The Relative Effectiveness of Inoculation, Bolstering, and Combined Approaches in Crisis Communication

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The purpose of this study was to determine whether inoculation, a strategy designed to reinforce the public’s original (positive) attitudes toward an organization, thereby protecting existing attitudes against change, may provide an alternative proactive strategy in crisis situations. Analysis of data from college students in Taiwan (n = 367) revealed that both supportive and inoculation approaches induced resistance to erosion of public attitudes stemming from a crisis. The results, thus, suggest an alternative, proactive approach in crisis communication.

INOCULATION—A PROMISING PROACTIVE APPROACH IN CRISIS COMMUNICATION

Crisis communication has been one of the major foci of crisis management literature. Numerous studies have been devoted to examining various crisis response strategies given the nature of crisis types and crisis situations (Allen & Caillouet, 1994; Burnett, 1998; Coombs, 1999; Egelhoff & Sen, 1992; Hearlt, 1994; Ice, 1991; Kauffman, 2000, 2001; Kernisky, 1997; Martinelli & Briggs, 1998; Sen & Egelhoff, 1991; Sturges, 1994; Williams & Olaniran, 1998). The majority of the crisis communication research has centered on postcrisis communication skills. To note a few examples, Benoit’s image restoration discourse (Benoit, 1995, 1997), Coombs’s sym-

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bolic approach (Coombs, 1995, 1998; Coombs & Holladay, 1996, 2001), and many case studies (e.g., Brinson & Benoit, 1996; Hearit, 1994, 1996; Kauffman, 1997; Williams & Olaniran, 1994) have offered insightful viewpoints of how corporations may save their images or lessen the damages after crises have occurred.

Proactive strategies have received much attention in crisis communication recently. Scholars increasingly accept the view that a proactive strategy, one that focuses on preventing crises from occurring in the first place, is the optimal approach to crisis communication.

Contemporary research in crisis communication has mainly identified two elements in a proactive strategy: issues management and reputation management. Issues management requires that public relations practitioners seek potential problems and then generate appropriate plans to monitor and prevent those problems from developing (Heath, 1997; Herrero & Pratt, 1996). Reputation management, on the other hand, emphasizes establishing positive communication relationships with publics as a base of good will that can lessen the damage to an organization's reputation that typically accompanies a crisis (Hutton, Goodman, Alexander, & Genest, 2001; Ulmer, 2001).

Whereas most reactive crisis communication strategies focus on apologia rhetoric, a proactive approach seems to emphasize relationship management (e.g., Kernisky, 1997; Ulmer, 2001). Almost no research in the field has explored the possibility of using communication proactively in coping with potential crises. This study attempts to fill the gap in the literature by examining the viability of using inoculation as an alternative proactive crisis communication strategy. Inoculation is a theory developed to prevent attitude against change by initially exposing receivers to a counterattitudinal attack and then providing rebuttals to the attack. Such a strategy was often demonstrated to be superior to the supportive approach in the resistance literature in combating counterattitudinal or attack communication. The supportive treatment, which is similar to the bolstering strategy used in crisis management, was designed to provide positive arguments to reinforce individuals' original positive attitudes toward a certain target to prevent slippage. If inoculation is superior to the supportive treatment in preventing attitude from slippage, it would open a potentially promising line of thinking for both crisis communication researchers and public relations practitioners in managing crises proactively.

The Superiority of Inoculation to Supportive Defenses in Resistance

Inoculation, as noted earlier, is another strategy for maintaining existing attitudes and, thus, preventing attitudinal slippage. However, unlike the supportive approach, which entails only positive arguments to reinforce original attitudes, inoculation involves raising challenges to existing attitudes and then preemptively refuting count-
arguments raised in the defense message. Many inoculation studies have revealed that refutational treatments are superior to supportive alternatives in conferring resistance to persuasive influence (Anderson & McGuire, 1965; Crane, 1962; McGuire, 1961a, 1962, 1966; McGuire & Papageorgis, 1961, 1962; Papageorgis & McGuire, 1961; Suedfeld & Borrie, 1978; Tannenbaum, Macaulay, & Norris, 1966; Tannenbaum & Norris, 1965). The reason is that supportive treatments contain only bolstering material, which can leave people overconfident (given their attitudes are positive) and thus vulnerable to subsequent attack. Refutational treatments, on the other hand, first raise potential challenges to people’s original attitudes and then provide preemptive rebuttals to those challenges. Experiencing such a process may threaten individuals’ attitudinal disposition. As a result, such a threat triggers individuals’ motivation to bolster their existing attitudes toward the target, thereby conferring resistance to influential attacks.

As mentioned before, supportive treatments in inoculation function in much the same manner as the traditional bolstering approach in crisis management. Benoit’s (1995) image restoration discourse suggests that organizations seek to reidentify themselves with values that are viewed favorably by the audience as strategies to lessen damages when crises occurred. Coombs and Holladay (1996, 2001; see also Coombs, 1995, 1998) also found that a positive organization-stakeholder relationship and organizations’ past good performances help to reduce publics’ negative perception toward the company in the event of a crisis. The supportive treatments, when viewed in a crisis communication context, would entail mentioning only the good deeds of a company in order to reinforce positive perception toward the firm. However, the fact that people are constantly receiving compliments about an organization could mean that they would be in a total shock when learning something bad happened to the organization. Because they do not expect such a good company would have done something wrong, they are certainly not prepared to defend for it. Consequently, the public can be vulnerable to assaults accompanying any unexpected mishap. Inoculation, by contrast, seeks to strengthen individuals’ positive attitudes by offering them opportunities to “practice” defending existing attitudinal disposition. If people are trained and thus well prepared to protect their attitudes against change, they will be much stronger in holding their original position when encountering any attack because such a resistance to counterattitudinal influence is self-motivated. This is the main reason inoculation has been found superior to the supportive approach to combat counterattitudinal assaults in the literature: because self-motivated resistance is much more likely to persist. However, inoculation has never been applied, either in research or practice, to the context of crisis communication. Given the similarity between the bolstering approach in crisis management and the supportive treatments in the resistance literature, and given the superiority of inoculation to the supportive alternatives in fostering resistance to influence, it is worth exploring whether inoculation is able to diminish an organization’s vulnerability to negative coverage in the event of a crisis.
THE REFUTATIONAL "INOCULATION" ALTERNATIVE

Origin and the Basic Construct of Inoculation

The theoretical construct of inoculation was developed by social psychologist William McGuire, who was concerned about "the disconcerting vulnerability of people's convictions in forced exposure situations ... [and in particular] the political indoctrination of captive audiences" (McGuire & Papageorgis, 1961, p. 327). The formulation of inoculation theory relied on a biological analogy. In the biological situation, people typically become resistant to some attacking virus by pre-exposure to a weakened dose of the virus. This mild dose stimulates the individuals' defenses so that they will be better able to overcome any more massive attack later, but is not so strong as to cause the disease.

In determining the appropriateness of this analogy, McGuire chose to deal with beliefs that had been maintained in a "germ-free" ideological environment, that is, beliefs that the person had seldom, if ever, heard attacked. This is analogous to the idea that a vaccine works for people who have never been exposed to the virus. As a result, the early applications of inoculation theory were limited to what McGuire termed "cultural truisms," ideas uncontaminated by counterarguments. Subsequent research extended the notion of inoculation to issues other than cultural truisms, the results revealing that it also seemed to have the desired effect when applied to controversial issues (Adams & Beatty, 1977; Anatol & Mandel, 1972; Burgoon et al., 1976; Burgoon & Chase, 1973; Burgoon, Cohen, Miller, & Montgomery, 1978; Burgoon & King, 1974; Cronen & LaFleur, 1977; Hunt 1973; McCroskey, 1970; McCroskey, Young, & Scott, 1972; Miller & Burgoon, 1979; Sawyer, 1973; Szybillo & Heslin, 1973; Ullman & Bodaken, 1975).

Theoretical Approach of Inoculation

According to McGuire (1964),

inoculation theory assumes that pretreatments designed to render attitudes resistant to subsequent persuasive attacks will be effective to the extent that they overcome two difficulties: that the receiver is unpracticed in defending his/her belief and that he/she is unmotivated to undertake the necessary practice. The receiver is unpracticed because he/she has never been called upon to defend the attitude. The receiver is unmotivated to start practicing because he/she regards the belief as unassailable. (p. 201)

Thus, inoculation treatments work not only because they provide opportunities and resources for believers to practice defending their beliefs, but also because they serve to "stimulate" receivers' motivation to defend their own beliefs. Given such an assumption, "inoculation posits that refutational pretreatments, which in-
troduce potential challenges to a receiver's attitude while simultaneously providing refutation of those challenges in the presence of a supporting environment, threaten the receiver" (Pfau, 1997, p. 137). Hence, it is the threat that triggers the receiver's motivation to bolster attitudes, thereby conferring resistance to subsequent counterarguments (Papageorgis & McGuire, 1961).

The threat component, which has been operationalized as a warning of impending and potentially persuasive attacks (Pfau & Burgoon, 1988)—a forewarning of an impending challenge to existing attitudes (Pfau, in press)—is the most distinguishing feature of inoculation (Pfau, 1997). The other component of inoculation, refutational preemption, involves the process of raising, and then answering, one or more specific challenges to existing attitudes. Threat and refutational preemption work in tandem (Pfau, 1997); however, threat is the more critical of the two elements because threat triggers people's motivation to defend their beliefs. "Once motivated, receivers strive to strengthen their attitudes, using the content provided through refutational preemption as well as other material" (Pfau, 1997, p. 137). Threat is what makes inoculation so useful.

According to Pfau and Kenski (1990), "If the construct were limited to preemptive refutation, it would afford limited utility since communicators would need to prepare specific preemptive messages corresponding to each and every anticipated attack" (p. 75). However, as Pfau (1997) pointed out, "by motivating receivers, and then preemptively refuting one or more potential counterarguments, inoculation spreads a broad blanket of protection both against specific counterarguments raised in refutational preemption and against those counterarguments not raised" (p. 137).

Consequently, threat not only makes the refutational defense more effective than the supportive defense in conferring resistance but also broadens the function of refutational preemption as it saves communicators' energy for preparing specific preemptive messages corresponding to each anticipated attack.

Refutational Same Treatment Versus Refutational Different Treatment

Inoculation protects against same counterarguments as well as the novel counterarguments those receivers cannot anticipate in later attack (Pfau, 1997). Thus, refutational pretreatments can be constructed as either refutational-same or different (Pfau et al., 1997a). Refutational-same pretreatments contain the very specific counterarguments refuted in the messages that can be anticipated in later real attacks. In other words, receivers who are exposed to refutational-same treatments will see the same counterarguments in subsequent attack messages as those seen in the treatments. Refutational-different messages, on the other hand, are generic in nature. The counterarguments refuted in refutational-different messages, therefore, do not serve as a "model" for receivers to refute the counterarguments that they will encounter later in the attack message.
The Effectiveness of Supportive and Refutational Defense in Conferring Resistance to Influence

In the resistance literature, the supportive approach and inoculation are both designed to strengthen existing attitude, thus preventing attitude slippage when encountering persuasive attacks. Because previous studies have revealed that both approaches work in instilling resistance to influence when compared to doing nothing to protect attitude from slippage, the first hypothesis thus predicts that:

H1: Both supportive and inoculation treatments work in conferring resistance to negative postcrisis attitudes in the event of a crisis.

In addition, the early research on inoculation compared the efficacy of a supportive (reinforcement) versus a refutational (inoculation) approach to resistance, and many inoculation studies have demonstrated the superiority of inoculation to supportive treatments (Anderson & McGuire, 1965; Crane, 1962; McGuire, 1961a, 1962, 1966; McGuire & Papageorgis, 1961, 1962; Papageorgis & McGuire, 1961; Suedfeld & Borrie, 1978; Tannenbaum et al. 1966; Tannenbaum & Norris, 1965). The reason is that the supportive defense is nonthreatening; it consists of giving the receivers various arguments in support of their existing attitudes toward certain targets. According to McGuire (1961a), supportive defenses tend to leave receivers overconfident of their belief’s invulnerability. Hence, receivers regard the supportive defense as belaboring the obvious and are little motivated to utilize it seriously. Wyer (1974) also asserted that supportive defenses do not directly pertain to arguments against the proposition to be attacked, and thus the information they provide should minimally affect the ability to refute these arguments.

In contrast, the refutational defense is more threatening. Instead of positively supporting receivers’ beliefs, it mentions arguments that attack beliefs and, hence, attitudes and then proceeds to refute them. The preparation of refutational defenses undoubtedly provides more practice in counterarguing than does the preparation of supportive defenses and thus should lead to an increase in receiver-generated counterarguments when exposed to those in an attacking persuasive message. As a result, refutational defenses should be more effective than are supportive defenses.

McGuire and Papageorgis’ (1961) findings support the prediction that refutational defenses are superior to supportive alternatives in strengthening receivers’ resistance to attack messages. In addition, Anderson and McGuire (1965) found that the refutational-same defense is the most effective in conferring resistance, followed by the refutational-different and supportive defenses. Moreover, a number of other studies comparing the effectiveness of the supportive versus refutational approaches have demonstrated that the refutational defense is more effective in promoting resistance (Crane, 1962; McGuire, 1966; Papageorgis & McGuire, 1961; Suedfeld & Borrie, 1978).
Following this reasoning and empirical evidence, it is assumed that the same process (that the refutational defenses are better than supportive approaches in strengthening resistance) is applicable to a crisis communication situation. Because a supportive defense stresses only the positive side of the corporation, it may leave people overconfident with the company (given that their original attitude toward the corporation is positive). Thus, when a crisis occurs involving the company, people may be shocked because they are not prepared to accept that the company could be faced with such an emergency. As a result, they may lose confidence in the corporation and, thus, become vulnerable to the negative coverage of the corporation that accompanies the crisis. In contrast, a refutational approach works by laying out potential attacks toward the corporation even before a crisis occurs and then providing rebuttals to those attacks. In so doing, the public is aware in advance that occasionally things may go wrong. Acknowledging such a potential weakness of the organization may stimulate individuals’ motivation to bolster their original attitudes toward the organization (given that they have a positive attitude toward it in the first place). In addition, the preemptive refutation in the inoculation message not only assures publics that the organization is well prepared to cope with crises but also provides publics with opportunities to practice safeguarding their existing attitudes. As a result, people who have been inoculated are able to generate counterarguments to those potential challenges, which is one key process for people to resist the subsequent attack messages. This is like the proactive approach in public relations that helps publics to be prepared in advance in the event of a crisis. Thus, the second hypothesis posited that:

H2: The refutational approach is superior to the supportive approach in conferring resistance to negative postcrisis attitudes in the event of a crisis.

In addition, some of these same studies have indicated that the use of both approaches in tandem is superior to the use of either one alone (McGuire, 1961a, 1961b, 1962; Tannenbaum & Norris, 1965). The reason, according to McGuire, is that after receivers’ exposure to the refutational preemption, they generally need supportive arguments to back up their belief and, hence, maintain existing positive attitudes. The supportive approach, which entails the use of bolstering materials only, thus provides the information that receivers need to strengthen their beliefs, and, hence, reinforce their attitudes. Although Tannenbaum et al. (1966) failed to find a concept-boost effect in their study, they mentioned that in an additional study, participants’ belief was indeed strengthened after the boost message (p. 236). As a result, following the previous findings, the third hypothesis predicted that:

H3: The combination of both supportive and refutational approaches is superior to either one alone in conferring resistance to negative postcrisis attitudes in the event of a crisis.
Because the refutational defense contains the strategy that involves exposing the weaknesses of an organization, and then provides rebuttals against the threats they seem to pose, the seeming "Achilles’ heel" could be problematic in the public view. Although previous inoculation research has revealed that a refutational defense is effective in conferring resistance when attacked, what if there is no such attack? Applying this notion to a crisis situation occurring to a company, there exists the same doubt. Will an organization, by adopting a refutational preemption approach, thereby necessarily acknowledging its vulnerability, damage its image in the event that no crisis occurs?

Pfau, Kenski, Nitz, and Sorenson (1990), in testing inoculation effect in a political campaign, pointed out that "since inoculation requires candidates to raise their vulnerabilities in advance of an opponent’s attack, if an attack does not occur, the strategy could undermine the candidate’s standing. This is a potential danger, but only if an opponent initiates no attacks during a campaign" (p. 41). Despite these possibilities, the study indicated that inoculation was superior to post hoc refutation among strong political party identifiers, as well as nonidentifiers, in deflecting attack messages. Such an outcome suggests that the use of inoculation involving a potential vulnerability simultaneously provides a blanket of protection against opponents’ attacks that target other vulnerabilities.

A corporate crisis is similar to opponents’ attacks on a candidate in election campaigns to the extent that they are both unpredictable. However, it is unlikely that a candidate would escape the campaign without being attacked, especially given the widespread use of attack messages in contemporary election campaigns. Thus, the likelihood a candidate would be “harmed” by the inoculation strategy because it raises the candidate’s vulnerabilities is minimal. This is not necessarily the same in a corporate crisis context. There might be no crisis if a corporation is always careful and conducts strict self-examinations. Therefore, it is important to acknowledge the potential danger/impact of employing a refutational approach in the event that no crisis actually occurs. Hence, the following research question is posed:

**RQ1:** How do refutational and supportive approaches compare when there is no crisis?

**METHOD**

An experiment was conducted to test the proposed hypotheses and help answer the research question. Because crises are unpredictable, it would be difficult to wait for an actual crisis to happen in order to conduct the study. As a result, the study involved a hypothetical scenario in which most participants were exposed to a fictitious news story type of crisis message in Phase 3—which functions similar to the
"attack" in inoculation research. The hypothetical crisis situation was a gas explosion in one of the refinery plants of the Chinese Petroleum Corporation (CPC) located in Tao-Yuan that occurred when workers were cutting a pipeline. Five people were killed and 23 injured in the gas explosion.

The CPC was chosen because of its name recognition (it's the second largest station-owned enterprise in Taiwan) and its accessibility. The big corporation experienced a series of accidents in 1996 and 1997 but has worked hard to restore its image. Oil leaks and gas explosions were the most frequent crises that the CPC encountered in 1996 and 1997; these crises attracted public attention nationwide. For this study, a "gas explosion" served as the hypothetical crisis scenario because such an accident often results in the death of innocent people and, therefore, is more serious than oil leaks in terms of public safety.

In an effort to determine whether there is a downside to inoculation, this study also assessed the impact of inoculation treatments on people's attitudes toward the target company when there is no crisis. Hence, there was a group of participants who went through the same procedure as others in the study and were exposed to the same message treatments (i.e., supportive, refutational-same, refutational-different, and supportive-plus-refutational defenses), but were assigned to a normal/noncrisis scenario.

Participants

Eight classes of students from five universities participated in the study. These students were mostly freshmen or sophomore communications students from National Cheng-Chi University, Catholic Fu-Jen University, Shih-Hsin University, Chinese Culture University, and Ming-Chuan University. All participants were randomly assigned to the experimental conditions in this study. Initially, 463 students participated; however, as attrition occurred in each phase, only 367 remained by the last phase of the study.

Design

This study employed a multivariate analysis of covariance (MANCOVA) statistical design. The primary independent variable, experimental condition, had six categories: supportive messages, inoculation (including refutational-same and refutational-different) messages, the combination of supportive and inoculation messages (including supportive plus refutational-same and supportive plus refutational-different messages), and control. A second independent variable, crisis scenarios, included crisis and noncrisis situations. Crisis scenarios were featured in specific analyses. The third independent variable was participants' initial attitude toward the target company—the CPC (attitude valence). Attitude valence was trichotomized as negative, neutral, and positive. In addition, participants' in-
volvement with the CPC, their living locality, media use, and gender were treated as covariates in the omnibus tests.

Procedure

This study occurred in three phases held over 4 weeks. One class of participants started the first phase on September 23, 1999 and finished the final phase on October 14, 1999. All other participants started the first phase during the first week of October, 1999 and concluded the final phase during the last week of the same month. The inconsistency of the study’s time frame was a result of the request by the lecturer of the class.

Participants’ attitudes toward, and involvement with, the CPC were assessed in Phase 1. Participants’ involvement with the corporation served mainly as a gauge of whether the CPC mattered to the participants. In addition, participants provided data concerning their involvement with environmental issues, their perception of the credibility of the CPC’s spokesperson, their behavioral disposition, their media use, and social demographics during this phase.

Following Phase 1, the researchers analyzed the preliminary data for the participants’ attitude toward, and involvement with, the corporation, and on the basis of the results, assigned them to conditions. Assignment was random but took into consideration having balance with regard to attitude toward, and involvement with, the corporation among different conditions and between different scenarios (crisis vs. noncrisis).

One week after Phase 1, the participants completed Phase 2, which featured the administration of experimental materials. In Phase 2, the participants (except for those in the control group) were exposed to supportive, refutational-same, refutational-different, or combination of supportive and refutational treatment messages. Control participants received no messages. Moreover, because threat is a crucial component of inoculation treatment, threat was measured in this phase in order to determine whether participants felt a threat to attitudinal integrity.

Phase 3 was the crisis condition, which provided the functional equivalent to the “attack” in inoculation studies because a crisis often brings the target organization a great deal of negative media coverage and blame and anger from publics. Phase 3 was conducted 2 weeks after Phase 2. Previous studies found that a time lag between 2–7 days would enhance the inoculation effect in resisting attack (Manis, 1965; McGuire, 1962). In the present study, a two-week time lag was chosen in order to test if inoculation can persist even longer. During Phase 3, participants who were assigned to the crisis condition received the crisis message, which contained the hypothetical crisis and negative coverage toward the company under siege. Those in the noncrisis condition received no message. In addition, measurement was taken on participants’ postcrisis attitudes toward the corporation, their perception of the credibility of the CPC’s spokesperson, and behavioral disposition.
Independent Variables

_Crisis scenario._ Crisis/noncrisis was one of the independent variables in this study. The crisis condition was operationalized by exposing the participants to a hypothetical situation in which a gas explosion occurred when workers were cutting a pipeline at one of the refinery factories of the CPC located in Tao-Yuan. In the crisis scenario, 5 people died and 23 were injured. In the noncrisis condition, participants had no stimulus material.

_Experimental condition._ Supportive treatment messages included positive evidence (e.g., the positive image of the corporation in the past) to bolster respondents’ perceptions of and attitudes toward the company. For example, participants were told that the CPC’s employees had volunteered to take part in community services. The refutational treatments consisted of raising the possibility of the company’s vulnerability to crises, and then providing rebuttals. The company’s vulnerability to crises raised in the inoculation treatments focused on the accidents that the CPC had in 1996 and 1997. The rebuttals contained facts and statistical evidence demonstrating that the CPC had improved its safety monitoring system and was now well prepared for potential accidents.

The refutational-same inoculation treatment refuted the very arguments that were used in the subsequent crisis message, whereas the refutational-different message refuted arguments different from the ones used in the crisis message. In other words, participants who were exposed to the refutational-same message read the same attack arguments as they would read later when exposed to the crisis message. Yet the refutational-same message contained rebuttals to those attack arguments. In the refutational-different message, however, participants were exposed to attack arguments different from the ones they would read later in the crisis message. The combination of supportive and refutational treatment adopted both approaches, with the first half using evidence to praise the organization and the second half providing attacks and rebuttals.

Because inoculation theory maintains that threat triggers receivers’ motivation to bolster existing attitudes, thus making them resistant to subsequent attacks, the first paragraph of each of the inoculation pretreatment messages was designed to threaten receivers. Threat was operationalized as a warning of impending vulnerability of the company to a crisis. Nevertheless, because crisis is almost unforeseeable to any company, merely warning of impending vulnerability to a crisis is not likely to trigger threat. Hence, in this study, threat was operationalized by mentioning that the media always tend to exaggerate the negative aspects of a corporation under siege and seldom mention the good efforts of the company because they are not considered as “newsworthy.” The way that media professionals frame news may result in ignorance of the effort that the corporation has made to resolve the problem and thus may distort perceptions of the company. Because perceptions of the CPC may be distorted by media’s negative coverage, this phenomenon could
be a threat to people who have a positive attitude toward the CPC. It would seem that their position toward the company has been seriously challenged by the media, and thus, the mainstream public opinion.

In addition, the crisis message in this study (which is fundamentally the equivalent of an inoculation attack) contained a hypothetical crisis that happened to the CPC and negative reaction and blame toward the company under siege.

**Message equivalence.** Because language and other message variables can affect the outcome of a message (Burgoon et al., 1978), this study employed an index of contingency for the evaluation of readability of sentences to assure consistency in writing style and readability of the inoculation treatments and the crisis message. The index of contingency was developed by Becker, Bavelas, and Braden (1961). Special attention was paid to the total length, average paragraph length, and nouns of the inoculation messages and their corresponding crisis messages.

The index was measured by calculating the number of nouns and total number of words in order to assess the comprehensibility of messages. A low index value would represent a low frequency of occurrence of concept words, which renders a message more difficult to understand. A high index value, on the other hand, would indicate that concept words are repeated often, which makes a message easy to understand (Becker et al., 1961). As Table 1 illustrates, the similarity of index values across different messages suggests equivalency in readability among the messages. The inoculation treatment messages in this study consisted of 1,032 and 1,030 words, respectively, and the contingency indices ranged from 1.00 to 1.36, which suggests equivalence (see Table 2). However, because all messages were written in Chinese, the relatively low value of the contingency indices was due to the language differences.

**Manipulation checks.** Threat is one of the major components of inoculation. Therefore, a manipulation check was employed to confirm that inoculated individuals did indeed experience a higher level of threat than did control group participants.

<table>
<thead>
<tr>
<th>Message Treatments</th>
<th>Total Words</th>
<th>Total Number of Nouns</th>
<th>Total Number of Repeated Nouns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive</td>
<td>1,033</td>
<td>145</td>
<td>19</td>
</tr>
<tr>
<td>Refutational-same</td>
<td>1,032</td>
<td>143</td>
<td>23</td>
</tr>
<tr>
<td>Refutational-different</td>
<td>1,030</td>
<td>138</td>
<td>21</td>
</tr>
<tr>
<td>Combination-same</td>
<td>1,163</td>
<td>178</td>
<td>26</td>
</tr>
<tr>
<td>Combination-different</td>
<td>1,167</td>
<td>175</td>
<td>23</td>
</tr>
<tr>
<td>Crisis message</td>
<td>1,031</td>
<td>134</td>
<td>18</td>
</tr>
</tbody>
</table>

**TABLE 1**
Contingency Table
TABLE 2

<table>
<thead>
<tr>
<th>Message Treatments</th>
<th>O%</th>
<th>C%</th>
<th>Ip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive</td>
<td>.13</td>
<td>.12</td>
<td>1.08</td>
</tr>
<tr>
<td>Refutational-same</td>
<td>.16</td>
<td>.12</td>
<td>1.33</td>
</tr>
<tr>
<td>Refutational-different</td>
<td>.15</td>
<td>.11</td>
<td>1.36</td>
</tr>
<tr>
<td>Combination-same</td>
<td>.15</td>
<td>.13</td>
<td>1.15</td>
</tr>
<tr>
<td>Combination-different</td>
<td>.13</td>
<td>.13</td>
<td>1.00</td>
</tr>
<tr>
<td>Crisis message</td>
<td>.13</td>
<td>.11</td>
<td>1.18</td>
</tr>
</tbody>
</table>

Note. O% = number of repeated nouns/total number of nouns; C% = total number of nouns–number of repeated nouns/total number of words Ip = O%/C%.

Five bipolar adjective pairs—nonthreatening/threatening, unintimidating/intimidating, not harmful/harmful, safe/dangerous, and not risky/risky—served in assessments of threat. Reliabilities for these scales in past research have ranged from .88 to .97 (Lee & Pfau 1997; Pfau, 1992; Pfau, 1990; Pfau et al., 1992; Pfau et al., 1997a, 1997b). The Cronbach’s alpha reliability for this study was .53. One possible reason for such a low reliability of threat may be a result of language differences. In order to be as loyal as possible to English, the researchers tried to find Chinese counterparts for the five bipolar adjective pairs. However, the best Chinese translation for each adjective may not fit into the whole Chinese context well. Consequently, some of the adjective pairs made sense when put into the Chinese context, and some did not. In order to make sure the translation did not involve personal bias, a reliability check on the Chinese translation was conducted and the result, using Holsti’s (1969) formula, was .90. Such an outcome revealed that the low reliability of threat was due to the language and not the translation. Despite the low reliability, there was still significant difference between inoculation group and control group in terms of perceived threat (p < 0.01).

**Attitude valence.** Participants’ prior attitudes toward the CPC constituted an independent variable in the study. We included this variable because inoculation research has suggested that the best context to use inoculation is in the presence of a supportive environment (Pfau, 1997). Inoculation is a strategy mainly designed to maintain people’s positive attitude toward a certain target and, thus, prevent attitude slippage when encountering persuasive attacks. In other words, receivers must have a somewhat positive preexisting attitude for inoculation to work. Because attitude was measured using a 7-point scale, the researchers arbitrarily decided that participants having an average initial attitude score below 3.5 were negative. Those having an average attitude score between 3.5 to 4.5 were neutral. Finally, participants having an average attitude score of more than 4.5 were positive. Hence, this independent variable had three levels.
Covariates. The covariates in this study were: gender, participants’ involvement with the CPC, and participants’ living locality (whether their permanent home address was in the northern, central, or southern part of Taiwan). Participants’ domicile was used as a covariate because their attitude toward the CPC might be affected by whether they live in communities proximate to the refinery plants of the CPC. Because there are more refinery plants in the southern part of Taiwan and many accidents that occurred in the CPC several years ago affected people who lived in the south, southern dwellers tend to have a negative attitude toward the company. In addition, participants’ media use also was treated as a covariate. The media use variable was a composite index of measuring the frequency of participants’ exposure to the following media: newspapers, television, radio, magazines, interpersonal discussion, television talk shows, and the Internet.

Dependent Variables

Counterarguing. A common procedure used for assessing cognitive activity is thought listing. It is considered a reliable, valid, and effective technique for tapping mediating cognitive responses (Cacioppo & Petty, 1981). In the inoculation context, participants’ counterarguments also were measured by asking them to complete an open-ended questionnaire on which they expressed possible arguments contrary to their own position on an issue and then listed potential responses to those arguments in the spaces provided. This procedure was adopted by following the thought-listing technique developed by Petty, Wells, and Brock (1976). The only difference was that there were no time limits for writing down counterarguments.

After the data were collected, two coders worked together to identify all declarative statements; statements opposing participants’ positions represented counterarguments, and statements refuting counterarguments represented responses. Only one unique idea per space that met the criteria was counted. The intercoder reliability for counterarguments was assessed by using Krippendorff’s agreement coefficient alpha (Krippendorff, 1980). The reliability coefficient between the two coders was .92.

Attitudes. Participants indicated their attitudes toward the CPC on a scale composed of six bipolar adjective pairs previously used by Burgoon et al. (1978), Miller and Burgoon (1979), Lee and Pfau (1997), Pfau (1992), Pfau and Burgoon (1988), Pfau et al. (1990), Pfau et al. (1997a, 1997b), and Pfau et al. (1992). The pairs were: wise/foolish, good/bad, positive/negative, favorable/unfavorable, right/wrong, and acceptable/unacceptable. Participants’ attitudes were assessed during both Phase 1 and Phase 3. In the statistical analyses, Phase 3 attitudes served as a dependent variable. The Cronbach’s alpha reliability for Phase 3 attitude measures was .93.
Credibility. The measures used in the study to assess the credibility of the spokesperson of the corporation derived from previous factor analytic research on the dimensions of source credibility by McCroskey, Holdridge, and Toomb (1974), and McCroskey and Jenson (1975). These dimensions included: competence, character, and sociability. The reliability for the credibility measure in this study was 0.84.

Behavioral disposition. Behavioral disposition toward the company was assessed using a three-item 0–100 probability scale in response to statements such as: the likelihood of ceasing to buy or use the company’s product or service; the likelihood of encouraging family, friends, and coworkers to stop buying the company’s product or service; and the likelihood of soliciting signatures for a petition (Fishbein & Ajzen, 1975). Behavioral disposition was assessed during Phase 3. The Cronbach’s alpha reliability for the behavioral disposition measure was .80.

RESULTS

A manipulation check was conducted on threat. Subsequently, a MANCOVA was employed to analyze the data. The independent variables were experimental conditions, crisis scenarios, and attitude valence. Participants’ involvement with the CPC, their living locality, media use, and gender were treated as covariates. Participants’ Phase 3 attitudes, Phase 3 perception of the credibility of the CPC’s spokesperson, Phase 3 behavioral dispositions, and counterarguments were dependent variables. Tests of simple effects were used for the predictions. In addition, mean attitudes were analyzed using Dunn-Bonferroni’s planned comparison procedure for all predicted effects.

Manipulation Checks

Threat is one of the major components of inoculation. Therefore, a manipulation check of threat was necessary to confirm that inoculated individuals did sense a higher level of threat than did those in the control group. Threat was measured on a 7-point scale, with a low score indicating less threat and a high score more threat. A planned comparison, employing Dunn’s multiple comparison procedure, was computed to compare threat levels between participants receiving inoculation-same and inoculation-different treatments (the inoculation groups), the control group, and participants receiving supportive treatment (the supportive group). The results indicated that inoculated receivers reported greater threat than did those in the control and supportive groups. As Table 3 indicates, the combined inoculation-same and inoculation-different group means were significantly higher than the control group mean, $F(1, 329) = 7.51, p < .01, \eta^2 = .02$, and the supportive
group mean, $F(1, 329) = 4.08, p < .05, \eta^2 = .01$. Hence, the outcome revealed that inoculated participants perceived greater threat compared to both control and supportive participants.

**Overall Findings**

The omnibus tests revealed a significant main effect for crisis scenarios, $F(5, 206) = 3.10, p < .05, \eta^2 = .07$, with the univariate tests indicating a significant effect on the dependent measure of credibility $F(1, 210) = 10.28, p < .01, \eta^2 = .05$. In addition, the omnibus test revealed a significant main effect for attitude valence, $F(10, 412) = 3.72, p < .01, \eta^2 = .08$, with the univariate tests indicating significant effects for Phase 3 attitudes, $F(2, 210) = 12.78, p < .01, \eta^2 = .11$, and Phase 3 behavioral disposition, $F(2, 210) = 3.86, p < .05, \eta^2 = .04$.

The omnibus MANCOVA further revealed a two-way interaction involving experimental conditions (treatment approaches) and attitude valence, $F(20, 684) = 1.78, p < .05, \eta^2 = .04$, with the univariate tests indicating significant effects for Phase 3 attitude, $F(4, 210) = 3.14, p < .05, \eta^2 = .06$, and for credibility, $F(4, 210) = 2.46, p < .05, \eta^2 = .05$. In addition, the omnibus MANCOVA revealed a two-way interaction of crisis scenarios and attitude valence, $F(10, 412) = 3.12, p < .01, \eta^2 = .07$, with univariate tests indicating significant effects for Phase 3 attitude, $F(2, 210) = 3.47, p < .05, \eta^2 = .03$, and for credibility, $F(2, 210) = 6.04, p < .01, \eta^2 = .05$.

Finally, the omnibus MANCOVA showed a significant three-way interaction of treatment approaches, crisis scenarios, and attitude valence, $F(20, 684) = 2.13, p < .01, \eta^2 = .05$, which overrode the two-way and main effect findings for most dependent variables (see Figure 1). The univariate tests indicated significant effects for Phase 3 attitudes, $F(4, 210) = 3.67, p < .01, \eta^2 = .07$, and credibility, $F(4, 210) = 3.03, p < .05, \eta^2 = .05$, and nearly significant effect on behavior, $F(4, 210) = 2.15, p$

### TABLE 3

Means of Threat as a Function of Message Treatments

<table>
<thead>
<tr>
<th>Message Treatments</th>
<th>$M$</th>
<th>$SD$</th>
<th>$N$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive</td>
<td>4.14</td>
<td>1.15</td>
<td>58</td>
</tr>
<tr>
<td>Refutational-same</td>
<td>4.42</td>
<td>0.56</td>
<td>65</td>
</tr>
<tr>
<td>Refutational-different</td>
<td>4.42</td>
<td>0.83</td>
<td>62</td>
</tr>
<tr>
<td>Combination-same</td>
<td>4.44</td>
<td>0.89</td>
<td>57</td>
</tr>
<tr>
<td>Combination-different</td>
<td>4.29</td>
<td>1.03</td>
<td>61</td>
</tr>
<tr>
<td>Control</td>
<td>4.05</td>
<td>0.68</td>
<td>57</td>
</tr>
</tbody>
</table>

*Note.* Threat was measured using a 7-point scale. Higher scores signify greater threat.

*Significant compared to control and supportive groups at $p < .05$. *Significant compared to control group at $p < .05$.
< .10. Because the triple interaction overrode all other interactions, tests of simple effects were employed to analyze the impact of treatment approaches and the crisis scenarios for participants who had positive, neutral, or negative attitudes toward the CPC for the dependent measures, Phase 3 attitudes, Phase 3 behavioral disposition, and credibility. The results revealed that the treatment approaches (supportive and inoculation) worked only for people who had a positive attitude toward the CPC, $F(6, 94) = 3.92, p < .01, \eta^2 = .20$. People with a neutral or negative attitude toward the corporation were not affected by these strategies, whether they were assigned to a crisis or noncrisis scenario. This finding accorded with Pfau’s (1997) assertion that inoculation is more effective when applying to receivers who have a positive attitude toward a certain target. As a result, only participants having a positive attitude toward the CPC were included in subsequent analyses. After sorting out positive participants, only six people were left in the control group in the crisis scenario. However, the researchers decided to move on with the analysis as such a cell size is not unreasonably small.

![Inoculation Treatment Diagram](image)

**FIGURE 1** Three-way interaction of treatment approaches, crisis scenarios, and attitude valence.
Hypotheses

Hypothesis 1 posited that both supportive and inoculation treatments function to build resistance to negative attitudes following a crisis. Resistance was examined by comparing mean scores of Phase 3 attitude, credibility, and behavioral dispositions among different groups. A high score on attitude and credibility indicated strong resistance, whereas a low score on behavioral dispositions indicated strong resistance because behavioral dispositions were negatively stated in the questions (e.g., How likely is it that you would stop buying or using the CPC’s products or services?). Multiple planned comparisons relating to the hypothesis revealed that, compared to the control group, the supportive treatment was more effective in creating resistance especially for attitudes, $F(1, 49) = 5.59, p < .05, \eta^2 = .08$, as well as credibility, $F(1, 49) = 15.58, p < .01, \eta^2 = .18$, but not behavior. The same applied to the inoculation treatment condition, in which case the planned comparisons revealed that, compared to the control group, inoculation treatments worked better in fostering resistance to influence for attitude, $F(1, 49) = 6.64, p < .05, \eta^2 = .10$, and credibility, $F(1, 49) = 12.55, p < .01, \eta^2 = .15$, but not behavior (see Table 4). Consistent with previous research findings, the results of this study suggest that inoculation treatments work to instill resistance to influence at the attitudinal level. Therefore, Hypothesis 1 is partially supported.

Hypothesis 2 predicted that a refutational approach is superior to a supportive approach in creating resistance to the development of negative attitudes following a crisis. Three planned comparisons were for the measures of resistance. The results indicated no difference between inoculation groups and the supportive group on any of the three (see Table 4). Thus, Hypothesis 2 is not supported.

Hypothesis 3 posited that the combination of the supportive and refutational approaches is better than either one alone in creating resistance to the development of

### TABLE 4
The Effectiveness of Supportive, Inoculation, and Combination Treatments in Conferring Resistance to Influence in Crisis Scenario With Participants Who Have a Positive Attitude Toward the Chinese Petroleum Corporation

<table>
<thead>
<tr>
<th>Message Treatments</th>
<th><strong>Attitude</strong></th>
<th><strong>Behavior</strong></th>
<th><strong>Credibility</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$n$</td>
</tr>
<tr>
<td>Supportive</td>
<td>3.10$^b$</td>
<td>0.90</td>
<td>13</td>
</tr>
<tr>
<td>Inoculation</td>
<td>3.14$^b$</td>
<td>0.80</td>
<td>19</td>
</tr>
<tr>
<td>Combination</td>
<td>2.86</td>
<td>1.03</td>
<td>22</td>
</tr>
<tr>
<td>Control</td>
<td>2.00</td>
<td>0.95</td>
<td>6</td>
</tr>
</tbody>
</table>

*Note.* Attitude and credibility were measured using a 7-point scale. Higher scores signify more positive attitude. Behavior was measured using a probability scale from 0 to 100. Lower scores signify more positive attitude.

$^a$ Significant compared to control group at $p < .01$. $^b$ significant compared to control group at $p < .05$. 
negative attitudes following a crisis. Planned comparisons of means for attitudes, behavior, and credibility for combination, supportive, and inoculation treatments revealed no significant differences (see Table 4). Hence, Hypothesis 3 is not supported.

Planned comparisons did indicate that individuals exposed to the combination treatments exhibited a significantly higher degree of resistance in respect to attitude than did the control group, \( F(1, 56) = 4.05, p < .05, \eta^2 = .06 \). In addition, compared to the control group, participants receiving combination messages showed more resistance as indexed by the measure of credibility, \( F(1, 56) = 12.20, p < .01, \eta^2 = .17 \). However, the planned comparison for the behavioral disposition measure was not significant. In sum, the results suggest that all treatments, whether individually or in combination, worked in conferring resistance when compared to the control group.

Research Question 1 asked how the refutational and supportive approaches compare when there is no crisis. Using only participants manifesting a positive attitude toward the CPC, a \( t \) test for the mean differences on attitudes, behavioral dispositions, and credibility of the organization’s spokesperson between the supportive and refutational approaches in the noncrisis scenario revealed significant differences, favoring the supportive approach for all three dependent variables. However, because the size of the control cell in the noncrisis condition was too small to render the results meaningful, participants with positive and neutral attitudes toward the CPC were combined. The results were much the same, but, with increased cell sizes, more confidence in the outcome can be assumed. The results indicated that the supportive approach is superior to inoculation at the attitudinal level, \( t(41) = 4.67, p < .01 \), but not on behavioral disposition or on credibility of the organization’s spokesperson. The finding indicates that the supportive approach may work better than inoculation in guarding against people’s attitudinal slippage in the event of no crisis. In other words, there could be a downside to using inoculation when no crisis occurs.

DISCUSSION

The emphasis of a proactive approach in crisis communication literature suggests that “preparing” for crises in advance could put organizations in a much better position than would reactively responding to the chaos following a crisis. This study concerned the issue of whether inoculation can be utilized as an alternative proactive approach in crisis communication. The results of this study revealed that inoculation treatments, although effective in conferring resistance to negative influence, are no better than traditional supportive treatments. Further, in this particular case, inoculation may hurt a company’s image if there is no crisis. This supports the Velcro effect found by Coombs and Holladay (2001). Despite the disappointing finding, this study brings new insight to both crisis communication
scholars and public relations professionals. The most significant implication is that a proactive approach need not focus on a positive message exclusively. An alternative way that allows the corporation to address potential weaknesses and then refute them may be considered in helping protect the company when a crisis occurs.

Most crisis communication literature tends to be corporate-centered. Researchers in the field apply communication theories often in an organizational setting in analyzing and interpreting the effectiveness of crisis management. Coombs (1995, 1998; Coombs & Holladay, 1996), for example, used attribution theories and neo-institutionalism to examine how crisis types/history could affect organizations’ crisis response strategies. According to Coombs (1998), different crisis situations cause stakeholders to assign different degrees of crisis responsibility to organizations. The attribution of crisis responsibility determines what appropriate crisis response strategy an organization should adopt. Benoit’s (1995, 1997) typology of image repair strategies, which include denial, evading responsibility, reducing offensiveness, correcting action, and mortification, also provide guidelines for evaluating corporations’ crisis responses. Hearit (1994) examined corporate apologetic discourse by analyzing the persuasive accounts and dissociation strategies used by Chrysler, Toshiba, and Volvo. In his analysis, Hearit argued that “organizations attempt to provide alternative interpretations of the wrongdoing to limit their condemnation, while using strategic dissociations to distance themselves from the wrongdoing” (p.122). The majority of the crisis communication studies have focused on postcrisis responses, which is a reactive approach. To the extent that a proactive approach has been emphasized, most research adopts the “bolstering” strategy in that an organization’s positive image is reinforced in order to strengthen the public’s favorable attitudes. However, such a strategy may leave the public overconfident about the company and thus may reduce the public’s tolerance for allowing for potential mistakes made by the organization. This study attempted to broaden the scope of the proactive approach by introducing a completely different angle in forming crisis communication strategies—one that acknowledges an organization’s vulnerabilities in advance while at the same time suggesting that the company is addressing them. In so doing, the company would enable publics to believe that it is honest, responsible, and well prepared for a potential crisis. By anticipating that occasionally things can go wrong, an organization would minimize the “shock” people might have when the organization indeed encounters a crisis. In addition, the fact that publics have been “inoculated” with the information that the organization is prepared to deal with its vulnerabilities would lessen the public’s negative reaction toward the company in the event of a crisis.

The nature of inoculation involves raising “potential challenges to a receiver’s attitude while simultaneously providing refutation of those challenges in the presence of a supportive environment” (Pfau 1997, p.137). Such a process threatens individuals’ original attitudes, thereby motivating them to bolster existing attitudes
against change. Hypothesis 1 of the study predicted that inoculation, as well as traditional supportive treatments, work in instilling resistance to negative influence. Comparing people who had not been exposed to either inoculation or supportive treatment to those who had, the researchers found that inoculation does confer resistance to subsequent attack, thus strengthening people’s original attitudes. This finding is compromised somewhat by the limited cell size for the control group (n = 6). However, as Table 4 reveals, the differences in the means for inoculation versus control conditions and for supportive versus control conditions were substantial, thus enhancing confidence in the results.

Previous inoculation research has demonstrated that refutational treatments generally work better than do the supportive alternatives in creating resistance to counter attitudinal persuasive influence. Thus, Hypothesis 2 posited that the refutational approach (inoculation) is superior to the supportive approach in conferring resistance to the development of negative attitudes following a crisis. The results, however, revealed no significant difference on the relevant measures. Inoculation and supportive cell sizes were adequate, but not large. Nonetheless, given nearly identical means (supportive, 3.10; inoculation, 3.14), the additional power that would be produced via any reasonable increase in cell sizes still would not yield statistically significant differences. Thus, insufficient power cannot explain the null finding for Hypothesis 2.

Research has demonstrated that, when applied to controversial issues, prominent figures (e.g., political candidates), or commercial products, inoculation effectively confers resistance to attacks on something about which one is favorably disposed. As mentioned previously, refutation to potential challenges should be applied in the context of a “supportive environment.” This indicates that inoculation works on the premise that receivers have a positive attitude toward certain targets. If, however, people have a negative prior attitude toward certain issues, figures, or products, inoculation shows little impact in changing their attitude.

The major reason that inoculation did not prove superior to the supportive treatments in conferring resistance (even for receivers possessing a positive attitude toward the CPC) in this study is possibly that CPC’s accidents several years ago have left people with a negative image of the company. Although the CPC has made much effort in recovering its image in recent years and participants in the study may have forgotten about those accidents and, thus, developed a positive attitude toward the CPC, the hypothetical crisis scenario employed in the study may have reminded them of the CPC’s bad history. In addition, exposure to inoculation treatments and the crisis message could have reactivated their memories of the problematic CPC. Coombs (1998) suggested that stakeholders tend to attribute more responsibility to an organization involved in a new crisis if the organization has a history of accidents. Stakeholders’ awareness of past crises and media reinforcement of this memory with news coverage may affect people’s perception of crisis responsibility (p.187). In the case of CPC, it is likely that inoculation treatments,
by raising potential challenges to existing attitudes and then preemptively refuting those challenges, reactivated receivers’ memories of the company’s crisis history. As a result, in the hypothetical crisis scenario, participants may have been inclined to assign greater responsibilities to the company for having those crises, thereby weakening their initial positive attitude toward CPC. This could be a potential reason inoculation did not show a difference in conferring resistance compared to supportive messages, even with those receivers who had a positive attitude toward the company.

Hypothesis 3 predicted that the combination of the supportive and refutational approaches would be better than either one alone in conferring resistance in the event of a crisis. Previous studies (McGuire, 1961a, 1962; Tannenbaum & Norris, 1965) have revealed that the double defense (supportive plus refutational message content) is superior to the supportive, refutational-same, or refutational-different approaches in strengthening existing attitudes against change. However, the results of this study failed to support Hypothesis 3: The combined approaches were not superior to either the supportive treatments or the refutational treatments. Because the combination treatments consisted of both the supportive and the refutational (including refutational-same and refutational-different) approaches, the supportive treatments were supposed to have had a booster effect in this context. That expectation, in retrospect, may have been unwarranted. This finding is consistent with the failure to detect a booster effect in previous research (Tannenbaum et al., 1966). The reason may be that combining supportive and refutational treatments in a single message carries the risk of canceling out the unique effect of each treatment. A conflict may arise from offering bolstering materials about the target company while simultaneously admitting the potential weaknesses of the company. The receivers also may have been confused, thereby resulting in a weakening of the effectiveness of the combination of approaches.

Perhaps testing the superiority of combination treatments should entail distributing the messages twice to the participants. The first time, the message would contain only supportive materials, and the second time only refutational treatments. This might reduce the possibility of a canceling-out effect.

Research Question 1 asked how refutational and supportive approaches compare when there is no crisis. Unlike supportive treatments, which only provide positive arguments about an organization’s ability to withstand or avert a crisis, refutational treatments first raise the vulnerabilities of the company to crises and then refute those potentially negative comments. In so doing, refutational treatments also may carry the risk of disclosing the weaknesses of the company to various publics before a crisis even occurs. Whether this approach may harm the company in the event of no crisis is unknown.

In previous inoculation research, Pfau and Burgoon (1988) examined the effect of inoculation in creating resistance to negative persuasive attacks in a political campaign. The results revealed no downside to inoculation even when a political
candidate received no attack from opponents. Moreover, Pfau et al. (1990) even found that "the inoculation strategy generally proved more effective than post hoc refutation in combating the influence of political attacks" (p.39). Nevertheless, whether the same results would occur in a crisis scenario was questionable. Should inoculation be a viable proactive crisis communication strategy, it is important to know if this approach would bring potential negative impact to organizations when there is no crisis. The outcome of the analysis showed that there was a downside to inoculation in a noncrisis scenario, but only at the attitudinal level. With people who had positive and neutral attitudes toward the target company, there was no significant difference between using the supportive approach and inoculation in affecting people's behavioral disposition and their perception of credibility of the company's spokesperson (see Table 5). However, with the relatively small cell size, the finding is tentative and it needs to be explored further. Because there is no clear-cut conclusion here, more research addressing this question should be done to confirm whether inoculation carries a potential downside to organizations when employed as a proactive crisis communication strategy.

To sum up, this study examined the potential of using inoculation—a theory aimed at immunizing receivers from negative influence—as a proactive crisis communication tool. Although the results revealed that inoculation is no better than the supportive approach, they both worked in a crisis scenario. Before a solid conclusion can be made, more studies should be employed to investigate further whether, in the event of no crisis, inoculation may harm an organization. In addition, the study has implications for public relations practitioners. Contrary to earlier evidence in inoculation research, this study found that the supportive approach is as effective as (and may be superior to) inoculation in protecting attitude against change. Nevertheless, the fact that refutational treatments work in fostering resistance to attitude slippage in the event of a crisis suggests that inoculation is a viable crisis communication strategy. The most plausible explanation for the downside in

<table>
<thead>
<tr>
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<th>Attitude</th>
<th></th>
<th>Behavior</th>
<th></th>
<th>Credibility</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
<td>SD</td>
<td>n</td>
</tr>
<tr>
<td>Supportive</td>
<td>3.05*</td>
<td>1.39</td>
<td>11</td>
<td>36.12</td>
<td>33.63</td>
<td>11</td>
</tr>
<tr>
<td>Inoculation</td>
<td>2.34</td>
<td>0.93</td>
<td>30</td>
<td>42.57</td>
<td>28.89</td>
<td>30</td>
</tr>
</tbody>
</table>

*Note.* Attitude and credibility were measured using a 7-point scale. Higher scores signify more positive attitude. Behavior was measured using a probability scale from 0 to 100. Lower scores signify more positive attitude.

*aSignificant compared to inoculation group at p < .01.
a noncrisis scenario could be attributed to the negative crisis history of the particular company chosen in this study.

LIMITATIONS

One of the major limitations of this study is that the topic company (CPC) to which the researchers had access for conducting the study had a bad crisis history five and six years ago. Because inoculation involves initially raising the company’s vulnerabilities and then providing rebuttals to those vulnerabilities, the vulnerabilities (or attack) in the refutational messages used for the study may have rekindled people’s memory of CPC’s past crises. Such a connection may have weakened receivers’ positive attitudes toward the company. As a result, inoculation did not appear superior to the traditional bolstering approach in conferring resistance to negative influence. If inoculation had been employed on a company with no prior crises (and preferably a company with a positive reputation), it is likely that the results would have shown it to be a useful tool for strengthening existing positive attitudes against change.

Another limitation is the small cell sizes in the noncrisis scenario. In order to test the effectiveness of inoculation in preventing attitude slippage in the event of a crisis, many more participants were assigned to the crisis scenario than to the noncrisis scenario (the ratio was about 2:1). This left limited participants for the control cell in the noncrisis scenario. To boost power in the noncrisis condition, participants with positive and neutral attitudes toward the organization were included. However, this approach is problematic because inoculation theory presupposes the presence of a positive attitude toward an attitude object (Pfau, 1997). Thus, the finding that inoculation could undermine an organization’s image in a noncrisis scenario is tentative at best. Further research is needed to resolve this question.

The third limitation is the low reliability of the measurement of threat. Due to language differences, the best Chinese counterparts for the five English bipolar adjective pairs used to measure threat did not seem to fit well in the whole Chinese context. Perhaps it would have been better to select Chinese translations that were close to but not exactly parallel with the English language. If the translation of the measurement scales made more sense in Chinese, the reliability for measuring threat might have been improved.

CONCLUSION

The results of this study reveal that inoculation, as well as the traditional bolstering (supportive) approach, work to protect people’s attitude slippage when encounter-
ing a negative occurrence. Although inoculation may not be beneficial to protect the company when there is no crisis, future studies should address this issue in order to further examine the rather tentative finding. Because it is almost unrealistic to assume that a crisis will never occur in an organization, the best way to deal with it is to be well prepared in advance. Inoculation does provide a different view in undertaking proactive crisis communication. The major implication of this study is that organizations that have had good images (and preferably no prior crises) may want to consider incorporating both supportive and inoculation approaches into their crisis management plans.

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