Short communication

Short-term and long-term effects of a public relations campaign on semantic networks of newspaper content: Priming or framing?

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A B S T R A C T

This naturalistic pre-test/post-test field experiment studied a university public relations campaign, the "Great Cities Initiative," for evidence of priming or framing effects on newspaper reporters and editors. The phrase "great cities" in the *Chicago Tribune* increased 433% during the 16-month post-test, but only 26% of stories identified the campaign source. Several measures of semantic network diversity increased, also supporting priming over framing effects.

1. Problem

Most scholarships on communication campaigns examine media coverage effects on audiences; less is known about campaign effects on the media. This research examines the effects of a public relations campaign on news content and investigates whether priming or framing effects are supported.

Framing is defined as the extent to which news stories are contextualized, including the reasoning, metaphors, or image characterization of actors or issues in the original public relations message. It produces a commonality of semantic associations between the public relations messages and the media messages. The strongest form of framing is commonality across multiple media outlets. In contrast, a primer triggers a spreading activation of diverse associations in the semantic networks of media recipients and results in news coverage that is less often directly related to the campaign content. It less frequently acknowledges the campaign source.

2. Method

This is a quasi-experimental interrupted time-series field study in the Chicago media market 16 months before and 16 months after a campaign launch (December 3, 1993) along with a continuing time-series tracking throughout a 12-year follow-up period to see if there are associated changes in the semantic structure of *Chicago Tribune* news stories and what kinds of changes these may be.

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The pre-test and post-test text files comprised of news stories containing the key phrase were run through the author's network-based content analysis program, WordLink, to identify all word co-occurrences, and these were input to the network analysis program, Negopy, to compute structural indices. In WordLink, no drop list of words was used, no stemming was performed, and all frequencies of words were used, from one on up. A word window of 7 words on either side of each word was used to identify word pairs occurring within the window.

3. Results

There were 29 "great cities" stories in the pre-test period and 52 in the post-test, for a total increase in number of stories of 73%. To examine possible framing effects the stories specifically mentioning the university name and "great cities" were analyzed over time to see if there was a reduction in semantic variety within these stories. The semantic priming explanation was tested by examining all captured stories to see if there was an increase in semantic variety associated with "great cities" outside the context of the campaign.

There were 12 stories explicitly linking the university name and "great cities" in the 16-month period following the start of the campaign. Use of the phrase "great cities" in any stories increased from 15 times in the prior 16 months to 65 times in the following 16 months, a 433% increase. In the latter period, only 17 of the occurrences (26%) were in stories mentioning the university name. Subtracting these 17 from the total of 65, indicates that use of the phrase "great cities" outside the context of the university's campaign went from 15 times up to 48 times, a nearly threefold increase of 320%.

Semantic diversity of the phrase "great cities" also increased. There were 322 unique words in the pre-test period and 592 (+183%) in the post-period. As well, the standard deviation of word co-occurrence frequencies increased from 3.1 to 4.56 (+147%). Each of the percentages differences is statistically significant at $p < .05$ using the Z-test for proportions. Taken together, these observations indicate that the university campaign was associated with an expansion of semantic discrimination, evidence of priming.

Furthermore, semantic integration was indexed by the degree of interlocking or connectivity among words as measured by the proportion of completed triangles among word nodes. This was .004 in the pre-test and .002 in the post-test. This indicates that semantic integration declined by 50%. In other words, semantic diversity doubled for the associations of "great cities" to other words, another indicator of semantic priming effects.

It is valuable to rule out the rival explanation that changes in the use of "great cities" may have been due to broader nationwide trends across other markets and therefore unrelated to the "Great Cities Initiative." Perhaps university public relations strategists foresaw a coming future wave of "great cities" discourse in large media markets and mounted a campaign at the right time that "rode this wave."

One way to rule out this rival explanation would be to examine the key phrase in other media markets of similar size during the same period. New York and Los Angeles would be suitable comparison markets. The *Los Angles Times* (at the time unaffiliated with the *Chicago Tribune*) served as a naturalistic control. The *New York Times* was not available electronically to the researchers at the time of initial data collection.

In the pre-campaign launch period there were 36 uses of the phrase "great cities" in the *Los Angeles Times*, while in the post-launch period there were 6. This is the opposite trend observed in the *Chicago Tribune*. Given the Los Angeles results, there is support for the notion that something significant happened in Chicago about "great cities" that may have been associated with the public relations campaign.

To examine longer term changes in priming effects, a series of 16-month periods from the primary post-test period forward until February 14, 2007 was analyzed for the number of stories containing "great cities." A major spike occurred between March 31, 1999 and August 1, 2000, which was due to a year-long series in the *Chicago Tribune* called "Great Cities" that featured Chicago in relation to other great cities of the world. If you eliminate this spike and examine the slope of the line it appears that the initial increase in "great cities" use during the immediate post-campaign launch period continued to rise through 32 months after the launch, after which the trend is downward. The university continued its communication about the "Great Cities Initiative" throughout this period and continues to do so.

4. Discussion

This study examined evidence for a framing versus a priming effect of public relations activities on newspaper coverage. It found support for priming effects of a university public relations campaign in stories in the *Chicago Tribune*. Framing effects were not supported.

On the one hand, the semantic elaboration seen in priming effects may dilute the coherence and impact of the university's initiative. The key phrase "great cities" has become less common in meaning as defined by usage among the *Tribune's* reporters and editors and perhaps among their audiences. In other words, the phrase has become more semantically fuzzy.

On the other hand, this semantic elaboration may provide background support for the campaign. Although the university name becomes less connected to the key phrase, there may be a two-step semantic effect when considering the audience. With more and diverse use of the key phrase in newspaper articles, the readers and their social networks may be more sensitized to the "great cities" phrase. Later, they may encounter additional information directly disseminated to them by the university, rather than through media intermediaries. Because of the heightened background salience of the key phrase, "great cities," when encountering the direct communication they may perceive the university's program as more credible,

timely, and innovative. This would be an indirect semantic framing effect at the audience level based on a semantic priming effect at the media level.

5. Conclusion

This study was a long-term, naturalistic, pre-test, post-test, quasi-field experiment that examined evidence for two competing theories about the effects of a communication campaign on the semantic networks within news story content: framing and priming. After the launch of the "Great Cities Initiative" public relations campaign, the use of the phrase "great cities" nearly tripled in frequency. This increase was not, however, strongly tied to the campaign. Rather, the phrase "great cities" became more widely used in a variety of contexts. This suggests that some public relations campaigns may prime semantic associations among reporters and editors, even though framing effects were intended. When priming rather than framing has occurred, practitioners can take advantage of these effects as they focus-framing attempts directly on target publics, bypassing the media organizations. Empirical evidence of the effectiveness of these applications is an important topic for future research. (The complete study can be requested from the author.)

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