

Testing the Persuasiveness of Evidence: Combining Narrative and Statistical Forms

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This study provides an experimental test for the conclusions of the Allen and Preiss (1997) meta-analysis that statistical evidence is more persuasive than narrative evidence. This investigation extends that finding to consider the case where a message combines statistical and narrative evidence to determine if a combination of evidence is more effective than a single form of support. This investigation using 15 messages and 1,270 participants finds that a message combining narrative and statistical evidence is more persuasive than a message using either narrative or statistical evidence alone.

Message senders are inundated with advice regarding the effectiveness of various approaches. One method receiving almost universal support is the use of evidence or supporting material to bolster a conclusion. Reinard (1988) conducted a review of the quantitative literature dealing with the effectiveness of evidence and concluded that evidence was effec-

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tive in changing the attitude of a message receiver. The Reinard review created a basis for the examination of the issues relating to the persuasiveness of evidence using meta-analysis (Allen & Preiss, 1997; O'Keefe, 1998; Reinard, 1998).

Many forms of evidence exist. An examination of any standard book on public speaking, persuasion, or argumentation provides a list or typology of various forms of support for the conclusion. Controversy surrounds the question of whether statistical or narrative evidence is more persuasive. Narrative evidence refers to the use of examples or stories to support a conclusion. An example of narrative evidence would be if a speaker, talking about the impact of drug use by high school students, provides the example of Joan earning straight A's in her classes until she started using crack cocaine. Within a year Joan was in jail for theft and prostitution with no future and a criminal record. The conclusion offered is that drugs destroy lives. The speaker offers a vivid example of the problem and argues that the example provides a basis for the accepting the conclusion offered. The story is told and represented as a narrative that should serve as evidence for the desirability of a conclusion.

Statistical evidence refers to the use of quantitative information to support a conclusion. In a presentation using statistical evidence, the speaker may point out that in a study involving 2,000 high school students in California, 90% of those high school students using drugs dropped a full grade point and 50% of crack users dropped out of school. The speaker argues that there exists a broad basis of support based empirical study that serves as the basis of a conclusion. The experience provided by the individual instances summarized by the use of a quantitative statistic demonstrates enough evidence to serve as a reasonable basis for the conclusion. The quantitative analysis generally does not describe individual cases. The assumption is that presenting data in a cumulative fashion provides support on the typicality and the universality of the claim and should provide a firm basis for the acceptability of the conclusion. The Allen and Preiss (1997) meta-analysis provides evidence that statistical evidence is more persuasive than narrative evidence (*average* $r = .074$, *var.* = .029, $k=16$, $N= 1836$).

There is, however, another possibility, that a combination of evidence (statistical and narrative) is more persuasive than either form of evidence alone. The previous investigations (summarized and detailed in Allen & Preiss, 1997) fail to demonstrate whether incorporating both forms of evidence would be even more effective. Kopfman, Smith, Yun, and Hodges (1998) recognize this lack of scientific evaluation in a study of organ donation messages. The current investigation intends to provide an empirical examination of this point, whether a combination of evidence is more persuasive than using only one form of evidence in a message. This question is important for understanding the most effective method of creating a persuasive message.

The practical implication of combining evidence is that current research treats the issue as though the use of evidence in a message requires a tradeoff, as if the use of one form precludes the use of another form of evidence. However, a communicator may combine forms of evidence and that such combinations would be more effective than the use of a single method of support. If the combination of evidence types present more effective methods of achieving attitude change, then the need to consider offering multiple forms of support exists.

The theoretical ordering of the persuasiveness of messages should be as follows: (a) least persuasive is a message without evidence, (b) a message using only narrative evidence to support a conclusion should be more persuasive than "message a", (c) a message using only statistical evidence to support a conclusion should be more persuasive than "message

b", and finally (d) the most persuasive message should be one that combines both statistical and narrative evidence.

METHOD

Participants

One thousand two hundred seventy undergraduates at a large public Midwestern university in a metropolitan area participated in this investigation. Participants, students in communication courses, received extra credit for participation in the investigation. The students were provided the questionnaires during an introductory communication class for return at a later date.

Messages

A total of 15 messages were created by graduate students in communication to serve as the stimuli for this investigation. The messages used a variety of topics (the validity of the Scholastic Aptitude Test, the use of cosmetics by women, etc.) A complete list of the topics and copies of the messages are available from the first author.

A total of four versions of each of the 15 messages were used in this investigation. Each message either contained or did not contain one of the two forms of evidence (statistical and/or narrative). The results were four messages: (a) a message using neither statistical or narrative evidence, (b) a message using narrative evidence but not containing statistical support, (c) a message not providing narrative proof but incorporating statistical evidence, and (d) a message utilizing both statistical and narrative evidence. The messages were written in a manner that the length of each message was about the same, regardless of the combination of evidence used.

Measures

After reading the message, participants filled out two scales assessing the credibility of the message sender and attitude toward the conclusion of the message. The scales were tested using a least squares approach to confirmatory factor analysis using theorems developed by Hunter (1980) as demonstrated in Levine and McCroskey (1990). The test of the measurement theory should produce nonsignificant chi-squares indicating that the hypothesized measurement model does not differ from the actual data to a significant degree. Table 1 contains the assessment of the reliability and factor structure of the credibility scale. The six items used for the credibility scale generated an acceptable reliability ($\alpha = .82$). The

TABLE 1
Measurement Assessment of the Credibility Scale

Item	Factor Loading
1. The writer knows this topic.	.62
2. The writer is sincere.	.59
3. The writer is believable.	.72
4. The writer is dishonest.	.59
5. The writer is trustworthy.	.54
6. The writing style is dynamic.	.40

Alpha reliability = .82

results for the internal consistency test, $\chi^2 (14, N = 1270) = 13.21, p > .05$ is nonsignificant indicating support for a single factor structure for the scale.

Table 2 provides an assessment of the measurement for the attitude scale items. An analysis of the attitude scale indicates high reliability ($\alpha = .93$). The structure of the inter-item correlations indicates a single factor structure. The results for the internal consistency test, $\chi^2 (9, N = 1270) = 6.30, p > .05$ is nonsignificant indicating support for a single factor structure for the scale.

TABLE 2
Measurement Assessment of the Attitude Scale

Item	Factor Loading
1. I accept the conclusion of this message.	.82
2. I agree with the writer's conclusion.	.87
3. I think the writer is wrong.	.78
4. My opinion is consistent with the writer's message.	.79
5. I believe the message conclusion.	.85

Alpha reliability = .93

Statistical Analysis

The hypothesized model was tested using an effects coded procedure for analysis of variance. Using SPSS, an effects coded procedure creates a series of contrasts for each cell of the design that specifies the order of the means for each cell. The statistical test, using the ONEWAY procedure, tests the significance of the effect for the model using a t-test (since t is the special case where the df in the numerator is one and in such a case $t = F^2$). The order specified the theoretical ordering of the means previously forecast. This analysis was conducted separately for each dependent variable (attitude and credibility).

RESULTS

The analysis indicates that the combination of statistical and narrative evidence is most persuasive and confirms the theoretical ordering of means ($t_{(1268)} = 2.90, p < .05$). The message using combined forms of evidence ($M = 17.91, sd = 5.16$) was more persuasive than a message using only statistical evidence ($M = 17.58, sd = 5.21$) followed by narrative evidence ($M = 17.32, sd = 4.99$). Least persuasive was the message without evidence ($M = 17.22, sd = 5.11$). This confirms the theoretical pattern of the persuasiveness of evidence. If one takes the four means and the associated test as a linear model, the correlation is .081, when compared with the value in the Allen & Preiss (1997) meta-analysis of .074 indicates a consistent pattern.

This analysis fails to support that the communicator using a combination of narrative and statistical evidence was viewed as more credible than any other condition ($t_{(1268)} = 0.23, p = .66$). No condition was evaluated as more credible than any other condition. This finding indicates that the inclusion of evidence (or a combination evidence) was not judged to impact the evaluation of communicator credibility.

DISCUSSION

The results confirm the outcome of the previous meta-analysis (Allen & Preiss, 1997) that suggests that statistical evidence is more persuasive than narrative evidence. This finding extends the analysis in important theoretical ways by suggesting that a combination

of evidence improves effectiveness for any message and that using no evidence is least persuasive. The results support a practical recommendation that a persuader can maximize attitude change in message receivers by using a combination of narrative and statistical evidence.

One issue still unresolved in the literature is the nature of cognitive processing that persons use that explains the findings. The conclusion is that statistical evidence is more persuasive than narrative proof but that the forms when combined are more effective. However, the conclusion offers little in the manner of explanation or understanding about why the particular effects are generated. Kopfman, et. al. (1998) provides evidence about the issues of affective response to forms of evidence as well as the cognitive response (measured in terms of number and valence of thoughts provoked by a message). The impact of this cognitive response is consistent with message sidedness research by Hale, Mongeau, and Thomas (1991) that indicates a larger number of positive thoughts are predictive of the level of persuasiveness of the message.

The larger issue, still unresolved, is how support or proof works in conjunction with argument and message design to produce various effects. Evidence functions within a message to provide support for a claim; the need to understand the nature of connection between claim and proof (which in the Toulmin model is referred to as "warrant") remains underdeveloped and unclear. The current gap in the existing research involves the issues of how to generate an understanding of the process of evidence and persuasion in general. Evidence functions as support, but how support or proof offered for a claim is evaluated by the receiver of a message remains unknown.

Possible issues such as the theoretical context of this function and methods of describing evidence (vividness, completeness, etc.,) become important. Research focusing on the underlying qualities or analysis that examines what evidence does in the mind of the message receiver offers some substantial methods of improving the understanding of why such effects occur. For example, whether there exists a sequencing of evidence that is more effective can be investigated. Should narrative evidence precede or follow a presentation of statistical evidence? Knowing that a message becomes more effective when combining evidentiary forms is useful. A complete understanding of this process requires more detailed and complete theoretical investigation.

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