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THE EFFECT OF QUALITY OF EVIDENCE ON ATTITUDE CHANGE AND SOURCE CREDIBILITY

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Previous research on the probative power of evidence in persuasive communication has focused on the impact of high-quality evidence. Results have indicated that inclusion of high-quality evidence enhances the communicator's credibility and increases the impact of an initially low-credibility communicator. This study examined the effect of defective evidence, evidence from questionable sources, and evidence not relevant to the issue discussed. Results indicated that inclusion of defective evidence retarded positive attitude change, particularly for a communicator with moderate initial credibility, and that inclusion of defective evidence led to significantly less positive perceptions of the communicator.

Most rhetorical theorists and teachers of public speaking believe that good evidence is essential, or at least beneficial, to a good speech. Over the last two decades studies concerning the effects of evidence, however, have raised some reservations concerning the value of evidence to some communicators. Research has found positive effects for evidence under some circumstances while finding no significant effect under other circumstances.¹ Although a fairly large number of studies concerning evidence have been reported over the past two decades, very few examined

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¹For a summary of this research, see James C. McCroskey, "A Summary of Experimental Research on the Effects of Evidence in Persuasive Communication," *Quarterly Journal of Speech*, 55 (1969), 169-76. See also, James C. McCroskey, *Studies of the Effects of Evidence in Persuasive Communication* (Report SCRL 4-67, Speech Communication Research Laboratory, Michigan State University, 1967).

the effect which varying the quality of evidence in a persuasive message has on attitude change and perceived credibility of the communicator.

RATIONALE AND HYPOTHESES

Results of several experiments indicate the presence of an interaction between initial communicator credibility and evidence.² In each of these studies initial credibility was manipulated by means of introductions, and evidence was either included to support all main points or was omitted. Evidence included was of high quality; that is, attributed to a competent, relatively unbiased source and directly supportive of the point under consideration. Inclusion of such evidence was found to result in more attitude change when the communicator was perceived initially to have moderate or low credibility, but inclusion of evidence by a communicator perceived initially as highly credible did not result in a significant increase in immediate attitude change.

The theoretical explanation of the previously observed interaction between communicator credibility and evidence hinges on the probative power of communicator credibility itself. In essence, the theory suggests that if a communicator is highly credible, that person's assertions will be accepted as accurate, and that citing opinions or facts from an outside source will be needlessly redundant. Yet if a communicator is not perceived as credible, citing evidence from outside sources will serve as a substitute for the communicator's lack of credibility, and also help to increase the communicator's credibility level. While the previous research has provided support for this theoretical orientation, only one side of the coin has been examined. Since the theory argues that the credibility of the evidence can be used to overcome shortcomings in the communicator's credibility, the previous research using high-quality evidence is supportive. But the theory is dependent upon the cited evidence being of high quality. If the evidence were not of high quality, it presumably would not be seen as credible, and would neither enhance persuasive influence nor the communicator's credibility. In fact, the use of low-quality evidence should be expected to have no effect on persuasive influence, or to retard it. And the communicator who employs such

²McCroskey, "A Summary. . . ."

evidence should be expected to be perceived less positively, rather than more so.

Only a few studies have been concerned with the quality of evidence cited in the message, and none of these have manipulated initial credibility of the communicator. Dresser, for example, found no differential impact on attitude change attributable to messages with widely divergent levels of evidence quality.³ The credibility of his speakers, although not directly measured, appeared to be very high, possibly high enough for his subjects to "forgive" the use of poor evidence. More recently, however, two studies have been reported which suggest that the quality of evidence used may have a significant impact. Warren found that including evidence from highly credible sources resulted in more attitude change than did including evidence from less credible sources.⁴ Kline found that while relevance of evidence to the issue was apparently most important to some people, the credibility of the source of the evidence was more important to others.⁵ The results of these studies suggest the following conclusions:

1. Receivers can distinguish between evidence that is relevant to the issue and evidence that is not.
2. Receivers can distinguish between credible sources of evidence and those that are not.
3. Evidence from a highly credible source results in more attitude change than does evidence from a less credible source.
4. Including relevant evidence from a credible source results in more attitude change than does including no evidence if the communicator is not perceived initially as highly credible.

There has been no reported research comparing effects of including defective evidence (i.e., evidence not relevant to the issue and/or from a source with low credibility) and not including evidence at all. Yet, since Kline has observed that people can make distinctions among different evidence quality levels,⁶ it may

³William R. Dresser, "Effects of 'Satisfactory' and 'Unsatisfactory' Evidence in a Speech of Advocacy," *Speech Monographs*, 20 (1963), 302-06.

⁴Irving D. Warren, "The Effect of Credibility in Sources of Testimony on Audience Attitudes Toward Speaker and Message," *Speech Monographs*, 36 (1969), 456-58.

⁵John A. Kline, "A Q-Analysis of Encoding Behavior in the Selection of Evidence," *Speech Monographs*, 38 (1971), 190-97.

⁶Kline, "A Q-Analysis. . . ."

follow that the latter form would produce more positive attitude change than evidence with two defects. Consequently, the first three hypotheses for this investigation were stated as follows:

- H₁: A communicator will produce more attitude change by using good evidence (both relevant and from a credible source) than by using any other type of evidence, or no evidence.
- H₂: A communicator will produce more attitude change by using no evidence than by use of any other type, with the exception of good evidence.
- H₃: A communicator will produce more attitude change by using irrelevant evidence from a credible source or relevant evidence from a non-credible source than by use of irrelevant evidence from a non-credible source.

Several studies have shown that inclusion of good evidence results in an increase in perceived credibility of the communicator on the Competence and Character dimensions.⁷ While including good evidence may increase credibility, there is no reason to expect a similar impact when defective evidence is included. In fact, results reported by Warren and Kline lead to the opposite expectation. Consequently, the following hypothesis was posed for investigation:

- H₄: Inclusion of good evidence will result in higher perceived credibility than inclusion of no evidence, which in turn will result in higher credibility than including relevant evidence from a non-credible source or irrelevant evidence from a credible source, which in turn will result in higher credibility than including irrelevant evidence from a non-credible source.

Because initial communicator credibility has been found to interact with evidence in producing both attitude change and changes in perceived communicator credibility,⁸ it is important for the external validity of any study of the effects of evidence to consider the effects of initial communicator credibility. Thus, the present study tested the above hypotheses with two different levels of communicator credibility. The manipulation of initial credibility is discussed below.

⁷McCroskey, "A Summary. . . ."

⁸McCroskey, "A Summary. . . ."

METHOD

Messages

There were five constructed messages which were identical except for the following alterations. One message (no evidence) contained no evidence, all statements appearing to be assertions of the communicator. A second message (good evidence) contained evidence which was directly relevant to the issues being discussed (medical care in the United States) and attributed to qualified sources; that is, individuals and groups in a position to know important facts and to interpret them (e.g., *AMA Journal*, Dr. Michael DeBakey, Senator Edward Kennedy, and the Health Insurance Association of America). A third message (bad/relevant) contained the same evidence as the good evidence message, but the evidence was attributed to sources with no background relevant to the field being discussed (e.g. *Male* magazine, Radio Moscow, *Wrestling World* magazine, and the National Association of Used Car Salesmen). A fourth message (good/irrelevant) used the same qualified sources as the good evidence message, but the evidence presented was not at all relevant to the issue being discussed. An example is the following quotation attributed to the *AMA Journal*: "Eighty million Americans get sick every year. For the majority the cause of their illness is some type of virus infection." This "evidence" was used to support the conclusion which followed: "In other words, they cannot afford to purchase adequate health care." The final message (bad/irrelevant) combined the poor sources and the irrelevant evidence previously mentioned. Each set of messages was then attributed to either of two communicators, thus creating ten experimental cells.

The messages were evaluated independently by a panel of three graduate faculty members familiar with the previous research on evidence, two of whom had been collegiate debaters and debate coaches. All agreed that the "good evidence" and "no evidence" messages were consistent with the definitions and manipulations employed in previous research and that the presumed defects in the evidence included in the other messages were present.

Credibility Inductions

Two credibility inductions were used. The first communicator was identified as John Worthington, who was said to be a student at Princeton University. Mr. Worthington was reported to have worked for Ralph Nader during the summer. The subjects were told that Mr. Worthington had spent the previous summer researching medical care, and had given several speeches on that topic. This induction was designed to generate scores on competence above the hypothetical neutral point on the credibility measure employed. It was hoped that the induction would be approximately one scale unit above neutral. In this case, a score of 20.0 on competence would have been optimal. As noted in Table 1, the actual score obtained was 19.02, which was considered to be satisfactory.

TABLE 1
PRE-TEST MEANS

Dependent Variable	Message Source				F
	Hypothetical Neutral Position	Moderately High Credibility	Moderate Credibility	Difference	
Attitude	20	28.47	28.52	-.05	.01
Competence	16	19.02	17.87	1.15	16.40*
Character	16	18.63	16.89	1.74	55.34*

*Significant at $p < .05$.

The second communicator was identified as Gus Hall, chairman of the Communist Party in the United States. Mr. Hall was chosen for several reasons. The topic was one in which he would have some interest and on which he has made some speeches. Although he has probably had low credibility much of his long career, he has mellowed the perceptions many people have of him, particularly on the competence dimension. As a candidate in the 1972 presidential campaign he appeared on national television several times. He also appeared on the campus where the study was conducted, shortly before the experiment. All of these factors led us to believe that Mr. Hall's credibility would be generally

perceived as moderate. In a pre-test of this induction, Mr. Hall was seen as moderately credible on both the Competence and Character dimensions. In the actual experiment, this perception was also present (see Table 1).

Attitude Measurement

The proposition used for this study was: "The United States should adopt a new system for financing health care for all citizens." The following seven-step bipolar scales were used to test attitude: Right-Wrong, True-False, Yes-No, Correct-Incorrect, I Agree-I Disagree. These scales were tested previously through factor analysis and found to represent a single factor of response and to have an internal reliability estimate of .92 on the topic.

Credibility Measurement

Credibility was measured by a series of seven-step, semantic differential-type scales designed specifically for public-figure communicators. Two dimensions of credibility were measured. Scales for the two dimensions were selected on the basis of the results reported by McCroskey, Jensen, and Todd.⁹ The following scales were employed:

Competence: expert-inexpert; qualified-unqualified; inexperienced-experienced; untrained-trained.

Character: dishonest-honest; awful-nice, just-unjust; bad-good.

Factor analysis (with orthogonal rotation) indicated that the two dimensions were maintained in the present study and that all items had high ($> .60$) loadings on the correct factor and no substantial ($< .40$) secondary loadings.

Message Perception

The message categories in this study were based on qualitative definitions rather than assumed subject perceptions. However, to determine whether the subjects noted differences in the evidence

⁹James C. McCroskey, Thomas Jensen, and Cynthia Todd, "The Generalizability of Source Credibility Scales for Public Figures" (Paper presented at the Speech Communication Association Convention, Chicago, 1972).

treatments, seven-point, bipolar message perceptions scales used previously by McCroskey¹⁰ were employed.

Degree of Clarity: Clear-Unclear

Quality of Organization: Well organized-Poorly organized

Quality of Sources Quoted in Statement: Good sources-Poor sources

Relevance of Evidence Quoted in Statement: Very relevant to the issue-Irrelevant to the issue.

Language Used in the Statement: Very intense-Mild.

Overall Quality of Statement: Very good-Very poor.

Procedure

Twelve undergraduate classes in Speech Communication were chosen in which to conduct the experiment (total $N = 225$). The smallest class had an enrollment of 20 while the largest had an enrollment of approximately 60. Subjects represented all four undergraduate levels at the university and were from a wide variety of academic majors.

The instructor of the class introduced the researcher simply by stating that he was present and wished their assistance. The researcher then introduced himself and explained what the subjects were to do. He then distributed the experimental packets and explained how to fill out the scales. Subjects were told to fill out scales in the order in which they appeared in the packet.

Packets had been randomly mixed so that all combinations of messages and sources would be present in each class. The researcher remained in the room at all times to answer any questions the subjects might have concerning the scales, although the first page of the packet clearly explained the procedures to be followed. Upon completion of the scales the subjects handed the packets back to the researcher.

Statistical Analyses

Change in attitude and credibility were examined through the use of two-way (2×5) analyses of variance of pre-post change scores.¹¹ Two-way (2×5) analyses of variance were also used to

¹⁰J. C. McCroskey, *Studies of the Effects*. . .

¹¹B. J. Winer, *Statistical Principles in Experimental Design*, 2nd ed. (New York: McGraw-Hill, 1971).

analyze the data obtained on the message perception scales. Similarly, two-way (2 x 5) analyses of variance were conducted on the pre-tests to determine whether the credibility inductions were successful and whether the initial attitudes differed among conditions. In each analysis initial credibility served as one independent variable and the five evidence conditions served as the other. Specific hypotheses were tested by means of *t*-tests when significant *F*-ratios were obtained. The .05 level of probability was set for significance on all tests.

RESULTS

Manipulation Checks

Pre-test inductions were found to be successful. Initial attitude was not significantly different across the ten experimental conditions prior to the introduction of the message ($F < 1.0$). The credibility inductions were successful. John Worthington was rated significantly higher than Gus Hall on both credibility dimensions. Although the differences between the credibility levels were not large, subsequent results indicated that a crucial distinction between moderately high and moderate credibility was induced. Table 2 reports the means for the two dimensions and the *F*-ratios. Neither evidence nor interaction effects achieved significance for any of the pre-test variables.

TABLE 2
MESSAGE PERCEPTION MEANS FOR EVIDENCE TREATMENTS**

Scale	F-ratio	Evidence Treatment				
		Good	None	Relevant	Irrelevant	Irrelevant
				Bad Source	Good Source	Bad Source
Clarity	25.93*	5.89 _{AB}	5.44 _C	5.11 _{AD}	4.31 _{BCD}	2.96 _{BCD}
Organization	25.59*	5.80 _{AB}	5.42 _C	5.00 _{AD}	4.36 _{BC}	3.08 _{BCD}
Source	27.71*	5.43 _A	4.07 _A	3.16 _{AB}	4.69 _B	2.21 _{AB}
Evidence	30.36*	5.78 _{AB}	5.27 _C	4.80 _A	4.55 _{BC}	2.67 _{ABC}
Language	6.20*	4.46 _A	4.71 _B	4.36 _C	4.52 _D	3.50 _{ABCD}
General	22.31*	5.43 _{AB}	5.27 _{BCD}	4.25 _{ABC}	4.50 _{BD}	2.81 _{ABCD}

*Significant at $p < .05$.

**Means in same row with same subscript are significantly different ($p < .05$).

Subjects generally perceived the evidence elements in the message as had been intended, although an apparent halo effect generalized the impact to additional scales. *F*-ratios were significant on all six scales on which the message was rated.

Results on the message perception scales indicated that the message was rated significantly higher on all dimensions for the moderately high credibility communicator as opposed to the moderate communicator. Table 3 reports the means and *F*-ratios for message perception by credibility treatments.

Attitude Change

Analysis of variance of the attitude change scores indicated a significant initial credibility by evidence-treatment interaction effect ($F = 2.47$, d.f. 4/215; $p < .05$). Consequently, this interaction was probed by examining the cells involved in the *a priori* hypotheses with *t*-tests. The *t*-tests indicated mixed support for the hypotheses. For John Worthington, the communicator with moderately high credibility, the only significant hypothesized difference was that no evidence produced significantly greater attitude change ($\bar{x} = 1.30$) than the use of evidence which was irrelevant and from non-credible sources ($\bar{x} = -1.08$) (see Table 4 for the means of all conditions).

For the moderately credible communicator, Gus Hall, hypothesis one was confirmed. The use of relevant/good evidence

TABLE 3
MESSAGE PERCEPTION MEANS FOR CREDIBILITY TREATMENTS

Scale	Message Source		F
	Moderately High Credibility	Moderate Credibility	
Clarity	5.03	4.40	9.07*
Organization	4.98	4.43	8.22*
Source	4.22	3.52	10.16*
Evidence	4.89	4.26	10.13*
Language	4.51	4.07	6.55*
General	4.73	4.11	9.28*

*Significant at $p < .05$.

TABLE 4
MEAN ATTITUDE CHANGE SCORES FOR
EVIDENCE X CREDIBILITY TREATMENT

Credibility Condition	Good	None	Irrelevant Good	Relevant Bad	Irrelevant Bad
Moderately High	-.08	1.30 _A	-.43	.27	-1.08 _A
Moderate	2.80 _{ABC}	-.50 _C	.42 _A	-2.05 _A	-1.08 _B

*Means in the same row with the same subscripts are significantly different $p < .05$.

produced significantly greater attitude change than any other condition. In addition, the condition including irrelevant evidence from credible sources produced significantly greater positive attitude change ($\bar{x} = .42$) than the condition including relevant evidence from non-credible sources ($\bar{x} = -2.05$). Hypotheses two and three were not confirmed since no other hypothesized differences achieved significance.

Credibility Change

The hypothesis concerning effects of evidence on credibility change received some support. Significant F -ratios ($p < .05$, d.f. 4/215) were recorded for both dimensions (Competence, $F = 12.36$; Character, $F = 7.91$). There were no significant effects observed for either initial credibility or the interaction of credibility and evidence. The pattern of the means was generally consistent with the hypothesis (with the exception of minor and non-significant reversals between good and no evidence on the Competence dimension and between no and irrelevant/good evidence on the Character dimension). Not all of the hypothesized differences achieved significance, however, as might have been expected, given the range of possible scores on the measures and the number of treatments in the study. Table 5 reports the means for all evidence conditions on the credibility dependent variables.

CONCLUSIONS

Subjects in this study apparently paid attention to the sources of evidence. When sources were good the message was perceived

TABLE 5
MEAN CREDIBILITY CHANGE SCORES
FOR EVIDENCE TREATMENTS*

Credibility Dimension	F	Evidence Treatments				
		Good	None	Irrelevant Good	Relevant Bad	Irrelevant Bad
Competence	12.36**	1.48 _A	1.76 _B	.33 _C	-1.09 _{AB}	-4.19 _{ABC}
Character	7.91**	1.30 _A	.78 _B	.81 _C	-.89 _{ABC}	-2.35 _{ABC}

*Means in the same row with the same subscripts are significantly different.

**Significant (d.f. 4/215, $p < .05$).

to be of higher quality than when the sources were poor. The same pattern was present in relation to the relevance of the evidence.

Previous research does not indicate the level of communicator credibility or the breaking point at which evidence becomes helpful. This experiment, using less extreme communicators, provides this information. The use of good evidence apparently does little to help a moderately high credibility communicator change attitudes, but aids a moderately credible communicator. There was a small but significant difference on initial credibility between the two communicators. The results of this experiment suggest, therefore, that a communicator with as little as one-half scale unit of credibility above the neutral point may not be aided by the use of evidence. On the other hand, a communicator with lower credibility may be aided by the use of good evidence. Identification of this breaking point, then, may be the most important finding of the study.

The results indicate further that it may not be necessary for most communicators to use good evidence to achieve desired effects, but that it is detrimental to both attitude change and credibility to use poor evidence. In the irrelevant/bad evidence condition both communicators produced negative attitude change. Both were also rated negatively on both credibility dimensions. This finding is of importance because it indicates that communicators should be concerned with the quality of the evidence they use, particularly in terms of the sources of the evidence. If com-

municators do not have time to research adequately the topic on which they are going to speak, they should use no evidence at all rather than use hastily researched, poor evidence.

Previous studies have been concerned primarily with whether or not good evidence would help a communicator. This study found an effect in an opposite situation; namely, that the use of bad evidence can be detrimental. Research in this area is almost non-existent. If this finding holds over different situations and different topics, it would contribute a valuable piece of information to our understanding of the role of evidence in persuasive communication. However, this area needs further study before we can make predictions with confidence concerning the probative effects of poor evidence.