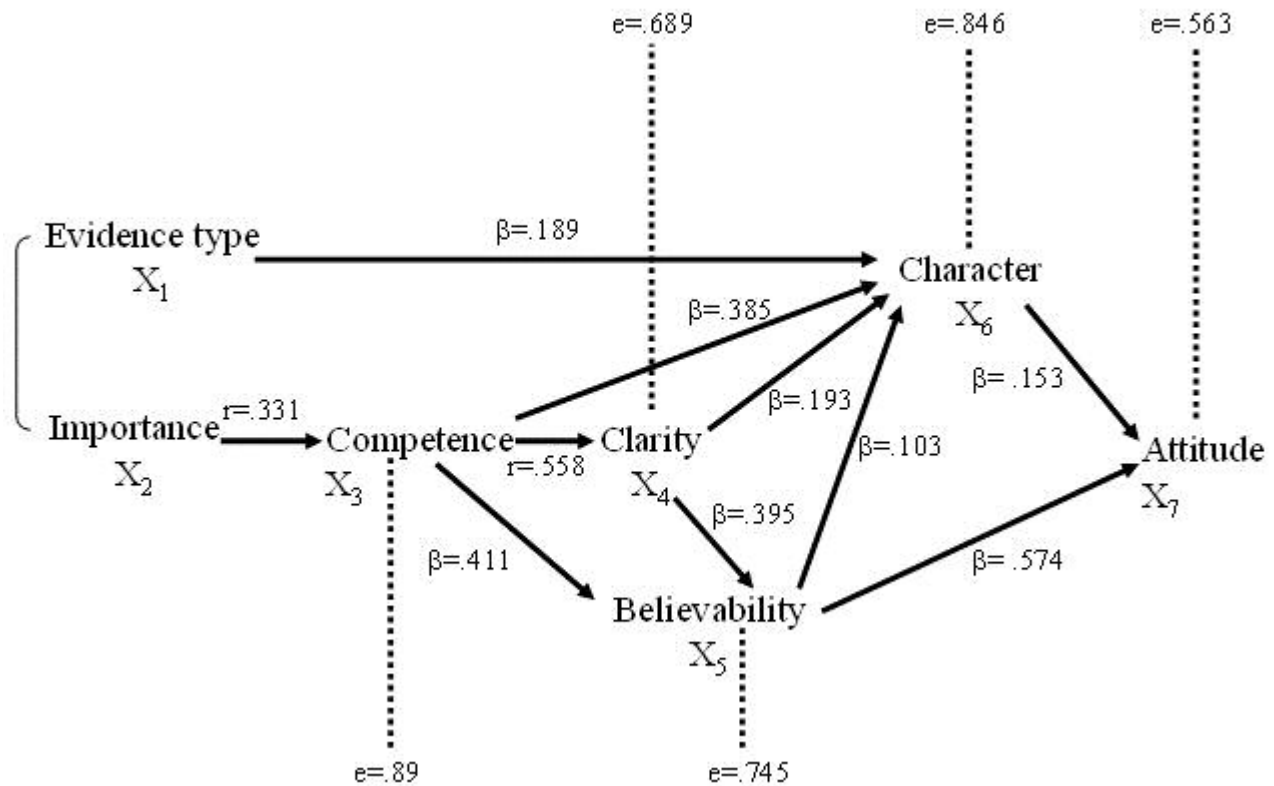
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Table 1: Analysis of Variance of Attitude Scores

<i>Source of Variance</i>	<i>d.f.</i>	<i>Mean Square</i>	<i>F</i>	<i>Partial Eta Squared</i>
Evidence Type	2	309.524	19.819 *	.046
Importance of Topic	1	80.667	5.165 *	.006
Topics	1	4.167	.267	
Names of Evidence Sources Identified	1	61.227	3.920 *	.005
Qualifications of Sources Identified	1	289.352	18.528 *	.022
Evidence * Importance	2	.962	<1	
Evidence * Topics	2	4.420	<1	
Evidence * Names	2	28.439	1.821	
Evidence * Qualifications	2	.508	<1	
Importance * Topics	1	30.375	1.945	
Importance * Names	1	140.167	8.975 *	.011
Importance * Qualifications	1	5.671	<1	
Topics * Names	1	1.185	<1	
Topics * Qualifications	1	33.449	2.142	
Names * Qualifications	1	3.630	<1	
Evidence * Importance * Topics	2	24.885	1.593	
Evidence * Importance * Names	2	81.566	5.223 *	.013
Evidence * Importance * Qualifications	2	12.404	<1	
Evidence * Topics * Names	2	6.848	<1	
Evidence * Topics * Qualifications	2	7.446	<1	
Evidence * Names * Qualifications	2	15.709	1.006	
Importance * Topics * Names	1	202.227	12.949 *	.016
Importance * Topics * Qualifications	1	1.500	<1	
Importance * Names * Qualifications	1	.227	<1	
Topics * Names * Qualifications	1	5.671	<1	
Evidence * Importance * Topics * Names	2	7.939	<1	
Evidence * Importance * Topics * Qualifications	2	10.795	<1	
Evidence * Importance * Names * Qualifications	2	16.119	1.032	
Evidence * Topics * Names * Qualifications	2	16.605	1.063	
Importance * Topics * Names * Qualifications	1	8.963	<1	
Evidence * Importance * Topics * Names * Qualifications	2	1.237	<1	
Error	816	15.617		

* p < .05

Figure 1: A Causal Model of Evidence Type and Competence Effects



	Use of Evidence X_1	Issue Importance X_2	Source Competence Ratings X_3	Message Clarity Ratings X_4	Message Believability X_5	Source Character Ratings X_6	Attitude Toward Topic X_7
Use of Evidence X_1	-----	.014 (.000)	.034 (.005)	.008 (.003)	.000 (.002)	*	.128 (.031)
Issue Importance X_2	.014	-----	*	.278 (.185)	.151 (.209)	.209 (.187)	.149 (.149)
Source Competence Ratings X_3	.029	*	-----	*	*	*	.340 (.363)
Message Clarity Ratings X_4	.005	.093	*	-----	*	*	.439 (.432)
Message Believability X_5	.002	.058	*	*	-----	*	*
Source Character Ratings X_6	*	.022	*	*	*	-----	*
Attitude Toward Topic X_7	.097	.000	.023	.007	*	*	-----

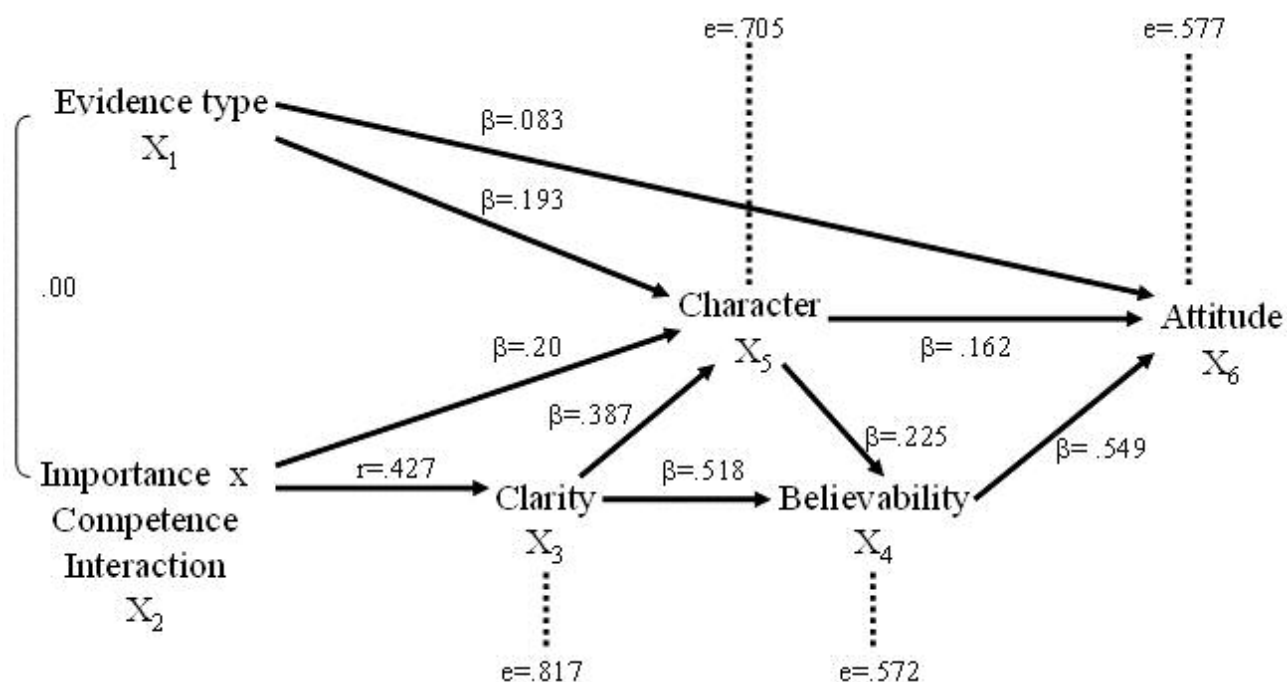
Upper diagonal includes the observed correlation with the predicted correlation in parentheses.

Lower diagonal includes difference between observed and predicted correlations.

95% C.I. around $r = .068$

* Predicted values constrained to equal their observed values.

Figure 2: A Causal Model of Evidence Type and Competence Effects



	Use of Evidence X_1	Issue Importance/ Competence Interaction X_2	Message Clarity X_3	Message Believability X_4	Source Character Ratings X_5	Attitude Toward Topic X_6
Use of Evidence X_1	-----	.014 (.000)	.008 (.006)	.02 (.048)	*	*
Issue Importance/ Competence Interaction X_2	.014	-----	*	.362 (.345)	*	.246 (.228)
Message Clarity X_3	.002	*	-----	*	*	.418 (.42)
Message Believability X_4	.028	.017	*	-----	*	*
Source Character Ratings X_5	*	*	*	*	-----	*
Attitude Toward Topic X_7	*	.018	.002	*	*	-----

Upper diagonal includes the observed correlation with the predicted correlation in parentheses.

Lower diagonal includes difference between observed and predicted correlations.

95% C.I. around $r = .068$

* Predicted values constrained to equal their observed values.