

IMAGE REPAIR IN A FOOD HEALTH CRISIS:  
AN EXPERIMENTAL ANALYSIS OF IMAGE RESTORATION MESSAGE STRATEGIES

by

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(Under the Direction of Ruthann Weaver Lariscy)

ABSTRACT

This study focuses on finding the most effective message strategies in a food crisis context. The influences of image repair message strategies and product involvement on the theory of planned behavior (TPB) toward the product category and the specific corporate brand were examined.

A laboratory experiment was conducted with 299 undergraduates, and an accidental contamination of the largest milk-producing dairy in the United States was designed for a crisis situation.

The study produced mixed results. The key finding is that message strategies help to increase normative beliefs and the subjective norm both toward drinking milk and toward drinking Brand A milk. Furthermore, depending on the type of message strategies, in the case of behavior at the brand specific level, other components also increased. The results imply that during such a crisis, how companies respond to the crisis will be very important not only for the product but also, more importantly, for the companies.

INDEX WORDS: Image restoration strategies, Theory of planned behavior, Product involvement, Accident, Situational crisis communication theory, Message combination effect

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## TABLE OF CONTENTS

	Page
LIST OF TABLES .....	vi
LIST OF FIGURES .....	vii
CHAPTER	
1 INTRODUCTION .....	1
2 LITERATURE REVIEW .....	5
Situational Crisis Communication Theory (SCCT) .....	5
Limitations of SCCT .....	10
Hypotheses and Research Questions .....	17
3 METHOD .....	21
Research Design .....	21
Data analysis .....	35
4 RESULTS .....	43
Article Effects .....	43
Message effects .....	52
5 DISCUSSION .....	75
Findings .....	75
Limitations of the Study .....	82
Future Research .....	83
REFERENCES .....	87

APPENDICES .....	93
A Case Study .....	93
B Participation Consent Form .....	95
C Background Questionnaire.....	96
D Pilot Test I.....	100
E Pilot Test II .....	102
F Stimuli I: News Article .....	103
G Stimuli II: Messages .....	104
H Experiment Questionnaire .....	111

## LIST OF TABLES

	Page
Table 2.1: Crisis Types Definitions and Cues .....	7
Table 2.2: Postures and Crisis Communication Strategies .....	9
Table 3.1: Research Design .....	25
Table 3.2: Descriptive Statistics of Milk Involvement .....	26
Table 3.3: Analysis of Variance for Milk Involvement .....	26
Table 3.4: Correlation Comparison between Unipolar and Bipolar Scales .....	40
Table 3.5: Reliability of item .....	41
Table 4.1: ANOVA Results: Summary of Article Effects.....	51
Table 4.2: ANOVA Results: Summary of Message Effects toward Drinking Milk .....	62
Table 4.3: T-Test Results: Three-way Interaction Effects on Normative Beliefs .....	65
Table 4.4: ANOVA Results: Message Effects on Attitude.....	67
Table 4.5: ANOVA Results: Message Effects on Subjective Norm .....	69
Table 4.6: ANOVA Results: Message Effects on Behavior Intention.....	71
Table 4.7: ANOVA Results: Summary of Message Effects toward Drinking Brand A Milk.....	72
Table 4.8: Descriptive Statistics: Summary of Message Effects at Time3.....	73

## LIST OF FIGURES

	Page
Figure 2.1: Relationships among the variables in the theory of planned behavior .....	15
Figure 4.1: Interaction Effects of Article and Involvement on Behavioral Beliefs .....	44
Figure 4.2: Article Effects on Normative Beliefs .....	45
Figure 4.3: Article Effects on Control Beliefs .....	47
Figure 4.4: Article Effects on Behavior Intention .....	51
Figure 4.5: Message Effects on Behavioral Beliefs toward Drinking Milk .....	53
Figure 4.6: Message Effects on Normative Beliefs toward Drinking Milk .....	55
Figure 4.7: Message Effects on Control Beliefs toward Drinking Milk .....	56
Figure 4.8: Message Effects on Subjective Norm toward Drinking Milk .....	58
Figure 4.9: Interaction Effects of Message Type and Involvement on Behavior Intention .....	61
Figure 4.10: Message Effects on Normative Beliefs toward Drinking Brand A Milk .....	64
Figure 4.11: Message Effects on Subjective Norm toward Drinking Brand A Milk .....	68
Figure 4.12: Message Effects on Behavior Intention toward Drinking Brand A Milk .....	71

## CHAPTER 1

### INTRODUCTION

Risk is a reality of everyday living. Some risks are economic, others are social, and still others threaten our personal safety, national security, or enjoyment of our lifestyles and personal environments. Among these, risks to health and survival are widely perceived as the most pervasive and most critically important. Day in and day out we confront myriad health risks from the environments we live in, the foods we eat, the modes of transportation we choose, the types of work we do, the building materials in our homes and offices, and the ways we spend our recreational time.

Various factors contribute to health risks. Among them, food-related risks are one of the biggest public concerns. They are closely related to our daily life, and their influence is widespread. One representative example is an *E.coli* O157:H7 outbreak in the fall of 2006 that was associated with contaminated Dole brand Baby Spinach and resulted in 205 confirmed illnesses and three deaths. Despite the painstaking detective work to find the source of the contamination, the U.S. government was unable to definitely determine how the contamination originated because of the many ways that *E.coli* O157:H7 can be transmitted, including animals, humans, and water (U.S. Food and Drug Administration, 2007). A similar accident happened in November 2006 related to a *Salmonella* outbreak caused by peanut butter. Originating in Tennessee, as of May 22, 2007, a total of 628 persons had been infected by this *Salmonella* outbreak attributed to peanut butter, a new source for salmonella in the United States. In particular, Peter Pan and Great Value peanut butter were suspected as the contaminated brands, but the exact source of the peanut butter contamination remains unknown as well (Centers for

Disease Control and Prevention, 2007). Many similar food-related accidents are reported every year.

Food-related accidents have a number of common characteristics. First, evidence of outbreaks is usually hard to track. What product or brand produced the problem can often be identified, but the original source of the accident and why the product caused the problem, usually remain unknown. Second, food-related accidents are closely related to our daily life. Compared with other kinds of corporate crises such as natural disasters, rumors, boycotts, and technical breakdowns, food-related accidents are very close to something everyone does every day, so no one can be free from those accidents. Third, like other crises they are unpredictable. The accidents can stem not only from well-known potential sources but also unpredictably from a new source, which has no history of contamination. Fourth, the impacts of accidents are pervasive. Once the accidents happen, not just several people but tens or hundreds of people are affected. Also, accidents can affect a specific geographic region as well as the public across a nation or the world.

Increasingly, issues of food safety occur and are widely reported in the news. Also, food risks can be even greater in the future because international food exchanges are becoming more popular, and the impact can be felt all over the world. Corporations of most every type are developing crisis communication strategies; the food industry is no different. In particular, the unique characteristics of a food-related crisis mentioned above and growing concerns about food-related risks prompt the needs for more industry- specific research to construct crisis communication strategies in that context. Without empirical research, it is difficult to determine among message strategies which corporate response-to-a-crisis communication strategy is most effective.

Communication researchers have devoted considerable attention to finding the best message strategies in a crisis through case studies and experiments (Coombs, 1995, 1996, & 2000; Benoit, 1995). Previous research has addressed several aspects of crisis communication: (a) It is most ideal when the crisis situation and a crisis response strategy are matched as the way situational crisis communication theory (SCCT) suggests (Coombs, 1999; Coombs & Holladay, 1996 & 2001). (b) An accommodative or mortification strategy is usually the most successful (Benoit, 2004; Blaney & Benoit, 2001). (c) Corrective action enhances effects of other image restoration strategies (Sellnow, Ulmer, & Snider, 1998).

However, in addition, the previous research encompasses several unexplored dimensions that lately have attracted research attention. More investigations about testing image restoration messages are necessary since there are conflicts with previous research. While in reality, more frequently, several messages are used together, very little research has explored such a combination message effect. Also, very little crisis communication research has been done in a food crisis context. Furthermore, previous empirical research has only focused primarily on the relationship between image restoration messages and reputation, image, attitude, or purchase intention. However, other dependent variables and moderating or mediating variables can be considered.

This study focuses on the relationships among a food crisis situation, crisis response strategies, and the ways each strategy distinctively influences beliefs, attitudes, subjective norms, perceptions of control, and ultimately behavioral intentions related to resuming or not resuming the pre-crisis relationship with the product category and the specific corporate brand. The effects of product involvement are also examined as a potential moderator variable. Product

involvement is well-known as a factor which influences attitude toward products or brands and behavioral intention toward products or brands.

For the crisis situation, an accidental contamination of the largest milk-producing dairy in the U.S. was designed where a number of people die from E-coli and hundreds become extremely ill. It is a fictional outbreak, based on a real-world crisis (see appendix A). The milk scenario is appropriate for this study for three reasons. First, milk is one of the most popular foods people consume. Therefore, this case will generate relatively high interest among participants. Second, there might be relatively little bias among respondents. Unlike in the case of meat or vegetables, there has been no big milk-related outbreak before. Third, milk provides a good way to explore the moderating effect of product involvement since people have various levels of milk involvement.

This study has both practical and theoretical implications. First, the purpose of this study is finding the most effective message strategies in a food crisis context. Second, this study attempts to further theory-driven research in public relations. Public relations strategies during a crisis are mainly derived from Coombs (1995, 1999, 2002, & 2004) and Benoit (1995). The studies usually measure the impact of messages on the overall image, reputation, attitude toward an organization, and occasionally purchase intention towards the product of the organization. This study seeks to explore the effects of crisis communication strategies on more dependent variables guided by theory (Ajzen, 2006). Third, this study will advance knowledge and understanding about the moderating role of product involvement by examining the interrelationships of message strategies and product involvement within the context of food crisis, an increasingly frequent public relations nightmare for businesses and industries.

## CHAPTER 2

### LITERATURE REVIEW

#### Situational Crisis Communication Theory (SCCT)

Situational crisis communication theory evolved from a number of studies that examined how a crisis might shape the selection of crisis response strategies and examined the effect of crisis response strategies on organizational reputation (Coombs, 1999; Coombs & Holladay, 1996, 2001; Coombs & Schmidt, 2000). The idea was to articulate a theory-based system for matching crisis response strategies to a crisis situation to best preserve the organizational reputation.

Attribution theory served as the guide for linking the crisis situations to crisis response strategies (Coombs, 1995, 1998, 1999). Attributions are perceptions of the causality or the perceived reasons for a particular event's occurrence (Weiner, 1985). Therefore, crisis responsibility, the degree to which stakeholders attribute responsibility for a crisis to an organization, is the centerpiece of SCCT.

The basic assumption is that it is most ideal when the crisis situation and a crisis response strategy are matched as the way SCCT suggests depending on the attribution. SCCT is a very useful guideline for a crisis manager. He or she can estimate the level of crisis responsibility, and then the level of crisis responsibility serves to narrow the selection of viable crisis response strategies.

#### Crisis Types

The crisis manager begins the selection of a crisis response strategy by identifying the crisis type. The crisis type can be assessed depending on the organization's responsibility for the crisis, and an initial assessment of the amount of crisis responsibility that the public will attribute

to a crisis situation can be adjusted by considering the crisis's severity and the organization's performance history.

SCCT initially specifies 10 crisis types or frames (Coombs, 1995): natural disaster, rumor, product tampering, workplace violence, challenges, technical-error product recall, technical-error accident, human-error product recall, human-error accident, and organizational misdeed.

Later, to make crisis plans simple and effective, Coombs (2002) collapsed these crisis types into three clusters instead of generating every possible crisis type an organization might face. They are *victim*, *accidental*, and *intentional* clusters. The *victim* cluster contains crisis types that produce very low attributions of crisis responsibility such as natural disasters, rumors, product tampering, and workplace violence and represent a mild threat to reputation. Organizations are viewed as "victims of the crisis" because the crises are seen as driven by external forces that were beyond management's control. The *accidental* cluster contains crisis types that produce minimal attributions of crisis responsibility such as challenges, technical-error accidents, and technical-error product recalls and represent a moderate threat to reputation. The organization's management is seen as not meaning for the crisis to happen, that is, lack of volition, and being able to do little to prevent it, that is, limited control. Finally, the *intentional* cluster contains crisis types that produce strong attributions of crisis responsibility such as human-error product recalls, human-error accidents, and organizational misdeeds and represent a severe threat to reputation. Organizational misdeeds involve management knowingly violating laws or regulations and knowingly placing stakeholders at risk. Violating discrimination laws and allowing a product to go to market with a known defect are examples of intentional acts (Coombs & Holladay, 2001). Table 2.1 provides definitions and key cues for each crisis type.

Table 2.1.  
*Crisis Types Definitions and Cues*

Cluster	Types of Crisis	Description
Victim	Natural disaster	Acts of nature that damage an organization such as an earthquake. Some environmental/weather event impacts the organization.
	Rumors	False and damaging information about an organization is being circulated. Evidence that the information is false.
	Workplace violence	Current or former employee attacks current employees onsite. An employee or former employee injures or attempts to injure current employees.
	Product tampering/malevolence	External agent causes damage to an organization. Some actor outside of the organization has altered the product to make it dangerous.
Accidental	Challenges	Stakeholders claim an organization is operating in an inappropriate manner. There is a public challenge based on moral or ethical, not legal, grounds.
	Technical error accidents	A technology or equipment failure causes an industrial accident. The cause of the accident is equipment/technology related.
	Technical error recalls	A technology or equipment failure causes a product to be recalled. A product is deemed harmful to stakeholders. The cause of the recall is equipment or technology related.
Intentional	Human error accidents	Human error causes an industrial accident. The cause of the accident is a person or people not performing job properly.
	Human error recalls	Human error causes a product to be recalled. A product is deemed harmful to stakeholders. The cause of the recall is a person or people not performing job properly.
	Organizational misdeed	Laws or regulations are violated by management or stakeholders are placed at risk by management. Members of management knowingly violate laws/regulations or offer a product or service they know could injure stakeholders.

*Note.* From “Reasoned action in crisis communication: An attribution theory-based approach to crisis management,” by W.T. Coombs and S.J. Holladay, 2004, In D.P. Millar and R.L. Heath (Eds.), *Responding to crisis: A rhetorical approach to crisis communication*, p. 106, Mahwah, NJ: Erlbaum. Copyright 2004 by the American Psychological Association. Adapted with permission of the author.

## Crisis response

After identifying the crisis type based on assessing the level of crisis responsibility, crisis managers then choose a crisis response strategy appropriate to the level of crisis responsibility. Scholars (Allen & Caillouet, 1994; Benoit, 1995) have developed many lists of image restoration strategies. Coombs (1999) synthesized these lists into seven types of crisis response strategies: an attack on the accuser, denial, excuse, justification, ingratiation, corrective action, and full apology. The seven crisis response strategies can be ordered along a continuum ranging from defensive, putting organizational interests first, to accommodative, putting victims' concerns first (Marcus & Goodman, 1991; Siomkos & Shrivastava, 1993).

The basic concept of SCCT is matching those crisis responses to the level of crisis responsibility using the continuum. The greater the crisis responsibility generated by the crisis, the more accommodative the crisis response strategies must be. Following this principle should offer maximum protection for the organizational reputation.

Later, Coombs and Holladay (2004) divided the defensive-accommodative continuum strategies into three clusters depending on three postures: *deny*, *diminish*, and *repair*. A posture represents a set of strategies that share similar communicative goals. The *deny* posture represents a set of strategies that claim either no crisis occurred or that the accused organization has no responsibility for the crisis. If there is no crisis, there can be no organizational responsibility for a crisis. The deny posture includes clarification, attack, and shifting blame strategies. The *diminish* posture reflects a set of strategies that attempt to alter the public's attributions by re-framing how the public should interpret the crisis. In the diminish posture, excuse and justification are included. The *repair* posture encompasses a set of strategies that seek to improve the organization's image in some way. In the repair posture, suffering, bolstering, compensation,

corrective action, and apology can be included. Table 2.2 provides definitions and key cues for each crisis responses.

Table 2.2  
*Postures and Crisis Communication Strategies*

Postures	Strategies	Description
Deny	Denial	Denies the crisis happened and reinforces the denial by explaining why the event could not have happened.
	Attack	Levels charges against the accusers to prompt the accusers to stop making charges.
	Shifting blame	Admits a crisis event did occur but places the blame outside of the organization.
Diminish	Excuse	Seeks to minimize responsibility for the for the crisis <ul style="list-style-type: none"> <li>• Deny intent: Say the organization did not mean for the crisis to occur</li> <li>• Deny volition: Argue that the organization could not control events leading to the crisis</li> </ul>
	Justification	Accepts responsibility for the crisis but attempts to limit the negativity associated with the crisis. <ul style="list-style-type: none"> <li>• Minimizing: Argues that a crisis created little or no damage and/or poses little or no threat to stakeholders.</li> <li>• Comparison: Argues that the crisis is not as bad as similar crises.</li> <li>• Big picture: Places the crisis in a larger context and argues that such crises are the price that must be paid for reaching some larger, desirable goal.</li> <li>• Misrepresentation: Argues that the crisis is not as bad as others make it out to be.</li> </ul>
Repair	Suffering	Notes that the organization is also a victim in the crisis.
	Bolstering	Reminds stakeholders of the good deeds an organization has done in the past. An organization might remind the public of past charitable work as a form of bolstering.
	Praising others	Uses flattery toward a stakeholder to win that stakeholder’s approval of the organization.
	Compensation	Offers stakeholders gifts designed to counterbalance the crisis.
	Corrective action	Seeks to restore the crisis situation to normal operation and/or promises to make changes which will prevent a repeat of the crisis in the future (Benoit, 1995). An organization tries to restore order as soon as possible after a crisis-return to normal operations. The organization also may change policies and/or procedures in order to reduce the likelihood of the crisis repeating itself.
	Apology	Has the organization accept responsibility for the crisis and ask stakeholders for forgiveness.

*Note.* From “Reasoned action in crisis communication: An attribution theory-based approach to crisis management,” by W.T. Coombs and S.J. Holladay, 2004, In D.P. Millar and R.L. Heath (Eds.), *Responding to crisis: A rhetorical approach to crisis communication*, p. 100, Mahwah, NJ: Erlbaum. Copyright 2004 by the American Psychological Association. Adapted with permission of the author.

## Limitations of SCCT

### Best message strategy

Coombs suggests that the matching of crisis types and crisis strategies will bring about the best results. However, there is not enough empirical study to support SCCT. Through testing messages in transgressions and accident crisis types, Coombs and Holladay (1996) found that the matched response condition was associated with more positive perceptions of organizational image than either the no response or the mismatched conditions. However, Coombs and Holladay (2004) show that while for transgressions and accident types the matched response conditions were better than others, for natural disasters and tampering types, a matched response was no better than a no response or a mismatched response at preserving organizational reputation. Coombs and Schmidt (2000) tested message strategies of Texaco's crisis based on Brinson and Benoit's (1999) case study, and they found that there was no difference between any of the five strategies: bolstering, shifting blame, corrective action, mortification, and separation. Therefore, more empirical studies are necessary to refine SCCT. Moreover, Benoit's case studies (1982; 1997; Benoit, Gullifor, & Panici, 1991; Benoit & Anderson, 1996; Kennedy & Benoit, 1997; Blaney & Benoit, 2001; Len-Rios & Benoit, 2004; Benoit & Hanczor, 1994; Benoit & Brinson, 1999; Benoit & Lindsey, 1987; Ryan, 1988) using image restoration strategies show that accommodative strategies seem the most effective in any crisis.

In this study, by using more simplified but more clarified categorizations (three crisis type clusters and three crisis response clusters), image restoration messages will be empirically investigated to find the most effective strategies to increase attitudes and behavior intentions toward an organization and product in the context of a food-related accident. Three strategies from each crisis message cluster will be selected. Using the clusters is easier and more efficient

than testing the entire list of crisis types and crisis responses. The clusters of crisis type are more comprehensive than each specific type of crisis, so they better reflect the dynamic and complicated nature of reality. The clusters of crisis responses are distinctive from one another by the organization's accepting responsibility for a crisis, so that selecting strategies from each cluster is a more systematic way to cover all kinds of strategies than selecting them randomly.

#### Combination message effects

Image restoration strategies are used in combination with one another. In reality, a crisis is so dynamic that usually more than one message strategy is used, and they are even changed in a same crisis as the crisis unfolds. Benoit's case studies (1982; 1997; Benoit, Gullifor, & Panici, 1991; Benoit & Anderson, 1996; Kennedy & Benoit, 1997; Blaney & Benoit, 2001; Len-Rios & Benoit, 2004; Benoit & Hanczor, 1994; Benoit & Brinson, 1999; Benoit & Lindsey, 1987; Ryan, 1988) all show that during a crisis several strategies were used together whether the outcomes of the crisis were successful or not. In the investigation of crisis-response communication strategies Merck used in its recall of Vioxx, researchers revealed a new type of combination message strategy, rectification through corrective action but without assuming responsibility (Vlad, Sallot, & Reber, 2006). They also emphasized that this combination strategy might be worth testing in experiments. However, most empirical tests have only focused on testing a single message strategy (Coombs & Holladay, 1996 & 2004; Kim & Lee, 2005; Huang, 2006).

One investigation of these combination strategies involves exploring the relationship between corrective action and other image restoration strategies (Sellnow, Ulmer, & Snider, 1998). Specifically, the corrective actions taken by Schwan sales enterprises in response to its 1994 salmonella outbreak are examined. The study concluded that corrective action can actually

enhance other image restoration strategies such as denial, bolstering, and mortification. However, this study was also not tested by experiment, but just examined through a case study.

In this study, as an initial attempt to test the combination effects of messages, single message strategies with corrective action will be tested. Corrective action was selected to be combined with other strategies because of its nature and appropriateness. When the message strategies listed in Table 2.2 are examined, it is noticeable that corrective action is a kind of action while other strategies are rhetorical discourses. Combining corrective action will enable the messages during a crisis to be consistent while entailing an accommodative action as a positive strategy. Also, in reality, corrective action can be widely used with other strategies. Coombs (2000) argues that regardless of the crisis responsibility, particularly in the case of a recall or product tampering, an organization always should employ the corrective action crisis response strategy because removing the dangerous product from the market first is more important than any other message strategies.

#### Dependent variables

Most crisis communication researchers have tended to generate a list of image restoration strategies employed in the case and then speculate on how these strategies promoted the success or failure of an image restoration effort. Meanwhile, those who need a clear picture of how publics react to image restoration strategies have empirically tested the effect of various strategies. For example, Brinson and Benoit (1999) analyzed the messages used by Texaco during the racism crisis in late 1996 in which reports broke of secret tape recordings that revealed racist language used by top executives and plans to destroy evidence related to a racial discrimination lawsuit pending against Texaco. Then, they tentatively concluded that mortification and separation were most effective. Coombs and Schmidt (2000) through

experiment tested the effectiveness of various image restoration strategies used in the Texaco case on organizational reputation, honoring the account, and potential supportive behavior.

In both kinds of studies which are most popular in crisis communication studies, case study and experiment, researchers have usually focused on message strategies themselves; little research has concerned itself with dependent variables. Rather, researchers intuitively or ordinarily measure organization image, reputation, attitude, and occasionally behavioral intention as dependent variables. To illustrate, Coombs and Holladay (2002) investigated the ways in which the relationship between message strategies and organizational reputation occurs across a range of crisis types. Lyon and Cameron (2004) measured participants' attitudes, behavior intentions, and source credibility assessments to examine the impacts of defensive and apologetic responses to news stories. However, there has been no systematic or theoretical framework for examining dependent variables.

This study attempts to further theory-driven research in public relations by examining the message strategies' impacts in the cognitive behavioral process using the theory of planned behavior (TPB). TPB consists of seven components, and those components will become dependent variables in this study. TPB not only provides the conceptual framework for examining dependent variables in a systematic way but also helps to extend the current literature on image restoration theories. Among the seven components, attitude toward behavior and behavior intention are commonly explored variables on image restoration theories; other variables such as subjective norms and perceived behavioral control are totally new variables, which have not been explored. Inspecting the effects of image restoration messages on each component will help in refining current theories as well as advancing message strategies.

There is one study which used the theory as a dependent measure and which attempted to link public relations theory and the theory of reasoned action, the previous version of TPB. The study examined the relationship between public relations message strategies and their influence on individuals' beliefs, attitudes, and behavioral intentions toward an organization responding to activism (Page, 2003). The findings suggest that any type of strategic response to activism is better than no response to salient beliefs, which predict attitude and behavior intentions. However, even in this study, the researcher only considered attitude-related variables and did not inspect other factors such as subjective norms and perceived behavioral control. Therefore, this study will be a real initial effort to link both areas.

#### *Theory of planned behavior (TPB)*

TPB is one of the most frequently used behavior theories applied to health communication. Behavioral theories are explanations of what influences people to do the things they do so as to generally identify the factors that are thought to be causally related to the behavior. TPB claims that people make behavioral decisions on the basis of a reasoned consideration of the available information (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980; Ajzen, 1988). It explains why people behave as they do and suggests how people may go about changing their behavior. Figure 2.1 shows the relationships among all variables.

Ajzen (2006) explains the following:

According to TPB, human action is guided by three kinds of consideration: beliefs about the likely outcomes of the behavior and the evaluation of these outcomes (behavioral beliefs), beliefs about the normative expectations of others and motivation to comply with these expectations (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behavior and the perceived power of these

factors (control beliefs). In their aggregates, behavioral beliefs produce a favorable or unfavorable attitude toward the behavior; normative beliefs result in perceived social pressure or subjective norm; and perception of behavioral control leads to the formation of a behavioral intention. As a general rule, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person's intention to perform the behavior in question. (p.1)

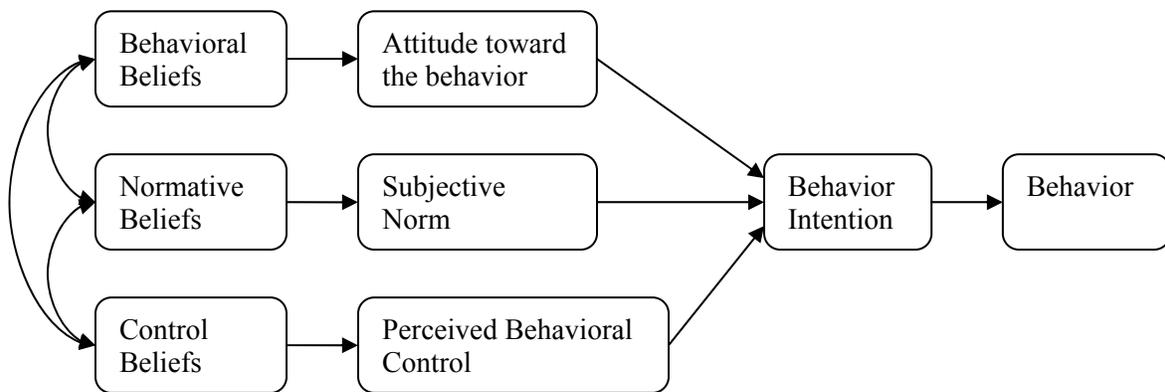


Figure 2.1 Relationships among the variables in the theory of planned behavior (Ajzen, 2002)

Measuring each component in TPB toward certain behavior is a very important and initial step for further studies such as testing the theory, predicting behavior, and examining effects of interventions. First, most of studies applying to TPB focus on testing the theory and sometimes tending to modify the theory. Lee, Ebesu Hubbard, O’Riordan, and Kim (2006) surveyed college student smokers by using the theory, and the results showed that perceived behavioral control and subjective norms were significantly related to the intention to quit smoking. However, the attitude toward quitting smoking failed to significantly predict the intention to quit smoking. Second, TPB has been used to predict certain behaviors such as participating in physical activity, blood donation, and physician delivery of preventive services (Deborah, Cynthia, & Malcolm,

1993) by measuring a target audiences' response to assessments of the distal components of the model: behavioral beliefs, normative beliefs, and control beliefs. Third, other research focuses on developing health behavior interventions to result in a change in behavior intention and ultimately behavior. For example, for the research on acquired immunodeficiency syndrome (AIDS) preventive behavior, J.D. Fisher and W.A. Fisher (1992) developed interventions to change attitudes, subjective norms, and intentions by focusing on the underlying beliefs and values that were empirically identified in the research.

In this study as well, each component of TPB will be measured as a first step so as to later test the theory in a food crisis context, predict behavior toward consuming food under fictitious situation, and examine the impact of article and image restoration messages as interventions.

#### Moderating variables

The last limitation of previous studies on SCCT or image restoration theories is that little research has considered moderating variables. In some research, reputation and relationship effects have been discussed as moderating variables. Lyon and Cameron (2004) examined the conditioning effect of reputation on message strategies. Corporations with a bad reputation prior to the news story in the experiment were more damaged by the apologetic response messages than the defensive message style. Payne (2006) also examined the interplay effect of reputation and message strategies. The power of reputation was evidenced by significant differences found as a function of reputation and response strategies, and a positive reputation reinforced by an apologetic response resulted in the strongest ability to recall details. Kim and Lee (2005) found the effects of the public-organizational relationship on the public's perception of a crisis and the message effects. They showed that the publics with a stronger relationship with an organization

perceived the same crisis related to the organization as less severe. Also, messages strategies were more effective for them.

However, most of the research does not consider moderating variables but simply focuses on the relationship between the messages and dependent variables. In this study, the moderating effects of product involvement on a news article and message strategies will be examined. Product involvement was chosen as a moderating variable because this study is concerned about a specific product category rather than an organization as a whole.

### Hypotheses and Research Questions

#### Behavioral interest

Having identified the population of interest, Ajzen and Fishbein (1980) recommend that the researcher define the behavioral criterion. This will typically require specifying at least the action component of the behavior as well as the time frame. In this study, we will examine how message strategies affect each component of TPB right after the public has read the news article during an initial crisis when the evidence is not clear. Then we will examine the behavior interest is drinking milk and drinking Brand A milk in the upcoming month.

#### Hypothesis and research question one

Hypothesis one is to examine the article effects and the moderating effect of milk involvement on each component of TPB. First, the news article will affect control beliefs and perceived behavioral control, and ultimately behavior intention. While attitudes, subjective norms, and their beliefs are associated with internal factors which are entirely under a person's control, normative beliefs and perceived behavioral control are more related to external factors (Ajzen, 2006). As an external factor, the news article will change those control-related components. Second, people with lower involvement will be more influenced by the negative

news article. Prior research suggests that people who have positive attitudes towards a target or high product involvement are more likely to engage in biased assimilation, resisting counterattitudinal information more than proattitudinal information (Ditto & Lopez, 1992; Edwards & Smith, 1996; Kunda, 1990). Therefore, high involvement people will be less influenced by the negative news article since the negative message in the article conflicts with their initial attitude toward the product or the company.

*Hypothesis 1: news article effect*

H1a: The news article will lower control beliefs, perceived behavioral control, and behavior intention toward drinking milk.

H1b: The news article will lower control beliefs, perceived behavioral control, and behavior intention toward drinking milk more in the low involvement group.

*Research Question*

RQ1a: Does the news article change behavioral beliefs, normative beliefs, attitude, and subjective norm toward drinking milk?

RQ1b: Does product involvement affect the news article's effect on behavioral beliefs, normative beliefs, attitude, and subjective norm?

Hypotheses and research questions two, three, and four

Four single strategies were chosen from each posture: denial from a deny posture, excuse from a diminish posture, and apology and corrective action from a repair posture. Based on Coombs' crisis type categorization (2002), the milk outbreak can be considered as an accidental cluster. It results from unintentional actions by the organization; that is, the organizations did not intend to create the crises. However, it is challenging to place the milk outbreak into a more specific crisis type in the accidental cluster of challenges: mega damage, technical breakdown

accidents, and technical breakdown recalls. Coombs basically assumes that the attribution of all crises can be identifiable. However, in this case, like many food crisis cases, evidence of the source of contamination is obscure. Additionally, regarding performance history, there has been no previous major milk-related crisis, but the crisis situation is severe. Therefore, diminish posture strategies or more accommodative strategies are appropriate in this situation.

According to extensive literature reviews, appropriate message strategies will increase attitude-related components: behavior beliefs, attitude toward behavior, and behavior intention toward both product and organization and behavior intention. Therefore, message strategies from diminish and repair postures, which are assumed to be appropriate in this crisis situation, will bring a positive effect on attitude-related components of TPB.

*Hypothesis2: single message effects*

H2a: Excuse, apology, or corrective action strategies will increase behavioral beliefs, attitude, and behavior intention toward drinking milk.

H2b: Excuse, apology, or corrective action strategies will increase behavioral beliefs, attitude, and behavior intention toward drinking Brand A milk.

*Hypothesis3:single message vs. combination message effects*

Corrective action will enhance each strategy's effects (Sellnow, Ulmer, & Snider, 1998).

H3a: Corrective action will increase the effectiveness of denial, excuse, and apology strategies on behavioral beliefs, attitude, and behavior intention toward drinking milk.

H3b: Corrective action will increase the effectiveness of denial, excuse, and apology strategies on behavioral beliefs, attitude, and behavior intention toward drinking brand A milk.

*Hypothesis4: combination message effects*

Additionally, the message effectiveness among combination message strategies will be tested.

H4a: Corrective action with excuse or apology strategies will result in a more positive effect than corrective action with a denial strategy on behavioral beliefs, attitude, and behavior intention toward drinking milk.

H4b: Corrective action with excuse or apology strategies will result in a more positive effect than corrective action with a denial strategy on behavioral beliefs, attitude, and behavior intention toward drinking Brand A milk.

*Research questions*

RQ2: Do image restoration strategies influence normative beliefs, control beliefs, subjective norm, and perceived behavioral control toward drinking milk?

RQ3: Do image restoration strategies influence normative beliefs, control beliefs, subjective norm, and perceived behavioral control toward drinking Brand A milk?

RQ4: Does product involvement change the relationship between image restoration strategies and each component of TPB?

## CHAPTER 3

### METHOD

#### Research Design

Conducting experiments is the one of the most popular methods used in message effect and cognitive research. The internal control of subjects, treatment, and confounding variables enable us to explain the causal relationships among variables. Although some researchers argue whether we can ever really prove a cause-and-effect link among variables, the experiment is undoubtedly one of the best social science research methods for establishing causality.

The experiment is the most suitable research method for this study. The major concern of the study is the effects of message strategies on each cognitive component of TPB. A lot of the experimental research done so far also illustrates the appropriateness of the methodology. Moreover, many crisis communication researchers argue for the need for more empirical studies. Most of the research related to TPB is performed under the experiment setting as well.

The experiment in this study seeks to further test Coombs and Holladay's (2004) SCCT in a food crisis context. This will not only enrich the previous research but also give practical guidelines in a real situation by designing the experiment to be as close as possible to a real situation.

This chapter will discuss the procedure of the experiment from preparation to execution. First, the processes of recruiting and of data collection will be described. Next, the research design and questionnaire construction process will be discussed.

#### Participants

According to TPB, a target should have similar backgrounds or characteristics so that confounding variables can be controlled. To ensure a large number of participants with similar

characteristics, participants were recruited through introductory classes in journalism and mass communication major at a public southeastern university. Three months prior to the experiments, the researcher began recruiting the participants and got permission from an instructor of a large introductory class having more than 300 students.

Three weeks before the first experiment day, participants in the class were informed through the instructor about aspects of the research such as a brief description of the research, the expected length of time, the date, and the place. They were also informed that participation was totally voluntary. They got one point of extra credit as a compensation for participation, but they had alternatives to get the same extra credit if they did not want to participate in the study.

The number of the sample for this study was 245 (N=245). The experiments were executed two times: the first one for background measurement and the second one for the real test. 266 students participated in the background measurement, and 261 students participated in the second experiment. However, 21 students from the background measurement and 16 students from the second test were dropped because only data gathered from both sections are valid for the data analysis.

Among the 245 participants, 177 (72.2%) were female, and 68 (27.8%) were male. The median age was 20, and 99 % of the participants were from 18 to 22 years old. Their year in school varied from freshman to senior: 13.1% of them were freshmen, 35.5% sophomores, 26.1% juniors, 24.9% seniors, and 4% unknown. 78.4 % of the participants were from Georgia. Of the rest, four students were from countries other than the United States, and the others were from 28 different states across the United States. 209 (85.3%) were White/Caucasians, 17 (6.9%) were African-American, and 19 (7.8%) were others such as Hispanic/Spanish origin, Asian, and Native American.

## Research procedure

The researcher followed the guidelines and provisions set by the University of Georgia Institutional Review Board, and materials used in the experiment were pre-approved. Experiments were executed two times: the first one for background measurement on February 28, 2007 and the second one for the real test on March 30, 2007. They were conducted in the classroom during the class.

### *Background measurement*

Before the background measurement, the participants were briefly introduced to the project and were given the consent form approved by the University of Georgia Institutional Review (see appendix B). The participants who signed up for the consent form completed a background measurement that consisted of three items to measure involvement with milk as a product category, 29 items to measure each component of the TPB, and five items for background information such as gender, age, and ethnicity. It took 10 minutes for participants to complete the survey.

### *Real Experiment*

A month later, the experiment was conducted with the same students. The participants were briefly introduced to the project again. Seven types of questionnaires depending on message strategies were randomly passed out to the students. According to the provisions of the University of Georgia Institutional Review Board, before exposing them to the stimuli, the researcher let the participants know the messages of the articles and messages from the company were fictitious. However, to make the study valid and to maximize experiment effects, the researcher asked the participants to assume the messages were totally true.

The experiment consisted of two parts: a news article and response messages from the company. Participants first read a news story about a milk contamination accident and answered questions about each component of the theory of planned behavior toward drinking milk and drinking Brand A milk, respectively. The number of items to measure feelings or perceptions toward drinking milk is 29, and they are exactly the same as the questions in the background measurement. Meanwhile, the number of items to measure feelings or perceptions toward drinking Brand A milk is 28. They are almost the same as the questions concerning milk but modified because the brand is so fictional that the original questions/the first set of questions could not be asked directly.

Next, participants were provided one of the seven response message strategies from the company and answered the same questions following the news article. Four of the message strategies are single message strategies: denial, excuse, apology, and corrective action. The other three messages are combinations of the single message strategies: denial, excuse, and apology, each with corrective action.

It took about 20 to 30 minutes for the participants to finish. All participants completed the survey at the same place where the regular class was held.

### Research Design

The experiment employed a two-way mixed design in which one independent variable was a between-subjects factor and the other independent variable was a repeated or within-subjects factor. In this study, the between-subjects factor was the treatment group, which was divided by seven types of message strategies, and milk involvement, which was divided by the level of milk involvement into high, medium, and low. The repeated factor was time. Dependent variables were measured three times for milk and two times for brand to examine the article's

effects and the response messages' effects. Table 3.1 is a visual illustration of the research design.

Table 3.1 *Research Design*

<b>Time 1</b>	<b>Stimuli 1 (News article)</b>	<b>Time 2</b>	<b>Cell</b>	<b>Stimuli 2 (CEO Statement)</b>	<b>Time3</b>
7 components of theory of planned behavior toward milk	News article	7 components of theory of planned behavior toward milk	1	Denial	7 components of theory of planned behavior toward milk
			2	Excuse	
			3	Apology	
			4	Corrective Action	
			5	Denial + Corrective Action	
			6	Excuse + Corrective Action	
			7	Apology + Corrective Action	
Background information - milk involvement - gender, age, ethnicity, school year, hometown		7 components of theory of planned behavior toward brand			7 components of theory of planned behavior toward brand

### Conceptual and Operational Definition

#### *Independent variable: Message Strategy*

Message strategies can be differentiated by the attitude of an organization toward a crisis. The operational definition of each message strategy was given Coombs and Holladay's (2004) definition of defensive message strategies. Denial is when a company denies the crisis happened and reinforces the denial by explaining why the event could not have happened. Excuse is when a company argues that the organization could not control events leading to the crisis. Apology is when a company has the organization accept responsibility for the crisis and apologizes for the accident. Corrective action is when a company offers gifts or compensations to counterbalance the crisis. A company also takes actions to restore the crisis situation to normal operation or promises to make changes which will prevent a repeat of the crisis in the future. The message treatments were designed for this study and confirmed by a manipulation check.

*Moderating Variable: Milk involvement*

Milk involvement was categorized into three groups depending on the level of involvement: high, medium, and low involvement group. High involvement people are those who drink milk at most meals, cook with milk regularly, pay attention to different brands of milk, or would like to read an article about milk. Meanwhile, low involvement people are those who never drink milk or do any of those behaviors except for cooking with it occasionally.

First, milk involvement was measured by the product involvement scale used by Zinkhan, Locander, and Leigh (1986). The participants responded to three statements: “you are involved with milk, you use milk, and you are interested in milk relative to other people.” Scores of three items on a 5-point Likert scale that ranged from 1 (*very little*) to 5 (*very much*) were summated.

Then, the participants were grouped into three categories by percentile. 32.2 percent of participants (n= 76) with the highest scores fell into the high involvement group; 37.3 percent of participants (n=88) in the middle fell into the medium involvement group; 30.5 percent of participants (n=72) with the lowest scores fell into the low involvement group (see Table 3.2). One-way ANOVA was executed to confirm the grouping was appropriate. The means of each involvement group were significantly ( $p < .000$ ) different from one another (see Table 3.3).

Table 3.2 *Descriptive Statistics of Milk Involvement*

Involvement group	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
Low	76	1.77	.75	.09
Medium	88	3.21	.41	.04
High	72	4.32	.47	.06
Total	236	3.08	1.16	.08

Table 3.3 *Analysis of Variance for Milk Involvement*

Source	<i>df</i>	<i>F</i>	<i>p</i>
Between groups	2	388.17	.000
Within groups	233		
Total	235		

### *Dependent variable*

Ajzen and Fishbein (1980) specified a clear set of guidelines for the operationalization of the components of the model.

#### *Behavior intention*

Ajzen and Fishbein (1980; Fishbein & Ajzen, 1975) defined behavior intention as the person's subjective probability of how he or she intends to behave. In this study, the behavior intention was defined as a person's intention toward drinking milk and drinking Brand A milk. It was operationalized as scores on a 5-point semantic differential scale about the likelihood of drinking milk in the coming month.

#### *Attitude toward the behavior*

Fishbein and Ajzen (1975) defined attitude toward the behavior as the person's evaluation of the target behavior or, in other words, his or her feeling of favorability or unfavorability toward performing the behavior. Ajzen and Fishbein (1980) noted that the semantic differential technique developed by Osgood and his colleagues (Osgood, Suci & Tannenbaum, 1957) is recommended for this purpose, given that this technique yields a relatively direct measure of a person's attitude (Ajzen, 1988) and can be used across a wide range of attitude domains (Osgood et al., 1957).

In this study, the attitude toward the behavior was defined as a person's feeling of favorability or unfavorability toward drinking milk and drinking Brand A milk. It was operationalized as the average scores of items measuring instrumental aspects, experiential aspects, and overall evaluation of attitude toward behavior using a 5-point semantic differential scale. Such adjective pairs as *valuable/ worthless* and *harmful/ beneficial* measured instrumental

aspects of attitude; *Pleasant/unpleasant* and *enjoyable/unenjoyable* pairs were the experiential quality of attitude; *good/bad* pair was an overall evaluation of the behavior.

### *Subjective Norm*

The subjective norm can be defined as the person's subjective judgment concerning whether significant others would want him or her to perform or not to perform the behavior. In this study, the subjective norm was defined as a person's judgment concerning whether significant others such as parents, friends, and school would want him or her to be drinking milk. It was operationalized as average scores of items to measure injunctive quality and descriptive norms using both 5-point Likert and semantic differential scales. Injunctive quality is consistent with the concept of the subjective norm, and descriptive norms are whether important others themselves perform the behavior in question. For example, "most people who are important to me think that *I should* or *should not* drink milk" is one of the questions to measure injunctive quality. In contrast, the statement that "most people who are important to me drink milk" with the scale of *completely true* or *completely false* is one of the questions to measure descriptive norms.

### *Perceived behavioral control*

Perceived behavioral control can be defined as people's confidence that they are capable of performing the behavior under investigation. In this study, the perceived behavioral control was defined as a person's confidence that he or she has control over drinking milk.

Perceived behavioral control was operationalized as average scores of items to measure respondent's perceived capability of performing the behavior and controllability over the behavior using both 5-point Likert and semantic differential scales.

### *Belief composites*

Behavioral beliefs, normative beliefs, and control beliefs are commonly comprised of two composites: behavioral belief strength and outcome evaluation for behavioral beliefs, normative belief strength and motivation to comply for normative beliefs, and control belief strength and control belief power for control beliefs.

In this study, behavioral belief strength was defined as the probability of or how likely outcomes of drinking milk will happen. Outcome evaluation is the evaluation of the outcomes. Normative belief strength is the beliefs about reference groups' expectations toward a person's drinking milk. Motivation to comply is defined as the general motivation to comply with reference groups' expectations. Control belief strength is beliefs about the presence of external factors that may facilitate or impede drinking milk. Control belief power is defined as the perceived power of those external factors.

Each belief was operationalized as scores obtained by multiplying two composites under the same belief category and then summing the multiplied scores. Each composite was measured using 5-point Likert or semantic differential scales.

### Stimuli

#### *News article*

The product was selected through brief interviews with six graduates and four undergraduates to find the most popular product in the food category as well as one with no history of, but potential for, contamination and various levels of involvements. To make the story and layout look realistic, the news article was written and designed based on a real case study and real articles (see Appendix F). The milk contamination article was based on the real-world crisis in Helena, Montana reported to the Centers for Disease Control and Prevention in 1995

(see Appendix A). The layout was based on the spinach E.coli outbreak articles in the fall of 2006.

The headline captured the theme of the accident, the search for the source of the E.coli outbreak. On the upper side of the article, the sub-title, “no clear answer yet,” emphasized that the accident was still under investigation. In order to increase involvement with the accident, the source of the newspaper article was selected as the Atlanta Journal-Constitution, which is the most popular local newspaper in Georgia, and the article was dated Monday, March 26, 2007, which was close to the experiment day. For a high impact on participants, considering the only one-time exposure of the article, the researcher fabricated the article with 20 people dead and 300 people sickened. The suspected sources were reinforced with bold type. Since the history of a crisis can be an important factor which influences the message effects (Coombs, 2000), it was ensured that there was no E.coli outbreak history related to milk. The article was 304 words in length.

#### *Message strategies*

The message strategies were selected and written in accordance with Coombs and Holladay (2004)’s categorization and definition of postures and crisis communication strategies. Based on a review of real articles about previous food contamination accidents, selected message strategies were written. The format of each message strategy was consistent, and it featured an official letter from the CEO of Brand A addressing the accident (appendix G). It contained the date, contact information, and signature of the CEO. All information such as the CEO’s name and contact information were fictitious. The following illustrates the four message strategies.

[Denial]

**No accident happened with Brand A milk**

We at **Brand A** are confident that, when the source of the e-coli contamination is isolated, it will **NOT** be in any of our farms or facilities. We have, over the years, completely overhauled the way we test, produce, process, and package milk. Moreover, no bacteria can be found in our milk because the last stage of processing our milk is pasteurization at a high temperature, 110° F, where no bacterium can survive. It is impossible that our milk is contaminated by E.coli and has caused this outbreak.

[Excuse]

**Beyond our control**

This E.coli outbreak is a serious accident beyond our control. We at **Brand A** followed the regulations set by the government, and we as a leading dairy company do our best to produce the best quality of milk. However, no matter how completely well-designed the process, there is always the possibility of problems nobody can control. When you consider the Spinach E.coli outbreak, Taco Bell’s green onion E.coli outbreak, and the recent peanut butter salmonella case, they were all cases the companies could not control. In particular, an E.coli outbreak is one of the frequent problems caused by food and not a problem unique to milk. According to the national Centers for Disease Control and Prevention, there have been over 400 widespread or localized E.coli cases every year. E.coli sickens about 40,000 people a year in the U.S. and kills about 600. We suspect that the unusually warm temperatures of this winter might have caused this outbreak during transport of our dairy products.

[Apology]

**We apologize: “Truly sorry about this accident”**

We are truly sorry about this tragic accident. As a leading producer and supplier of milk in the Atlanta area, we have an enormous responsibility. We will do whatever is necessary to protect the health and safety of the public. We have learned many lessons from this accident. Regardless of the source or method of contamination, we are better prepared to prevent it in the future. We are doing our best to identify the source and fully cooperate with the government.

[Corrective action]

**An important action for our milk consumers**

We at **Brand A** have today taken what we believe to be the right action needed to prevent a repeat of this crisis in the future. We have voluntarily recalled all varieties of Brand A

milk. We continue to work with the Food and Drug Administration to investigate the link between our products and the illness caused by E.coli. You can also get a refund by returning your open or unopened Brand A milk to the store where you bought it. We have installed a hot-line. If you need any additional information about the recall of Brand A milk or have any questions or concerns, call our 24-hour, toll-free number at (800) 690-3200.

### Pilot test

The pilot test in this study had two purposes: manipulation check (see Appendix D) and questionnaire construction (see Appendix E). The pilot test was conducted with 15 graduate and undergraduate students in January, 2007.

#### *Manipulation check I*

Only single message strategies, hence, four different message strategies were tested to see whether students understood the messages as the researcher originally intended. Only the contents of messages without any format were illustrated, and the definitions of message strategies were derived from Coombs and Holladay (2004). Students were asked to match the messages and the definitions of each message strategy, and all 15 students matched messages to definitions correctly.

#### *Questionnaire construction*

This is to construct items to measure belief composites. According to the Ajzen's guideline (2006), pilot work was required to identify accessible behavioral beliefs, normative beliefs, and control beliefs. A total of eight open-ended questions were asked (appendix D).

To elicit behavioral beliefs, participants were given a description of the behavior and were asked expected outcomes: "What do you believe are the advantages and disadvantages of your drinking milk," "Is there anything else you associate with your drinking milk." Participants

answered getting calcium or vitamin D and enjoying food such as bread or cereal as advantages. They answered causing health problems such as diarrhea or allergies as disadvantages.

For normative beliefs, participants were asked to elicit the identity of relevant referent individuals and groups that readily come to mind: “Are there any individuals or groups (family members, close friends, organizations, government, etc.) who would approve of or encourage you to drink milk,” “Are there any individuals or groups (family members, close friends, organizations, government, etc.) who would disapprove of or discourage you from drinking milk,” “Are there any other individuals or groups who come to mind when you think about drinking milk.” Participants identified parents, friends, teachers in schools, and governments through campaigns as groups which encourage drinking milk.

For control beliefs, the participants were asked to generate a list of external factors that might facilitate or impede performance of the behavior: “What factors or circumstances would enable you to drink milk,” “What factors or circumstances would make it difficult or impossible for you to drink milk,” “Are there any other issues that come to mind when you think about the difficulty of drinking milk.” Participants listed the rising price of milk, milk-related accidents, and disease from cows as factors that would prevent them from drinking milk.

### Questionnaire

There were two sets of questionnaires. The one is for background measurement; the other one is for the real experiment section. The questionnaires were reviewed by an instructor and several graduate students, and ambiguous or confusing questions, spelling errors, and overall organization were revised.

### *Background measurement*

The questionnaire contained items to measure milk involvement, background information, and each component of TPB toward drinking milk. The participation consent form was attached on the front.

The first set of questions consisted of 3 items to measure milk involvement. The second set of 29 questions was constructed to measure each component of TPB toward drinking milk. Questions 1 to 3 were to measure behavioral belief strength; Questions 4 to 6 were to measure outcome evaluation. Behavioral belief strength and outcome evaluation were designed to be paired, and the questions derived from pilot research. Question 7 was comprised of 5 items to measure global attitude toward the behavior. The first item labeled *good/bad* asked about overall evaluation; the second item labeled *valuable/worthless* and fourth item labeled *beneficial/harmful* asked about instrumental quality; the third item anchored *pleasant/unpleasant* and fifth item anchored *enjoyable/unenjoyable* concerned experiential quality.

Questions 8 to 11 were the items assessing normative belief strength; questions 12 to 15 were to assess motivation to comply. Normative belief strength and motivation to comply also could be paired, and the questions were drawn from pilot research. Questions 16 to 19 were the items to measure the global subjective norm: the first two questions concerned descriptive norms while the other two questions asked about injunctive quality.

Questions 20 to 22 were the items to assess global perceived behavioral control: the first two questions captured respondents' perceived capability of performing the behavior; the third question measured controllability. Questions 23 to 25 were the items to measure control belief strength; Questions 26 to 28 were to measure control belief power. These two belief composites

under perceived control construct were also designed to be paired, and they derived from pilot research.

Question 29 was the item asking about behavior intention. Behavior intention was the item asking behavior intention directly. The third set of questions asked background information such as gender, age, hometown, year in school, and ethnicity.

### *Experiment questionnaire*

There were two sections on the experiment questionnaire: a pretest section after reading a news article and a posttest section after reading a message from the company (see Appendix H). The overall construction was the article → 29 questions assessing each component of TPB toward drinking milk and 28 questions toward Brand A milk → treatment messages → 29 questions assessing each component of TPB toward drinking milk and 28 questions toward Brand A milk again. Consequently, the components of TPB toward drinking milk were measured three times; the components toward drinking Brand A milk were measured two times through the study.

After participants completed the pretest section of the questionnaire, they were not allowed to turn back to the newspaper article or pages they had already completed since the difference between the pretest and posttest should be examined to see the effect of the newspaper article and the messages.

## Data Analysis

### Data screening

All data were entered into SPSS. Regardless of the value of the number, all the data were entered starting from 1 on the left side of the answer sheet and 5 on the right side of the answer sheet. Thereafter, the data screening process was conducted. As an initial and critical step before

proceeding with data analysis, the data screening process ensures that a given data set is accurate and appropriate for the study.

First, data accuracy was checked by re-entering some of the data and running descriptive statistics to find any data entry errors. To judge the appropriateness of the data, a manipulation check, outlier test, and missing value examination were executed, and some of the data were filtered out. Even though there was no data entry error, the quality of data should also be examined since some careless responses or participants' misunderstanding of questions and unusual or extreme data can distort the results.

#### *Data entry*

A number was given to each of the questionnaires as a case identification number. Thirty randomly picked samples out of 245 cases were recoded and matched by case identification number. They were perfectly identical: the reliability alphas of each variable were 1.0.

The frequencies of each variable were also examined to identify out-of-range data. Especially for the huge number of the sample, there are usually data entry mistakes such as entering "33" rather than "3," which is one of the most popular causes of outliers. In this study, all the variables fell into proper ranges from 1 to 5.

#### *Manipulation check II*

Manipulation check of the messages was executed again in the real test section to examine participants' involvement in the study or whether they understand the messages as the researcher originally intended.

The participants who checked the wrong answer were deleted from the dataset since they could be persons who are less involved with the study or who misunderstood the messages. Those kinds of data might distort the results or prevent getting finer results at least. A total of

nine participants who failed to match the strategies with the messages were eliminated from the dataset.

### *Outlier test*

Hair, Anderson, Tatham, and Black (1998) identify four reasons for outliers in a dataset: data entry errors, a function of extraordinary events, extreme data with no explanation, and multivariate outliers whose uniqueness occurs in their pattern of combination of values of several variables.

Of those four reasons, data entry errors had been already checked out, and there was no error. Also, just to make sure, all data identified in univariate outlier searches, which will be explained below, was thoroughly re-checked as well. However, there was no outlier caused by data entry.

The outliers resulting from a data entry error can be fixed easily. However, the outliers due to other reasons are complex to deal with since it is hard to determine whether they should be deleted or not. Arguably there are always going to be outliers in the general population as a whole, so that retaining the score might better reflect something natural in the general population.

In order to identify the outliers and to decide what to do with them, two diagnoses were conducted: a univariate outlier test and a multivariate outlier test. According to Barnett and Lewis (1978), the detection of univariate outliers should be the first step in the detection of multivariate outliers. First of all, a univariate outlier test was conducted by an inspection of the frequency distribution, histogram, and box plot for each variable. According to the guideline of Tabachnick and Fidell (2001), dichotomous variables such as yes or no questions and variables with open-ended questions were not included.

The outliers identified in the univariate outlier test were ignored. Cohen, West, and Aiken (2003) state that if outliers are few (less than 1 % or 2 % of  $n$ ) and not very extreme, they are probably best left alone. The number of the outliers identified in the box plot of each variable was less than five. Therefore, all the outliers at this univariate outlier test were kept.

In addition, a multivariate outlier test was also conducted. Even though two-way mixed design, the biggest frame of this study, is a part of univariate analysis, a multivariate outlier test is needed since theoretically each dependent variable is very closely related. Repeatedly measured dependent variables across time were regarded as different variables. And the variables for the milk and the brand were analyzed separately. For the multivariate outlier test, Mahalanobis distance statistics, the most popular way of assessing the presence of multivariate outliers, was examined. Each case is evaluated using the Chi-square distribution with a stringent alpha level of .001. For the dependent variables of the milk, three outliers were identified, and for the dependent variables of the brand, eight outliers were identified.

To determine the influence, each case was deleted one by one, and the sensitivity was examined by looking at the changes of correlation coefficients, regression coefficients, and chi-square scores. Two cases were eliminated from the data of the milk and the brand, respectively.

#### *Missing values*

As a general rule, variables containing missing data on 5 % or fewer of the cases can be ignored (Tabachnick & Fidell, 2001). In this study, the highest amount of missing values was four, which is clearly less than 5 % of the total of 245 cases. Hence, the missing value will not be a problem in this study.

## Recoding

### *Inverse coding*

Items were initially coded by place regardless of the meaning of the answers. Therefore, items then needed to be recoded by the values of the answers. In recoding, the highest number, 5, was assigned to the answers which would be favorable to the behavior. The lowest number, 1, was given to the answers which would be unfavorable to the behavior. For example, if a participant perceived something extremely *good/valuable/pleasant/beneficial/enjoyable* about drinking milk, 5 was entered into the answers. Regarding the question asking about control beliefs such as “how often do you hear news of a milk-related accident or problem,” the answer of *very rarely* was coded into 5, and *very frequently* was coded into 1. Since news of a milk-related accident or problem is a factor which impedes drinking milk, *very rarely* will indicate high controllability towards the behavior, and, in turn, would be related to a favorable or positive attitude towards the behavior.

### *Optimal scaling*

According to Ajzen (2006)’s methodological considerations, outcome evaluation, motivation to comply, or control belief power, which is one of two belief composites, can be coded either as unipolar or bipolar. For example, in the behavioral beliefs, belief strength and outcome evaluation can be both scored in a unipolar fashion, from 1 to 5, with higher numbers representing greater subjective probabilities and more favorable evaluation. Alternatively, it would be possible to use bipolar scoring, from -2 to +2, such that low probabilities and unfavorable evaluations would be represented by negative numbers. Ajzen (2006) recommended retaining the scores that produce a stronger correlation between the belief composite and the related latent variables.

In this study, unipolar scaling was selected for all belief measures. Table 3.2 shows the correlation between two variables, and unipolar scales produced higher scores across all three beliefs.

Table 3.4 *Correlation Comparison between Unipolar and Bipolar Scales*

Pair of variable	Scale (N = 234)	
	Unipolar	Bipolar
Behavior Beliefs - Attitude	.716	.378
Normative Beliefs - Subjective norm	.566	.359
Control Beliefs - Perceived behavioral control	.044	.022

#### Reliability Test

The set of items measuring behavioral attitude, subjective norm, perceived behavioral control, and behavior intention must show high internal consistency (Ajzen, 2006). Cronbach's coefficient alpha was used for this study. Nunnally (1978) has indicated Cronbach's coefficient alpha .70 to be an acceptable reliability coefficient. Cronbach's alphas for each variable are reported in Table 3.5. All inter-item reliabilities were higher than the cut-off value, .70.

In contrast, for theoretical reasons, the requirement of high internal consistency was not imposed on the belief composites that are assumed to determine attitudes, subjective norms, and perceived behavior control (Ajzen, 2006).

Table 3.5 *Item Reliability*

	Number of items	Cronbach's Alpha				
		Time 1	Time 2		Time 3	
		Milk	Milk	Brand	Milk	Brand
Milk involvement	3	.878				
Attitude toward behavior	5	.943	.947	.931	.949	.949
Subjective norm	4	.790	.765	.890	.830	.873
Perceived behavioral control	3	.703	.758	.700	.719	.752

*Note.* The label, milk, is the measure of TPB toward drinking milk. The label, brand, is the measure of TPB toward drinking Brand A milk.

### Data analysis

SPSS were used for data analysis. Two-way mixed design ANOVA was employed to examine the effects of the news article and response messages. Even though each component of TPB is highly correlated, it was examined separately as univariate analysis because of the complexity of research design. For more in-depth analysis, paired-sample *t* test and one way ANOVA were also partially employed.

### Normality

For univariate and multivariate data analysis, there are two main assumptions. First, the dependent variable is normally distributed in the population. Second, the population variances of the difference variables are equal. The equal variance test will be dealt in the results section.

For normality test, the skewness and kurtosis values for each dependent variable were examined. Except for the 'perceived behavioral control' variable, all variables were within the acceptable range (skewness: +/-2, kurtosis: +/-3). However, 'perceived behavioral control' toward drinking milk at time 1 (-2.129) and time 3 (-2.297) and toward drinking Brand A milk at time 2 (-2.048) were skewed to the left. The kurtosis for 'perceived control behavior' toward drinking milk at time1 (4.725), at time2 (3.322), and at time3 (5.713) and toward drinking Brand A milk at time1 (3.619) were out of range.

In order to repair the normality problem, this study chose the transformation method, which corrects left skew (Boneau, 1960). He recommends first subtracting all values from the highest value plus 1, then applying square root, inverse, or logarithmic transforms. In this study, since the highest value was 5, 6 was subtracted from all values, and a logarithmic transform was applied. To be consistent, this transformation was all applied to all 'perceived control behavior' variables across time and target. Then, the correlation between the original values and the transformed values was checked. The correlation coefficient was .98, meaning that the transformation process minimally distorted the original values.

## CHAPTER 4

### RESULTS

#### Article effects

Hypothesis one is to examine the news article effects and the moderating effect of milk involvement on each component of TPB. Two subhypotheses were constructed: (a) The news article will change the seven components of TPB toward resuming milk consumption among participants. (b) In the low involvement group, the news article will change the seven components of TPB toward resuming milk consumption among participants even more.

The article effect on the components of TPB was analyzed by means of a two-way mixed design ANOVA having three levels of milk involvement (high, medium, and low) as a between-subjects factor and two levels of time (time1: before reading the article and time2: after reading the news article) as a within-subjects factor. The seven dependent variables were examined one by one.

Regarding *behavioral beliefs*, the within-subjects main effect of time was not statistically significant,  $F(1, 225) = .29, p = .59$ , indicating that the news article did not affect the behavioral beliefs toward drinking milk. The between-subjects main effect of milk involvement was statistically significant,  $F(2, 225) = .29, p < .001, \eta^2 = .23$ . The interaction effect of Milk involvement X Time was statistically significant,  $F(2, 225) = 3.20, p = .04, \eta^2 = .03$ .

The nature of the main effect of milk involvement was determined using a Tamhane adjusted multiple comparison test. The results showed that the low involvement group ( $M = 49.86, SE = 1.43$ ) was significantly different from both the medium involvement group ( $M = 61.86, SE = 1.36$ ) and high involvement group ( $M = 65.94, SE = 1.48$ ). However, there was no statistical difference between the medium involvement group ( $M = 61.86, SE = 1.36$ ) and high

involvement group ( $M = 65.94$ ,  $SE = 1.48$ ). The behavioral beliefs of the high involvement and medium involvement groups were higher than the low involvement group both at time 1 and time 2.

Three paired-sample  $t$  tests were conducted within each milk involvement group to follow up on the significant interaction. The differences in the ratings of behavioral belief between time 1 and time 2 were not all significantly different in the low involvement group,  $t(74) = -1.49$ ,  $p = .14$ , the medium involvement group,  $t(82) = -1.22$ ,  $p = .23$ , and the high involvement group,  $t(69) = 1.66$ ,  $p = .10$ . The behavioral beliefs in the high involvement group were lowered while the behavioral beliefs in the medium involvement group and low involvement group were increased. These results might cause the interaction effect between milk involvement and time, but all changes of behavioral beliefs across the involvement groups were not statistically significant (see Figure 4.1).

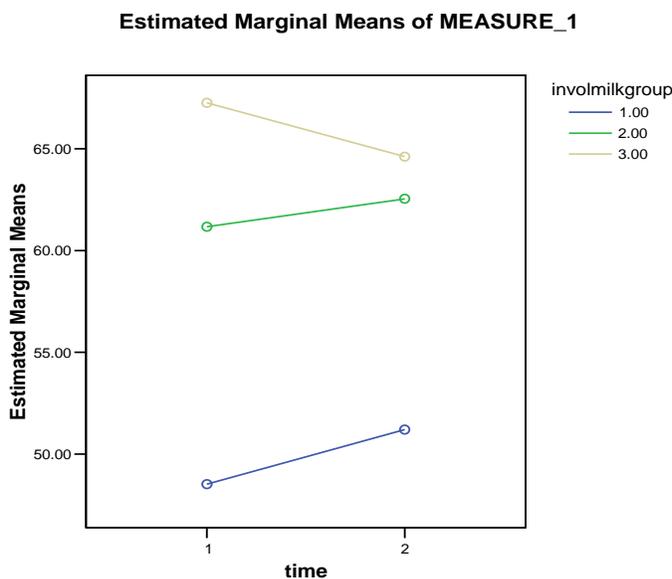


Figure 4.1 Interaction Effects of Article and Involvement on Behavioral Beliefs

The answers for research question 1a and 1b are that the news article did not change behavioral beliefs among participants toward drinking milk, and there is no milk involvement group effect on the news article effects as well.

As for *normative beliefs*, the within-subjects main effect of time was statistically significant,  $F(1, 221) = 11.94, p = .001, \eta^2 = .05$ . The between-subjects main effect of milk involvement was statistically significant,  $F(2, 221) = 14.64, p < .001, \eta^2 = .12$ . The interaction effect of Milk involvement X Time was not statistically significant,  $F(2, 221) = .004, p = .996$ , indicating that the degrees of increasing normative beliefs were all the same across the level of milk involvement.

The nature of the main effect of time was examined using Bonferroni adjusted pairwise comparisons. The results showed that normative beliefs at time 1 ( $M = 45.84, SE = 1.03$ ) were significantly different from normative beliefs at time 2 ( $M = 48.93, SE = 1.08$ ), showing that the news article increased the normative beliefs about drinking milk (see Figure 4.2).

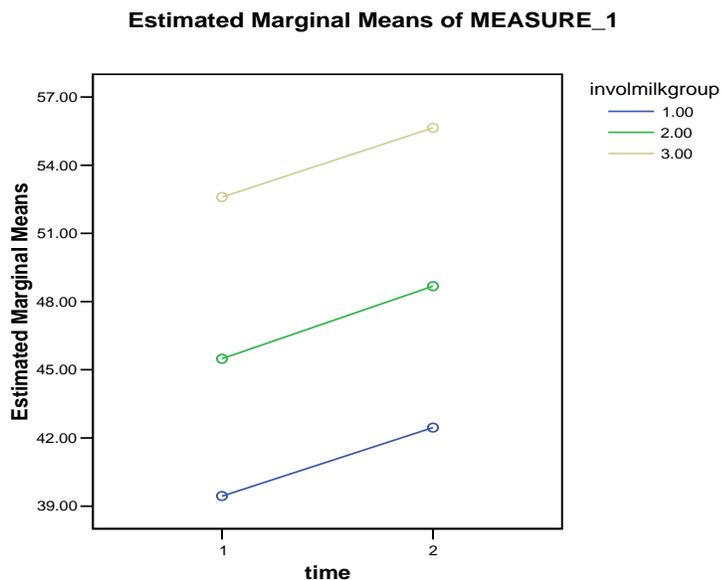


Figure 4.2 Article Effects on Normative Beliefs

Also, a Bonferroni adjusted multiple comparison test was conducted to examine the main effect of milk involvement. The results showed that low ( $M = 40.95$ ,  $SE = 1.70$ ), medium ( $M = 47.08$ ,  $SE = 1.53$ ), and high ( $M = 54.12$ ,  $SE = 1.74$ ) involvement group means were all significantly different from one another. The higher milk involvement group had the higher normative beliefs.

The answers for research question 1a and 1b are that the news article changed normative beliefs among participants toward drinking milk, but there was no milk involvement group effect on the news article effects. The news article increased normative beliefs of participants about drinking milk in all three milk involvement groups, but the degrees of increasing normative beliefs were all the same regardless of the level of milk involvement.

Regarding *control beliefs*, the within-subjects main effect of time was statistically significant,  $F(1, 226) = 7.08$ ,  $p = .008$ ,  $\eta^2 = .03$ . Meanwhile, the between-subjects main effect of milk involvement,  $F(2, 226) = 2.81$ ,  $p < .06$ , and the interaction effect of Milk involvement X Time,  $F(2, 226) = .47$ ,  $p < .63$ , were not statistically significant. These results indicate that the decreases of control beliefs were all the same across the level of milk involvement, and there is no difference in the control belief among the milk involvement group both at time 1 and time 2.

The nature of the main effect of time was examined using Bonferroni adjusted pairwise comparisons. The results showed that control beliefs at time 1 ( $M = 32.73$ ,  $SE = .83$ ) were significantly different from normative beliefs at time 2 ( $M = 30.63$ ,  $SE = .73$ ). Overall, the news article decreased the control beliefs about drinking milk (see Figure 4.3).

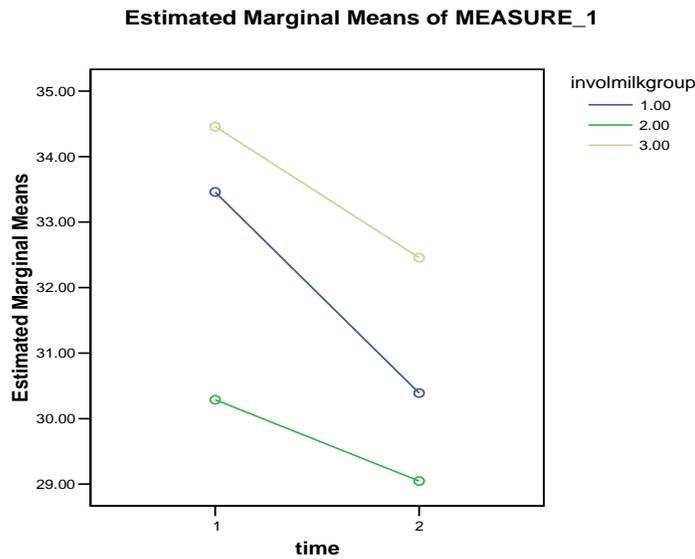


Figure 4.3 Article Effects on Control Beliefs

These results support hypothesis 1a that the news article lowers control beliefs among participants toward drinking milk. The news article decreased control beliefs of participants about drinking milk in all three milk involvement groups. However, hypothesis 1b that the news article would change control beliefs more toward drinking milk in the low involvement group is not supported. There was no interaction between milk involvement and time, and there was even no main effect of the milk involvement group, indicating that the degrees of decrease of control beliefs were all the same across the levels of milk involvement.

Regarding *attitude toward behavior*, the within-subjects main effect of time,  $F(1, 231) = 3.81, p = .052$ , was not statistically significant. This result indicated that the news article did not change the attitude of the participants toward the behavior. The between-subjects main effect of milk involvement, however, was statistically significant,  $F(2, 231) = 86.62, p < .001, \eta^2 = .43$ . The interaction effect of Milk involvement X Time,  $F(2, 231) = .16, p = .86$ , was not statistically significant, indicating that regardless of the level of milk involvement, there was equally no difference in attitude toward the behavior.

The nature of the main effect of milk involvement was determined using a Tamhane adjusted multiple comparison test. The results showed that the low ( $M = 3.04$ ,  $SE = .86$ ), medium ( $M = 4.04$ ,  $SE = .08$ ), and high ( $M = 4.64$ ,  $SE = .09$ ) were all significantly different from one another. The higher involvement group showed higher attitude toward the behavior.

The answers for research questions 1a and 1b are that the news article did not change attitude toward drinking milk, and there is no milk involvement group effect on the news article effects as well. Regardless of the level of milk involvement, there was no change in attitude toward the behavior.

Regarding *subjective norm*, the within-subjects main effect of time,  $F(1, 231) = .98$ ,  $p = .32$ , was not statistically significant. This result indicated that the news article did not change the subjective norm toward drinking milk. The between-subjects main effect of milk involvement, however, was statistically significant,  $F(2, 231) = 17.37$ ,  $p < .001$ ,  $\eta^2 = .13$ . The interaction effect of Milk involvement X Time was not statistically significant,  $F(2, 231) = 2.51$ ,  $p = .08$ , indicating that regardless of the level of milk involvement, there was equally no difference in subjective norm.

The nature of the main effect of milk involvement was determined using a Bonferroni adjusted multiple comparison test. The results showed that the low ( $M = 3.09$ ,  $SE = .08$ ), medium ( $M = 3.50$ ,  $SE = .07$ ), and high ( $M = 3.73$ ,  $SE = .08$ ) were all significantly different from one another. The higher involvement group had a higher subjective norm.

The answers for research questions 1a and 1b are that the news article did not change the subjective norm toward drinking milk, and there is no milk involvement group effect on the news article effects as well. Regardless of the level of milk involvement, there was no change in subjective norm toward the behavior.

Regarding *perceived behavioral control*, the within-subjects main effect of time,  $F(1, 231) = .14, p = .71$ , was not statistically significant. This result indicated that the news article did not affect perceived behavioral control toward drinking milk. The between-subjects main effect of milk involvement, however, was statistically significant,  $F(2, 231) = 40.23, p < .001, \eta^2 = .26$ . The interaction effect of Milk involvement X Time was not statistically significant,  $F(2, 231) = .26, p = .77$ , indicating that regardless of the level of milk involvement, there was equally no difference in perceived behavioral control.

The nature of the main effect of milk involvement was determined using a Tamhane adjusted multiple comparison test. The results showed that the low ( $M = -2.21, SE = .02$ ), medium ( $M = -.08, SE = .02$ ), and high ( $M = -.03, SE = .02$ ) were all significantly different from one another. The higher involvement group displayed a higher perceived behavioral control.

These results do not support hypothesis 1a that the news article lowers perceived behavioral control toward drinking milk. There was no difference in the perceived behavioral control between time 1 and time 2. Hypothesis 1b that in the low involvement group, the news article will change the perceived behavioral control toward drinking milk more is not supported, either. Regardless of the level of milk involvement, there was no change in perceived behavioral control.

Lastly, *behavior intention* was examined. The within-subjects main effect of time was not statistically significant,  $F(1, 230) = .22, p = .64$ , indicating that the news article did not affect the behavior intention toward drinking milk. The between-subjects main effect of milk involvement was statistically significant,  $F(2, 230) = 47.84, p < .001, \eta^2 = .30$ . The interaction effect of Milk involvement X Time was statistically significant,  $F(2, 230) = 3.30, p = .04, \eta^2 = .03$ .

The nature of the main effect of milk involvement was determined using a Tamhane adjusted multiple comparison test. The results showed that the low involvement group ( $M = 3.36$ ,  $SE = .12$ ) was significantly different from both the medium involvement group ( $M = 4.65$ ,  $SE = .11$ ) and the high involvement group ( $M = 4.84$ ,  $SE = .12$ ). However, there was no statistical difference between the medium involvement group ( $M = 4.65$ ,  $SE = .11$ ) and the high involvement group ( $M = 4.84$ ,  $SE = .12$ ). The behavior intentions of the high involvement and medium involvement groups were higher than the low involvement group both at time 1 and time 2.

Three paired-sample  $t$  tests were conducted within each milk involvement group to follow up on the significant interaction. All differences in the ratings of behavior intention between time 1 and time 2 were not statistically significant in the low involvement group,  $t(75) = -1.47$ ,  $p = .15$ , the medium involvement group,  $t(85) = 1.72$ ,  $p = .09$ , and the high involvement group,  $t(70) = 1.15$ ,  $p = .25$ . The behavior intentions in the high and medium involvement group were lowered while the behavior intention in the low involvement group was increased even though these changes were not statistically significant. This might result in an interaction effect (see Figure 4.4).

These results do not support hypothesis 1a that the news article lowers behavior intention toward drinking milk. There was no difference in the behavior intention between time 1 and time 2. Hypothesis 1b that in the low involvement group, the news article will change the behavior intention toward drinking milk more is not supported, either. Regardless of the level of milk involvement, there was no change in behavior intention.

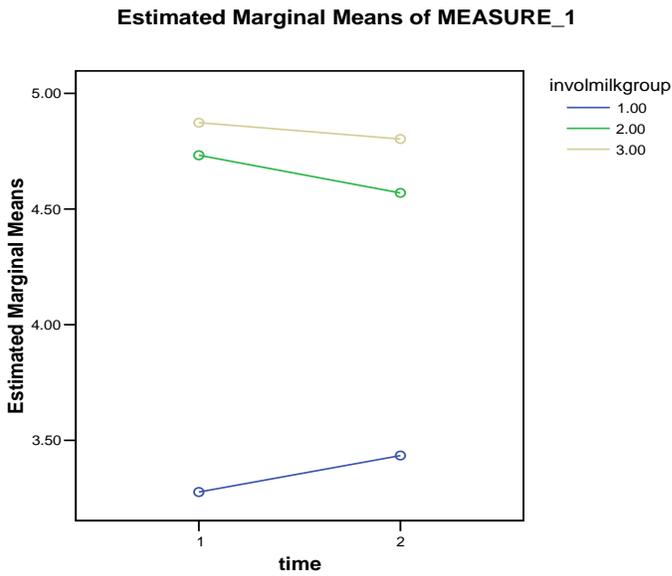


Figure 4.4 Article Effects on Behavior Intention

Table 4.1 ANOVA Results: Summary of Article Effects

Source	Type III Sum of Squares	df	Mean Square	F	p	$\eta^2$
<b>Behavioral beliefs</b>						
Article	25.082	(1,225)	25.082	.290	.591	.001
Involvement	20606.980	(2,225)	10303.490	33.778	.000**	.231
Article x Involvement	555.032	(2,225)	227.516	3.204	.042**	.028
<b>Normative beliefs</b>						
Article	1052.013	(1,221)	1052.013	11.939	.001**	.051
Involvement	11884.706	(2,221)	5942.353	14.638	.000**	.117
Article x Involvement	.751	(2,221)	.375	.004	.996	.000
<b>Control Beliefs</b>						
Article	501.987	(1,226)	510.987	7.075	.008**	.030
Involvement	1146.372	(2,226)	573.186	2.811	.062*	.024
Article x Involvement	65.944	(2,226)	32.972	.465	.629	.004
<b>Attitude toward behavior</b>						
Article	.731	(1,231)	.731	3.806	.052*	.016
Involvement	191.644	(2,231)	95.822	86.621	.000**	.429
Article x Involvement	.060	(2,231)	.030	.156	.855	.001

<b>Subjective norm</b>						
Article	.196	(1,231)	.196	.981	.323	.004
Involvement	31.514	(2,231)	15.757	17.373	.000**	.131
Article x Involvement	1.004	(2,231)	.502	2.512	.083*	.021
<b>Perceived behavioral control</b>						
Article	.001	(1,231)	.001	.143	.706	.001
Involvement	2.946	(2,231)	1.473	40.229	.000**	.258
Article x Involvement	.005	(2,231)	.002	.256	.774	.002
<b>Behavior intention</b>						
Article	.073	(1,230)	.073	.223	.637	.001
Involvement	197.881	(2,230)	98.940	47.841	.000**	.294
Article x Involvement	2.158	(2,230)	1.079	3.298	.039**	.028

Note. The within-subjects factor, 'time,' is labeled 'article' in this table.

\* $p < .10$ . \*\* $p < .05$ .

### Message effects

The message effects and the moderating effect of milk involvement on the seven components of TPB were analyzed by means of a two-way mixed design ANOVA having seven kinds of message strategies (denial, excuse, apology, corrective action, denial + corrective action, excuse + corrective action, and apology + corrective action) and three levels of milk involvement (high, medium, and low) as between-subjects factors and two levels of time (time2: before reading the messages released from the Brand A company and time3: after reading the messages) as a within-subjects factor.

The analyses were conducted one by one by each dependent variable. Then, message strategies related to the same dependent variables were compared all at once using multiple comparisons. If the dependent variables met the assumption of equal variance, a Bonferroni adjusted multiple comparisons test was examined. Meanwhile, if dependent variables did not satisfy the equal variance assumption, then Tamhane adjusted multiple comparisons were examined. Since hypotheses regarding message comparisons presumed that one of the strategies would be higher than the others, one-tail tests were conducted at a .05 level.

Target: drinking milk

The first examined dependent variable was *behavioral beliefs*. The within-subjects main effect of time was statistically significant,  $F(1, 207) = 12.32, p = .001, \eta^2 = .06$ , indicating that overall there was a significant message effect on behavioral beliefs toward drinking milk.

According to Bonferroni adjusted pairwise comparisons, the behavioral beliefs toward drinking milk at time 2 ( $M = 59.88, SE = 1.02$ ) were lowered at time 3 ( $M = 57.12, SE = 1.03$ ) (see Figure 4.5).

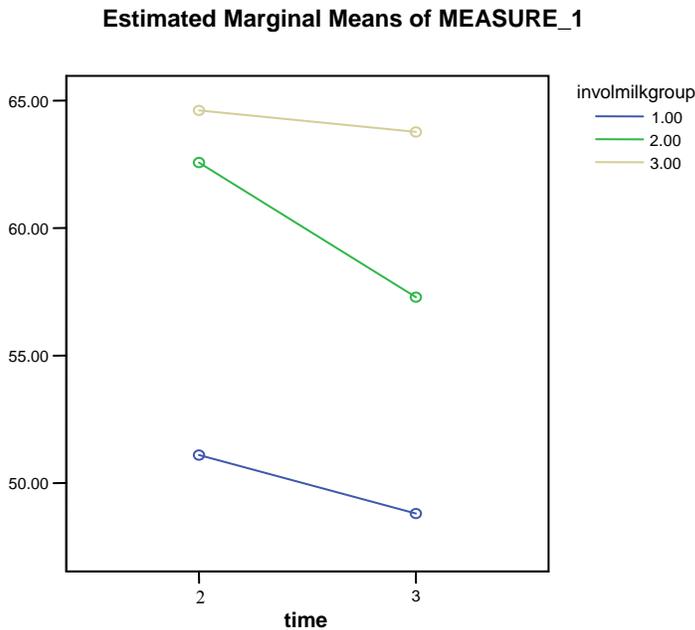


Figure 4.5 Message Effects on Behavioral Beliefs toward Milk

The between-subjects main effect of milk involvement was statistically significant,  $F(2, 207) = 17.55, p < .001, \eta^2 = .15$ . The nature of the main effect of milk involvement was determined using a Tamhane adjusted multiple comparison test. The results showed that the behavioral beliefs of the low involvement group ( $M = 50.75, SE = 1.69$ ) were significantly different from those of the medium ( $M = 60.26, SE = 1.53$ ) and the high ( $M = 64.49, SE = 1.68$ )

involvement group. However, there was no difference between the medium involvement group ( $M = 60.26$ ,  $SE = 1.53$ ) and high involvement group ( $M = 64.49$ ,  $SE = 1.68$ ). The between-subjects main effect of message types was not statistically significant,  $F(6, 207) = 1.00$ ,  $p = .42$ . This result meant that there was no difference in behavioral beliefs among message types.

There was no two-way interaction of Milk involvement X Time,  $F(2, 207) = 2.51$ ,  $p = .08$ , Message types X Time,  $F(6, 207) = 1.63$ ,  $p = .14$ , and Milk involvement X Message types,  $F(12, 207) = .74$ ,  $p = .71$ . Also, there was no three-way interaction of Milk involvement X Message types X Time,  $F(12, 207) = 1.07$ ,  $p = .39$ .

The results showed that Hypotheses 2a, 3a, and 4a are not supported. Overall message strategies lowered behavioral beliefs across the milk involvement group, but there were no message group effects.

The second examined dependent variable was *normative beliefs*. The within-subjects main effect of time was statistically significant,  $F(1, 210) = 5.673$ ,  $p = .02$ ,  $\eta^2 = .03$ , indicating that overall there was a significant message influence on normative beliefs toward drinking milk. According to Bonferroni adjusted pairwise comparisons, the normative beliefs toward drinking milk at time 2 ( $M = 48.99$ ,  $SE = 1.01$ ) increased at time 3 ( $M = 50.43$ ,  $SE = 1.13$ ).

The between-subjects main effect of milk involvement was statistically significant,  $F(2, 210) = 10.29$ ,  $p < .001$ ,  $\eta^2 = .09$ . The nature of the main effect of milk involvement was determined using a Bonferroni adjusted multiple comparison test. The results showed that the normative beliefs of the low involvement group ( $M = 43.84$ ,  $SE = 1.90$ ), the medium involvement group ( $M = 49.13$ ,  $SE = 1.73$ ), and the high involvement group ( $M = 56.16$ ,  $SE = 1.95$ ) were significantly different from one another. The higher involvement group had the higher normative beliefs. The between-subjects main effect of message types was not statistically

significant,  $F(6, 210) = 1.53, p = .17$ . This result indicated that changes in the normative beliefs of participants were not different depending on the message types (see Figure 4.6).

There was no two-way interaction of Milk involvement X Time,  $F(2, 210) = .68, p = .51$ , Message types X Time,  $F(6, 210) = .72, p = .63$ , and Milk involvement X Message types,  $F(12, 210) = 1.00, p = .45$ . Also, there was no three-way interaction of Milk involvement X Message types X Time,  $F(12, 210) = .40, p = .96$ .

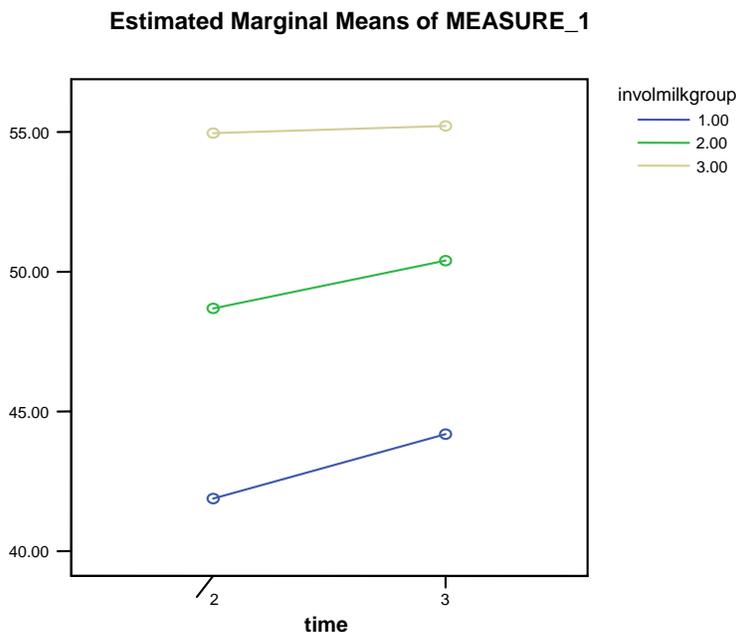


Figure 4.6 Message Effects on Normative Beliefs toward Drinking Milk

The answers for research questions 2 and 4 are that even though overall message strategies increased normative beliefs across the milk involvement group, there was no message group effects and moderating effect of milk involvement.

Third, *control beliefs* were examined. The within-subjects main effect of time was statistically significant,  $F(1, 211) = 6.58, p = .01, \eta^2 = .03$ , indicating that overall there was significant difference in control beliefs toward drinking milk between time 2 and time 3.

According to Bonferroni adjusted pairwise comparisons, the control beliefs toward drinking milk at time 2 ( $M = 30.88$ ,  $SE = .76$ ) decreased at time 3 ( $M = 29.40$ ,  $SE = .76$ ) (see Figure 4.7).

The between-subjects main effect of milk involvement was not statistically significant,  $F(2, 211) = 3.02$ ,  $p = .051$ . There was no difference in control beliefs across the milk involvement group. The other between-subjects main effect of message types also was not statistically significant,  $F(6, 211) = .63$ ,  $p = .71$ . This result indicated that changes of control beliefs of participants from time 2 to time 3 were not different depending on the message types.

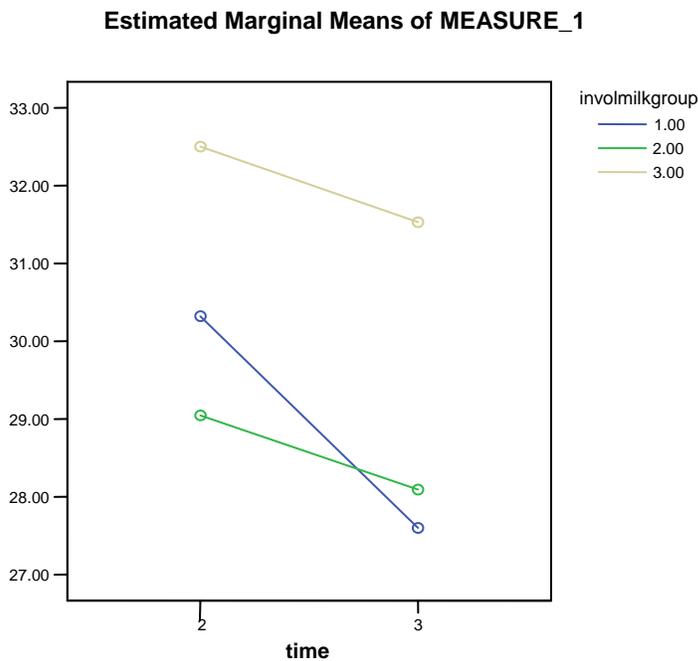


Figure 4.7 Message Effects on Control Beliefs toward Drinking Milk

There was no two-way interaction of Milk involvement X Time,  $F(2, 211) = .97$ ,  $p = .38$ , Message types X Time,  $F(6, 211) = .90$ ,  $p = .08$ , and Milk involvement X Message types,  $F(12, 211) = 1.02$ ,  $p = .43$ . Also, there was no three-way interaction of Milk involvement X Message types X Time,  $F(12, 211) = 1.33$ ,  $p = .21$ .

The answers for research questions 2 and 4 are that overall message strategies decreased control beliefs across the milk involvement group, and there were no message group effects and moderating effect of milk involvement.

Fourth, *attitude toward behavior* was examined. The within-subjects main effect of time was not statistically significant,  $F(1, 213) = 2.35, p = .13$ , indicating that overall there was no difference in attitude related to the behavior toward drinking milk between time 2 and time 3.

The between-subjects main effect of milk involvement was statistically significant,  $F(2, 213) = 64.13, p < .001, \eta^2 = .38$ . The nature of the main effect of milk involvement was determined using a Tamhane adjusted multiple comparison test. The results showed that the attitudes toward the behavior of the low involvement group ( $M = 3.13, SE = .10$ ), the medium involvement group ( $M = 4.16, SE = .09$ ), and the high involvement group ( $M = 4.65, SE = .10$ ) were significantly different from one another. The higher involvement group had a more positive attitude toward the behavior. The other between-subjects main effect of message types also was not statistically significant,  $F(6, 213) = 1.28, p = .27$ . This result indicated that changes of attitude toward behavior from time 2 to time 3 were not different depending on the message types.

There was no two-way interaction of Milk involvement X Time,  $F(2, 213) = .89, p = .41$ , Message types X Time,  $F(6, 213) = .53, p = .78$ , and Milk involvement X Message types,  $F(12, 213) = 1.10, p = .36$ . Also, there was no three-way interaction of Milk involvement X Message types X Time,  $F(12, 213) = .42, p = .95$ .

The results showed that Hypotheses 2a, 3a, and 4a are not supported. There was no difference in attitude toward drinking milk depending on the types of messages. Moreover,

regardless of the types of messages, all messages strategies did not affect the attitude toward behavior across the milk involvement groups.

Fifth, the *subjective norm* was observed. The within-subjects main effect of time was statistically significant,  $F(1, 213) = 59.98, p < .001, \eta^2 = .22$ . The mean difference between time 2 ( $M = 3.47, SE = .05$ ) and time 3 ( $M = 3.72, SE = .06$ ) was significantly different, and overall the subjective norm was increased after participants' reading of the messages (see Figure 4.8).

The between-subjects main effect of milk involvement was statistically significant,  $F(2, 213) = 13.20, p < .001, \eta^2 = .11$ . The nature of the main effect of milk involvement was determined using a Bonferroni adjusted multiple comparison test. The results showed that the subjective norm of the low involvement group ( $M = 3.23, SE = .09$ ) was significantly different from the medium involvement group ( $M = 3.72, SE = .08$ ) and high involvement group ( $M = 3.84, SE = .09$ ). However, there was no difference between the medium involvement group ( $M = 3.72, SE = .08$ ) and the high involvement group ( $M = 3.84, SE = .09$ ). The higher involvement

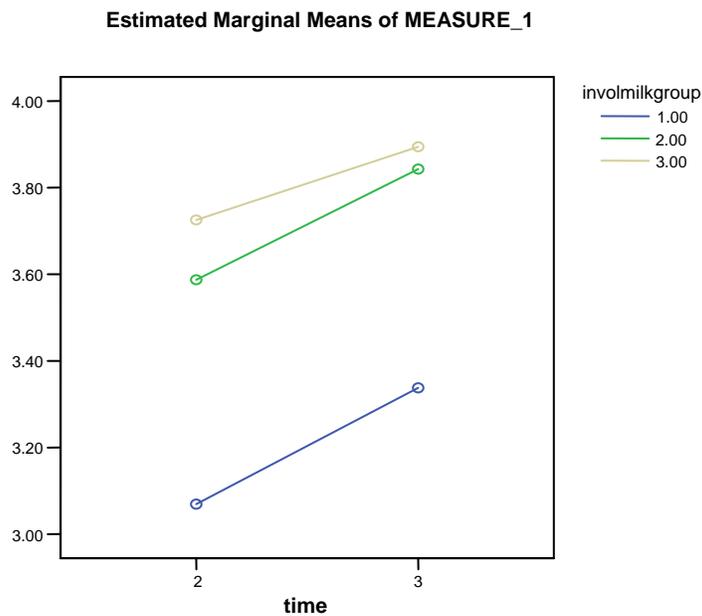


Figure 4.8 Message Effects on Subjective Norm toward Drinking Milk

group showed the higher subjective norm. In contrast, the between-subjects main effect of message types was not statistically significant,  $F(6, 213) = .35, p = .91$ . This result indicated that the increase of the subjective norm from time 2 to time 3 was not different depending on the message types.

There was no two-way interaction of Milk involvement X Time,  $F(2, 213) = .90, p = .41$ , Message types X Time,  $F(6, 213) = .19, p = .98$ , and Milk involvement X Message types,  $F(12, 213) = .96, p = .49$ . Also, there was no three-way interaction of Milk involvement X Message types X Time,  $F(12, 213) = 1.54, p = .11$ .

The answers for research questions 2 and 4 are that overall message strategies improved subjective norm across the milk involvement groups, and the subjective norms were different depending on the milk involvement group. However, there were no message group effects and moderating effect of milk involvement.

Sixth, *perceived behavioral control* was inspected. The within-subjects main effect of time was not statistically significant,  $F(1, 213) = 3.14, p = .08$ , indicating that the messages released from the Brand A company did not affect the perceived behavioral control.

The between-subjects main effect of milk involvement was statistically significant,  $F(2, 213) = 31.04, p < .001, \eta^2 = .23$ . The nature of the main effect of milk involvement was determined using a Tamhane adjusted multiple comparison test. The results showed that the perceived behavioral controls of the low involvement group ( $M = -.20, SE = .02$ ), medium involvement group ( $M = -.07, SE = .02$ ), and high involvement group ( $M = -.02, SE = .02$ ) were significantly different from one another. The higher involvement group had a higher perceived behavioral control. The other between-subjects main effect of message types also was not

statistically significant,  $F(6, 213) = 1.71, p = .12$ . This result indicated that changes of perceived behavioral control from time 2 to time 3 were not different depending on the message types.

There was no two-way interaction of Milk involvement X Time,  $F(2, 213) = 2.42, p = .09$ , Message types X Time,  $F(6, 213) = .73, p = .62$ , and Milk involvement X Message types,  $F(12, 213) = 1.03, p = .42$ . Also, there was no three-way interaction of Milk involvement X Message types X Time,  $F(12, 213) = .36, p = .98$ .

The answers for research questions 2 and 4 are that, regardless of the types of messages and the milk involvement, the messages released from the Brand A company did not influence the perceived behavioral control.

Last, *behavior intention* was analyzed. The within-subjects main effect of time was not statistically significant,  $F(1, 210) = .003, p = .96$ , indicating that the messages released from the Brand A company did not affect behavior intention overall. There was no main effect of between-subjects factors as well.

There was no interaction of time with other factors. The interactions of Time X Milk involvement, Time X Message types, and Time X Milk involvement X Message types were not statistically significant,  $F(2, 210) = .11, p = .90$ ;  $F(6, 210) = .56, p = .76$ ;  $F(12, 210) = 1.17, p = .31$ , respectively.

Meanwhile, there was an interaction between the two between-subject factors, Milk involvement X Message types. To determine the effect of each factor on behavior intention, a new variable, 'new group,' was created with 21 levels. The variable was yielded by three levels of milk involvement X seven levels of message types. The between-subjects main effect of the 'new group' was statistically significant,  $F(20, 210) = 5.71, p < .001, \eta^2 = .35$ . However, there was no interaction of the within-subject factor, time, and the new between-subject factor, new

group,  $F(20, 210) = .80, p = .71$ . Figure 4.1 illustrates the main effects of this ‘new group.’ The results indicated that even though participants had different degrees of behavior intentions depending on the level of milk involvement and types of messages, there was no change in behavior intentions from time 2 to time 3 regardless of the group (see Figure 4.9).

The results showed that hypotheses 2a, 3a, and 4a are not supported. No matter what types of messages were used, and what degree of milk involvement the participants had, the messages released from the Brand A company did not change the behavior intentions.

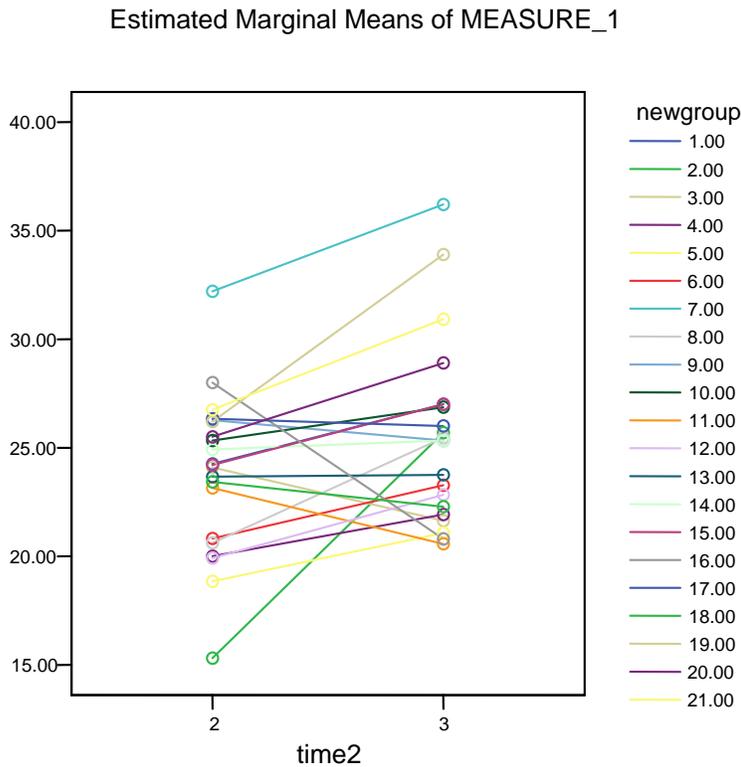


Figure 4.9 Interaction Effects of Message Type and Involvement on Behavior Intention

Table 4.2 ANOVA Results: Summary of Message Effects toward Drinking Milk

Source	Type III Sum of Squares	df	Mean Square	F	p	$\eta^2$
<b>Behavioral beliefs</b>						
Time	800.077	(1, 207)	800.077	12.315	.001**	.056
Type of message	2249.214	(6, 207)	374.869	1.007	.422	.028
Involvement	13068.411	(2, 207)	6534.205	17.550	.000**	.145
Time x Type of message	633.256	(6, 207)	105.543	1.625	.142	.045
Time x Involvement	325.699	(2, 207)	162.849	2.507	.084*	.024
Type of message x Involvement	3325.298	(12, 207)	277.108	.744	.707	.041
Time x Involvement x Message	835.341	(12, 207)	69.612	1.072	.386	.058
<b>Normative beliefs</b>						
Time	220.230	(1, 210)	220.230	5.673	.018**	.026
Type of message	4459.931	(6, 210)	743.322	1.532	.169	.042
Involvement	9988.545	(2, 210)	4994.273	10.294	.000**	.089
Time x Type of message	168.602	(6, 210)	28.100	.724	.631	.020
Time x Involvement	53.053	(2, 210)	26.527	.683	.506	.006
Type of message x Involvement	5842.571	(12, 210)	486.881	1.004	.447	.054
Time x Involvement x Message	187.960	(12, 210)	15.663	.404	.961	.023
<b>Control Beliefs</b>						
Time	230.292	(1, 211)	230.292	6.576	.011**	.030
Type of message	774.291	(6, 211)	129.049	.628	.708	.018
Involvement	1239.201	(2, 211)	619.601	3.017	.051*	.028
Time x Type of message	400.143	(6, 211)	66.690	1.904	.081*	.051
Time x Involvement	67.597	(2, 211)	33.799	.965	.383	.009
Type of message x Involvement	2525.100	(12, 211)	210.425	1.024	.427	.055
Time x Involvement x Message	557.288	(12, 211)	46.441	1.326	.205	.070
<b>Attitude toward behavior</b>						
Time	.235	(1, 213)	.235	2.347	.127	.011
Type of message	9.807	(6, 213)	1.634	1.277	.269	.035
Involvement	164.228	(2, 213)	82.114	64.134	.000**	.376
Time x Type of message	.320	(6, 213)	.053	.531	.784	.015
Time x Involvement	.178	(2, 213)	.089	.889	.412	.008
Type of message x Involvement	16.949	(12, 213)	1.412	1.103	.359	.059
Time x Involvement x Message	.511	(12, 213)	.043	.424	.953	.023
<b>Subjective norm</b>						
Time	7.043	(1, 213)	7.043	59.976	.000**	.220
Type of message	2.265	(6, 213)	.378	.347	.911	.010
Involvement	28.741	(2, 213)	14.371	13.202	.000**	.110
Time x Type of message	.133	(6, 213)	.022	.189	.980	.005
Time x Involvement	.212	(2, 213)	.106	.904	.406	.008
Type of message x Involvement	12.533	(12, 213)	1.044	.960	.489	.051
Time x Involvement x Message	2.163	(12, 213)	.180	1.535	.113	.080
<b>Perceived behavioral control</b>						

Time	.022	(1, 213)	.022	3.141	.078*	.015
Type of message	.384	(6, 213)	.064	1.708	.120	.046
Involvement	2.327	(2, 213)	1.163	31.043	.000**	.226
Time x Type of message	.030	(6, 213)	.005	.734	.623	.020
Time x Involvement	.034	(2, 213)	.017	2.422	.091*	.022
Type of message x Involvement	.464	(12, 213)	.039	1.033	.420	.055
Time x Involvement x Message	.030	(12, 213)	.002	.361	.975	.020
<b>Behavior intention</b>						
Time	.000	(1, 210)	.000	.003	.958	.000
Type of message	27.558	(6, 210)	4.593	2.190	.045**	.059
Involvement	151.666	(2, 210)	75.833	36.166	.000**	.256
Time x Type of message	.394	(6, 210)	.066	.560	.762	.016
Time x Involvement	.025	(2, 210)	.013	.109	.897	.001
Type of message x Involvement	49.358	(12, 210)	4.113	1.962	.029**	.101
Time x Involvement x Message	1.648	(12, 210)	.137	1.172	.305	.063

Note. \* $p < .10$ . \*\* $p < .05$ .

### Target: drinking Brand A milk

The first examined dependent variable was *behavioral beliefs*. The within-subjects main effect of time was not statistically significant,  $F(1, 208) = 1.24, p = .27$ , meaning that overall there was no change in behavioral beliefs toward drinking Brand A milk from time 2 to time 3.

The between-subjects main effect of milk involvement was statistically significant,  $F(2, 208) = 5.46, p = .005, \eta^2 = .05$ . The nature of the main effect of milk involvement was determined using a Tamhane adjusted multiple comparison test. The results showed that the behavioral beliefs of the low involvement group ( $M = 32.11, SE = 1.39$ ) were significantly different from the high ( $M = 38.59, SE = 1.39$ ) involvement group. However, the medium involvement group ( $M = 35.14, SE = 1.26$ ) was not different from the low involvement group ( $M = 50.75, SE = 1.69$ ) and from the high involvement group ( $M = 64.49, SE = 1.68$ ). The higher milk involvement group had the higher behavioral beliefs. The between-subjects main effect of message types was not statistically significant,  $F(6, 208) = 1.09, p = .37$ . This result meant that there was no difference in behavioral beliefs among message types.

There was no two-way interaction of Milk involvement X Time,  $F(2, 208) = .30, p = .74$ , Message types X Time,  $F(6, 208) = .91, p = .49$ , and Milk involvement X Message types,  $F(12, 208) = 1.25, p = .25$ . Also, there was no three-way interaction of Milk involvement X Message types X Time,  $F(12, 208) = .62, p = .82$ .

The results showed that hypotheses 2b, 3b, and 4b are not supported. Regardless of the type of messages, messages strategies did not influence behavioral beliefs across the milk involvement group.

The second examined dependent variable was *normative beliefs*. The within-subjects main effect of time was statistically significant,  $F(1, 209) = 8.19, p = .005, \eta^2 = .04$ , indicating that overall there was a significant message influence on normative beliefs toward drinking Brand A milk. According to Bonferroni adjusted pairwise comparisons, the normative beliefs toward drinking milk at time 2 ( $M = 23.80, SE = .75$ ) increased at time 3 ( $M = 25.56, SE = .80$ ) (see Figure 4.10).

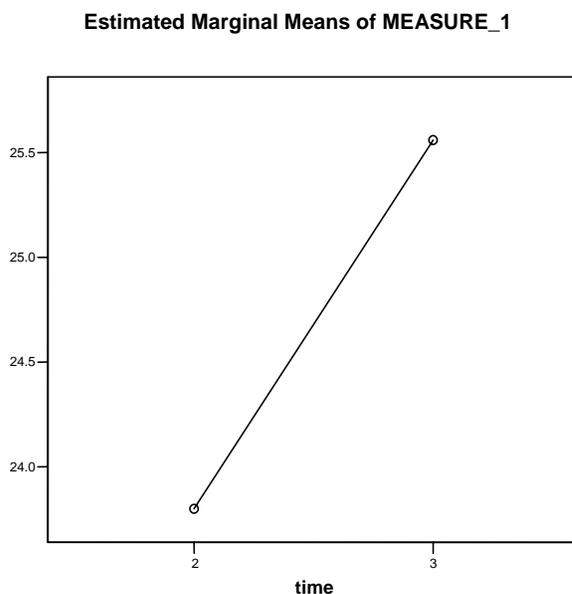


Figure 4.10 Message Effects on Normative Beliefs toward Drinking Brand A Milk

However, there was three-way interaction of Milk involvement X Message types X Time,  $F(12, 209) = 1.95, p = .03$ . Therefore, in-depth analysis for the change of normative beliefs was needed. To examine the nature of the three-way interaction, a new variable, ‘new group’, with 21 levels was created by three levels of milk involvement and seven types of messages. Thereafter, using a paired-sample  $t$  test, the changes in the subjective beliefs of each group were investigated separately. The normative beliefs were increased in two groups: low involvement with ‘excuse’ message,  $t(12) = -3.77, p = .003$ ; high involvement with ‘denial + corrective action’ messages  $t(9) = -2.32, p = .046$ . The results indicated that in the low involvement group, the ‘excuse’ strategy was more effective than any other message strategies while in the high involvement group, ‘denial + corrective action’ messages were more effective than any other message strategies (see Table 4.3).

Table 4.3 *T-Test Results: Three-way Interaction Effects on Normative Beliefs*

Group	Denial	Excuse	Apology	Corrective Action	Denial + Corrective action	Excuse + Corrective action	Apology + Corrective action
Low	$t(7) = -.982$ $p = .359$	$t(12) = -3.765$ $p = .003$	$t(10) = .974$ $p = .353$	$t(12) = -.799$ $p = .440$	$t(12) = -1.059$ $p = .310$	$t(10) = -.697$ $p = .502$	$t(4) = -.906$ $p = .416$
Medium	$t(12) = -2.125$ $p = .055$	$t(14) = .442$ $p = .665$	$t(14) = -.645$ $p = .529$	$t(6) = .972$ $p = .368$	$t(11) = -1.769$ $p = .105$	$t(11) = -.036$ $p = .972$	$t(11) = -.124$ $p = .904$
High	$t(9) = -1.131$ $p = .287$	$t(4) = 2.714$ $p = .053$	$t(8) = .252$ $p = .807$	$t(13) = .530$ $p = .605$	$t(9) = -2.317$ $p = .046$	$t(9) = -1.059$ $p = .318$	$t(11) = -1.232$ $p = .244$

*Note.* The group is divided by three levels of involvement x seven message strategies.

The answers for research questions 3 and 4 are that the message strategies and milk involvement influence normative beliefs. In the low involvement group, only the excuse message increased normative beliefs; in the high involvement group, only a combination of denial and corrective action messages improved normative beliefs.

Third, *control beliefs* were examined. The within-subjects main effect of time was not statistically significant,  $F(1, 210) = .83, p = .36$ , indicating that overall there was no significant difference in control beliefs toward drinking Brand A milk between time 2 and time 3.

There was no between-subjects main effect, two-way interaction, and three-way interaction as well. The between-subjects main effect of milk involvement was not statistically significant,  $F(2, 210) = .70, p = .50$ . The between-subjects main effect of message types was not statistically significant,  $F(6, 210) = .27, p = .95$ . There was no two-way interaction of Milk involvement X Time,  $F(2, 210) = .31, p = .73$ , Message types X Time,  $F(6, 211) = 1.26, p = .28$ , and Milk involvement X Message types,  $F(12, 210) = 1.66, p = .08$ . Also, there was no three-way interaction of Milk involvement X Message types X Time,  $F(12, 210) = 1.60, p = .09$ .

The answers for research questions 3 and 4 are that there was no effect of message and milk involvement in control beliefs. Control beliefs were not changed from time 2 and to time 3.

Fourth, *attitude toward behavior* was examined. Although the within-subjects main effect of time and between-subjects main effect of message types were not statistically significant,  $F(1, 213) = 3.78, p = .053$ ;  $F(6, 213) = .36, p = .90$ , respectively, there was interaction of Time X Message types,  $F(6, 213) = 2.26, p = .04, \eta^2 = .06$ . Therefore, attitude toward behavior was examined by each message type, separately, to examine the news article's effect more specifically. Meanwhile, there was no other interaction of Milk involvement X Time,  $F(2, 213) = .44, p = .65$ , Milk involvement X Message Types,  $F(12, 213) = 1.37, p = .19$ , and Milk involvement X Message types X Time,  $F(12, 213) = .45, p = .94$ .

As the results of that attitude toward behavior were examined by each type of message, 'denial' group,  $F(1, 28) = 14.58, p = .001, \eta^2 = .34$ , and 'apology + corrective action' group,  $F(1, 27) = 3.10, p = .09, \eta^2 = .10$ , showed statistically significant differences in attitude toward

behavior with a one-tail test. In both groups, the attitude toward behavior was increased. There was no milk involvement main effect both in the ‘denial’ group,  $F(2, 28) = .07, p = .93$  and in the ‘apology + corrective action’ group,  $F(2, 27) = .68, p = .52$ . Also, there was no interaction of Milk involvement X Time both in the ‘denial’ group,  $F(2, 28) = .18, p = .84$  and in the ‘apology + corrective action’ group,  $F(2, 27) = .41, p = .67$ . The absence of interaction with milk involvement and no main effect of milk involvement indicated that the message effects on attitude toward behavior were applied across all levels of milk involvement. Meanwhile, there was no change in attitude toward behavior in other message groups (see Table 4.4).

Table 4.4 ANOVA Results: Message Effects on Attitude

Message type	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Denial	(1, 28)	14.577	.001**	.342
Excuse	(1, 31)	2.522	.122	.075
Apology	(1, 32)	.180	.674	.006
Corrective action	(1, 32)	.132	.719	.004
Denial + Corrective action	(1, 32)	2.202	.148	.064
Excuse + Corrective action	(1, 31)	.147	.704	.005
Apology + Corrective Action	(1, 27)	3.090	.090*	.103

Note. \* $p < .10$ . \*\* $p < .05$ .

The results showed that hypotheses 2b, 3b, and 4b are partially supported. Unlike the hypothesis 2b, the denial message was most effective in increasing attitude toward behavior. In hypothesis 3b, only the apology message supports the hypothesis. And hypothesis 4b is supported. The apology with corrective action message was more effective than the denial with corrective action message.

Fifth, the *subjective norm* was observed. The within-subjects main effect of time was statistically significant,  $F(1, 213) = 10.11, p = .002, \eta^2 = .05$ . The mean difference between time

2 ( $M = 1.78, SE = .05$ ) and time 3 ( $M = 1.91, SE = .06$ ) was significantly different, and overall the subjective norm was increased after participants' reading of the messages (see Figure 4.11).

However, there was interaction of Time X Message types,  $F(6, 213) = 2.23, p = .04, \eta^2 = .06$ . To determine the nature of the message effect more closely, the subjective norm was examined by each message type, separately. Meanwhile, there was no other interaction of Milk involvement X Time,  $F(2, 213) = 1.68, p = .19$ , Milk involvement X Message Types,  $F(12, 213) = 1.37, p = .18$ , and Milk involvement X Message types X Time,  $F(12, 213) = 1.11, p = .35$ .

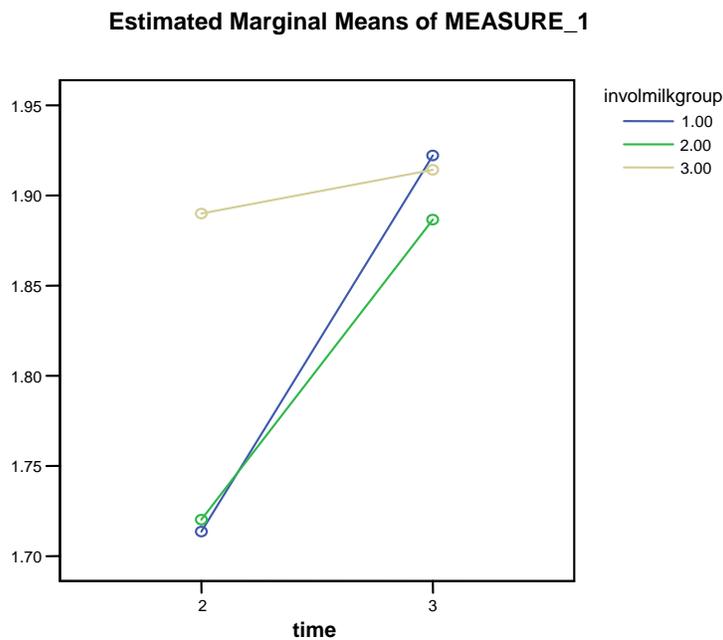


Figure 4.11 Message Effects on Subjective Norm toward Drinking Brand A Milk

As the results of that subjective norm were examined by each type of message, the 'denial' group,  $F(1, 28) = 9.42, p = .005, \eta^2 = .25$ , and 'denial + corrective action' group,  $F(1, 32) = 6.96, p = .01, \eta^2 = .18$ , showed statistically significant differences in the subjective norm at the .10 level. In both groups, the subjective norms were increased. There was no milk involvement main effect in the 'denial' group,  $F(2, 28) = .47, p = .63$  and in the 'denial +

corrective action' group,  $F(2, 32) = 3.44, p = .05$ . There was no interaction of Milk involvement X Time both in the 'denial' group,  $F(2, 28) = .91, p = .41$  and in the 'denial + corrective action' group,  $F(2, 32) = .32, p = .73$ . The lack of interaction with milk involvement indicated that the message effects on the subjective norm were applied across all levels of milk involvement.

Meanwhile, no subjective norm change was detected in other message groups (see Table 4.5).

Table 4.5 ANOVA Results: Message Effects on Subjective Norm

Message type	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Denial	(1, 28)	9.421	.005**	.252
Excuse	(1, 31)	.310	.582	.010
Apology	(1, 32)	.183	.672	.006
Corrective action	(1, 32)	.034	.854	.001
Denial + Corrective action	(1, 32)	6.959	.013**	.179
Excuse + Corrective action	(1, 31)	2.004	.167	.061
Apology + Corrective Action	(1, 27)	.719	.404	.026

Note. \* $p < .10$ . \*\* $p < .05$ .

The results answer the research questions 3 and 4. There were message group effects. Statistically significant changes in the subjective norm were found in the 'denial' and 'denial + corrective action' groups while there was no change in the subjective norm in other message groups. The mean difference of the subjective norm in the 'denial + corrective action' combination message ( $MD = -.36$ ) from time2 ( $M = 1.81, SE = .13$ ) to time3 ( $M = 2.18, SE = .15$ ) was greater than in the single 'denial' message ( $MD = -.33$ ) from time2 ( $M = 1.68, SE = .12$ ) to time3 ( $M = 2.02, SE = .16$ ).

Sixth, *perceived behavioral control* was inspected. The within-subjects main effect of time was not statistically significant,  $F(1, 210) = .83, p = .36$ , indicating that the messages released from the brand A company did not affect perceived behavioral control.

Moreover, no between-subjects main effects were found. The main effects of milk involvement was not statistically significant,  $F(2, 210) = .70, p = .50$ . The main effect of message types also was not statistically significant,  $F(6, 210) = .27, p = .95$ .

Additionally, there was no two-way interaction of Milk involvement X Time,  $F(2, 210) = .31, p = .73$ , Message types X Time,  $F(6, 210) = 1.26, p = .28$ , and Milk involvement X Message types,  $F(12, 210) = 1.66, p = .08$ . Likewise, there was no three-way interaction of Milk involvement X Message types X Time,  $F(12, 210) = 1.60, p = .09$ .

The answers for research questions 3 and 4 are that, regardless of the types of messages and milk involvement, the messages released from the Brand A company did not influence the perceived behavioral control.

Lastly, *behavior intention* was analyzed. The within-subjects main effect of time was statistically significant,  $F(1, 212) = 4.36, p = .04, \eta^2 = .02$ . The mean difference between time 2 ( $M = 1.88, SE = .07$ ) and time 3 ( $M = 2.00, SE = .08$ ) was significantly different, and the behavior intention was increased after participants' reading of the messages (see Figure 4.12). However, there was interaction of Time X Message types,  $F(6, 212) = 2.48, p = .03, \eta^2 = .07$ . To ensure the message effects, behavior intention was examined by each message type, separately. Meanwhile, there was no other interaction of Milk involvement X Time,  $F(2, 212) = .11, p = .89$ , Milk involvement X Message Types,  $F(12, 212) = .85, p = .60$ , and Milk involvement X Message types X Time,  $F(12, 212) = 1.19, p = .29$ .

As the results of that behavior intention were examined by each type of message, the 'denial' group,  $F(1, 28) = 9.51, p = .005, \eta^2 = .25$ , and 'denial + corrective action' group,  $F(1, 31) = 3.65, p = .07, \eta^2 = .01$ , showed statistically significant differences in behavior intention. In both groups, the behavior intentions were increased. There was no milk involvement main effect

in the ‘denial’ group,  $F(2, 28) = .01, p = .99$  and in the ‘denial + corrective action’ group,  $F(2, 31) = 3.11, p = .06$ . There was no interaction of Milk involvement X Time both in the ‘denial’ group,  $F(2, 28) = .47, p = .63$  and in the ‘denial + corrective action’ group,  $F(2, 31) = .16, p = .85$ . The lack of interaction with milk involvement indicated that the message effects on behavior intention were applied across all levels of milk involvement. Meanwhile, no behavior intention change was documented in other message groups (see Table 4.6).

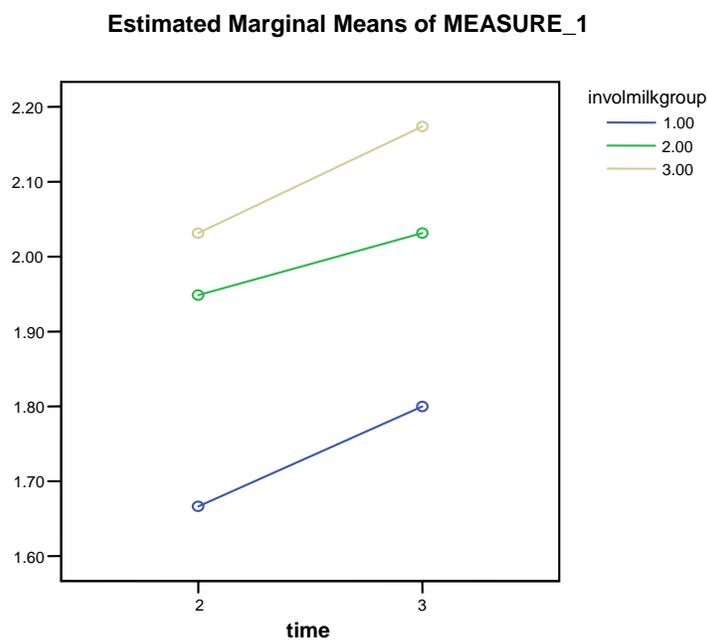


Figure 4.12 Message Effects on Behavior Intention toward Drinking Brand A Milk

Table 4.6 ANOVA Results: Message Effects on Behavior Intention

Message type	<i>df</i>	<i>F</i>	<i>p</i>	$\eta^2$
Denial	(1, 28)	9.505	.005**	.253
Excuse	(1, 31)	2.073	.160	.063
Apology	(1, 32)	.062	.805	.002
Corrective action	(1, 32)	1.036	.316	.031
Denial + Corrective action	(1, 32)	3.652	.065*	.105
Excuse + Corrective action	(1, 31)	.589	.448	.019
Apology + Corrective Action	(1, 27)	.613	.441	.022

Note. \* $p < .10$ . \*\* $p < .05$ .

The results showed that hypotheses 2b, 3b, and 4b are not supported at all. Statistically significant changes of behavior intention were found in the ‘denial’ and ‘denial + corrective action’ group, so the results do not support hypotheses 2b and 4b. Hypothesis 3b is not supported as well. The mean difference of behavior intention ‘denial + corrective action’ combination message ( $MD = -.31$ ) from time2 ( $M = 1.93, SE = .16$ ) to time3 ( $M = 2.24, SE = .19$ ) was less than in the single ‘denial’ message ( $MD = -.51$ ) from time2 ( $M = 1.53, SE = .17$ ) to time3 ( $M = 2.04, SE = .23$ ).

Table 4.7 ANOVA Results: Summary of Message Effects toward Drinking Brand A Milk

Source	Type III Sum of Squares	df	Mean Square	F	p	$\eta^2$
<b>Behavioral beliefs</b>						
Time	49.278	(1, 208)	49.278	1.242	.266	.006
Type of message	1664.386	(6, 208)	277.398	1.085	.373	.030
Involvement	2793.101	(2, 208)	1396.550	5.462	.005**	.050
Time x Type of message	217.917	(6, 208)	36.319	.915	.485	.026
Time x Involvement	24.149	(2, 208)	12.074	.304	.738	.003
Type of message x Involvement	3828.753	(12, 208)	319.063	1.248	.252	.067
Time x Involvement x Message	295.474	(12, 208)	24.623	.621	.823	.035
<b>Normative beliefs</b>						
Time	324.414	(1, 209)	324.414	8.190	.005**	.038
Type of message	1697.216	(6, 209)	282.869	1.327	.246	.037
Involvement	623.590	(2, 209)	311.795	1.463	.234	.014
Time x Type of message	347.697	(6, 209)	57.950	1.463	.192	.040
Time x Involvement	89.938	(2, 209)	44.969	1.135	.323	.011
Type of message x Involvement	1946.299	(12, 209)	162.192	.761	.690	.042
Time x Involvement x Message	926.575	(12, 209)	77.215	1.949	.030**	.101
<b>Control Beliefs</b>						
Time	31.674	(1, 210)	31.674	.827	.364	.004
Type of message	264.030	(6, 210)	44.005	.267	.952	.008
Involvement	231.242	(2, 210)	115.621	.702	.497	.007
Time x Type of message	289.359	(6, 210)	48.227	1.259	.278	.035
Time x Involvement	23.759	(2, 210)	11.879	.310	.734	.003
Type of message x Involvement	3280.265	(12, 210)	273.355	1.660	.078*	.087
Time x Involvement x Message	733.772	(12, 210)	61.148	1.597	.094*	.084
<b>Attitude toward behavior</b>						

Time	.860	(1, 213)	.860	3.779	.053*	.017
Type of message	3.166	(6, 213)	.528	.358	.905	.010
Involvement	11.396	(2, 213)	5.698	3.864	.022**	.035
Time x Type of message	3.083	(6, 213)	.514	2.258	.039**	.060
Time x Involvement	.200	(2, 213)	.100	.440	.645	.004
Type of message x Involvement	24.152	(12, 213)	2.013	1.365	.185	.071
Time x Involvement x Message	1.231	(12, 213)	.103	.451	.940	.025
Subjective norm						
Time	1.899	(1, 213)	1.899	10.107	.002**	.045
Type of message	6.214	(6, 213)	1.036	1.081	.375	.030
Involvement	.802	(2, 213)	.401	.419	.658	.004
Time x Type of message	2.508	(6, 213)	.418	2.225	.042**	.059
Time x Involvement	.632	(2, 213)	.316	1.683	.188	.016
Type of message x Involvement	15.775	(12, 213)	1.315	1.372	.181	.072
Time x Involvement x Message	2.509	(12, 213)	.209	1.113	.351	.059
Perceived behavioral control						
Time	.001	(1, 213)	.001	.067	.796	.000
Type of message	.535	(6, 213)	.089	1.736	.114	.047
Involvement	.163	(2, 213)	.082	1.590	.206	.015
Time x Type of message	.058	(6, 213)	.010	.925	.478	.025
Time x Involvement	.007	(2, 213)	.003	.313	.732	.003
Type of message x Involvement	.545	(12, 213)	.045	.884	.564	.047
Time x Involvement x Message	.103	(12, 213)	.009	.818	.632	.044
Behavior intention						
Time	1.526	(1, 212)	1.526	4.360	.038**	.020
Type of message	12.187	(6, 212)	2.031	1.048	.395	.029
Involvement	9.611	(2, 212)	4.805	2.480	.086*	.023
Time x Type of message	5.200	(6, 212)	.867	2.476	.025**	.065
Time x Involvement	.079	(2, 212)	.039	.112	.894	.001
Type of message x Involvement	19.644	(12, 212)	1.637	.845	.604	.046
Time x Involvement x Message	4.993	(12, 212)	.416	1.189	.293	.063

Note. \* $p < .10$ . \*\* $p < .05$ .

Table 4.8 Descriptive Statistics: Summary of Message Effects at Time3

	<i>M</i>	
	Drinking Milk	Drinking Brand A Milk
Behavioral Beliefs		
Denial	59.567	37.067
Excuse	52.563	34.375
Apology	58.353	35.571
Corrective action	58.364	33.667
Denial + Corrective action	54.086	33.353
Excuse + Corrective action	51.086	32.719
Apology + Corrective Action	63.000	37.862
Normative Beliefs		
Denial	52.000	26.067

Excuse	48.875	25.000
Apology	53.912	25.000
Corrective action	45.455	21.364
Denial + Corrective action	47.400	24.853
Excuse + Corrective action	48.714	25.031
Apology + Corrective Action	53.552	29.517
Control Beliefs		
Denial	29.533	24.167
Excuse	28.250	23.156
Apology	31.824	21.914
Corrective action	27.515	23.606
Denial + Corrective action	29.400	21.059
Excuse + Corrective action	27.657	24.344
Apology + Corrective Action	29.276	22.862
Attitude toward Behavior		
Denial	4.187	2.373
Excuse	3.531	2.163
Apology	4.229	2.303
Corrective action	3.933	2.109
Denial + Corrective action	4.040	2.382
Excuse + Corrective action	3.691	2.250
Apology + Corrective Action	4.324	2.545
Subjective Norm		
Denial	3.783	2.008
Excuse	3.477	1.727
Apology	3.760	1.886
Corrective action	3.651	1.697
Denial + Corrective action	3.800	2.118
Excuse + Corrective action	3.564	1.906
Apology + Corrective Action	3.773	1.905
Perceived Behavioral Control		
Denial	-.040	-.064
Excuse	-.148	-.049
Apology	-.084	-.134
Corrective action	-.081	-.085
Denial + Corrective action	-.095	-.148
Excuse + Corrective action	-.127	-.153
Apology + Corrective Action	-.085	-.068
Behavioral Intention		
Denial	4.645	2.033
Excuse	3.882	1.531
Apology	4.576	2.114
Corrective action	4.143	1.818
Denial + Corrective action	4.412	2.177
Excuse + Corrective action	4.029	2.031
Apology + Corrective Action	4.276	2.207

## CHAPTER 5

### DISCUSSION

The main purposes of this study were to find the most effective message strategies to use in a food crisis context, to explore a new area in which to examine message effects more theoretically, and to advance knowledge of the moderating role of product involvement in the area of crisis communication. To accomplish these purposes, the effects of a news article, message strategies, and product involvement on seven dependent variables-- behavioral beliefs, normative beliefs, control beliefs, attitude toward behavior, subjective norm, perceived behavioral control, and behavior intention--were studied by applying TPB as a theoretical framework. The study generated many practical applications as well as interesting findings for future research. In this section, the key findings, limitations, and future study will be discussed.

#### Findings

##### Article effects

First, the news article affects each dependent variable differently. Based on the results, the news article lowered the control belief and increased normative beliefs. However, it did not have influences on other variables.

These results indicate that the negative news article seems to play a role of confirming the reference groups' opinions or reminding them about drinking milk. However, more research can be done to demonstrate the news article's effects on normative beliefs. As for the control beliefs, as originally expected, the negative news article played the role of an external factor, which prevents people from performing the behavior.

The news article did not change the other dependent variables: behavioral beliefs, attitude toward the behavior, subjective norm, perceived behavioral control, and behavioral intention.

These results are not congruent with TPB. According to the TPB, it is expected that the increase of normative beliefs or decrease of control beliefs yields an increase of the subjective norm or perceived behavioral control. Theoretically, beliefs provide the cognitive and affective foundations for attitude, subjective norms, and perceived behavioral control, and so these beliefs are the antecedents or causes of them (Ajzen, 2006). However, the changes in the pairs of beliefs and related latent variables were not consistent. A possible explanation is the measurement used. Compared with the global measure of the attitude toward behavior, subjective norm, or perceived behavioral control, the items to measure beliefs are more concrete and thus might be more sensitive in detecting changes. However, more research should be done to see whether the phenomena were particular events in this study or whether the same results occur in other studies.

#### Message effects

The message effects on drinking milk in general and on drinking Brand A milk at the company-specific level can be compared. One common finding and several different findings will be mentioned.

The common finding was that, regardless of the level of milk involvement and types of messages, the messages increased the normative beliefs and subjective norms both toward drinking milk and toward drinking Brand A milk. Unfortunately, there is no study to support or explain these results. In speculating, however, the messages might play a role of repeating and emphasizing particular messages which reference groups are concerned about. When considering that the news article also increased normative beliefs toward drinking milk, the news article and message both may function to set an agenda and confirm reference groups' opinions. The results suggest the need for investigating the roles of the news article and messages on normative beliefs and the subjective norm more specifically. Since according to TPB, normative beliefs and the

subjective norm are the antecedent variables for behavior intention, some positive effects can be rather expected through a crisis and crisis communication.

Meanwhile, there were four differences in message effects between drinking milk and drinking Brand A milk, which is the most noticeable finding in this study.

First, although there was no message types' effect on any dependent variables toward drinking milk at the product category level, the research showed the association of message types and some of the dependent variables at the company/brand level.

To be more specific, in the case of the *normative beliefs* toward drinking Brand A milk, low involvement with 'excuse' message,  $t(12) = -3.77, p = .003$ , and high involvement with combination of 'denial + corrective action' messages,  $t(9) = -2.32, p = .046$ , were effective in increasing normative beliefs. For the *attitude* toward drinking Brand A milk, the 'denial' group,  $F(1, 28) = 14.58, p = .001, \eta^2 = .34$ , and 'apology + corrective action' group,  $F(1, 27) = 3.10, p = .09, \eta^2 = .10$ , showed statistically significant differences in enhancing attitude toward the behavior with a one-tail test. Regarding the *subjective norm* toward drinking Brand A milk, the 'denial' group,  $F(1, 28) = 9.42, p = .005, \eta^2 = .25$ , and 'denial + corrective action' group,  $F(1, 32) = 6.96, p = .01, \eta^2 = .18$ , were influential in increasing the subjective norm. For the *behavior intention* toward drinking Brand A milk, the 'denial' group,  $F(1, 28) = 9.51, p = .005, \eta^2 = .25$ , and 'denial + corrective action' group,  $F(1, 31) = 3.65, p = .07, \eta^2 = .01$ , showed statistically significant differences in increasing behavior intention.

The implication from this result is very meaningful for a company. The result means that the way a company tailors its messages during a crisis will be very important not only for milk in general but also, more importantly, for the company. The milk contamination had the effect of lowering control beliefs, so even though there was no change in the behavioral intention in this

experiment, the accident could possibly have a negative effect on the behavioral intention. However, the response messages stimulated the attitude, normative beliefs, and subjective norm and ultimately helped in increasing the behavior intention. These results mean that even though companies cannot control or prevent a crisis, crisis communication, the subsequent effort to repair companies' images, is very essential for enhancing the attitude, subjective norm, and ultimately behavioral intention related to the company. Moreover, depending on the message type, the parts which were stimulated also varied. Therefore, more research can be done to find the best message strategies during a crisis and how different types of messages stimulate the components of TPB differently.

Second, the messages, considered collectively, had positive effects on a greater number of variables relating to drinking Brand A milk than toward drinking milk. For instance, the messages overall increased normative beliefs and the subjective norm toward drinking milk while the messages increased not only normative beliefs and the subjective norm but also the attitude and behavior intention toward drinking Brand A milk.

The results imply that the ways in which companies deal with a crisis will be very important. Regardless of the types of messages, just responding to a crisis increased four out of seven dependent variables toward drinking Brand A milk and two out of seven dependent variables. When we consider that the messages, as a whole, lowered two other dependent variables, behavioral beliefs and control beliefs toward drinking milk, it is hard to conclude that responding to a crisis will be always beneficial toward drinking milk. However, responding to a crisis will be more advantageous for drinking Brand A milk, and thus for the company, than having no response.

Third, *behavior beliefs* and *control beliefs* toward drinking milk were actually decreased after exposure to the messages. Although there was no decrease in any dependent variable toward drinking Brand A milk after exposure to the messages, there were decreases in behavioral beliefs and control beliefs toward drinking milk.

A possible explanation is that the messages released from the company might play the role of reinforcing the issue that drinking milk infected people with E. coli, consequently, people might come to have more negative behavioral beliefs toward drinking milk and become more anxious or concerned about the risk of drinking milk. Additionally, when we consider that the scenario assumed that the evidence of the source had not yet been revealed, the response messages only, without any change of the crisis situation, could not affect participants' perceptions or feelings about drinking milk.

Fourth, the message effects were disproved by previous research and, subsequently, different from what was expected in hypotheses 2, 3, and 4. Most of the case studies of Benoit (1982; 1997; Benoit, Gullifor, & Panici, 1991; Benoit & Anderson, 1996; Kennedy & Benoit, 1997; Blaney & Benoit, 2001; Len-Rios & Benoit, 2004; Benoit & Hanczor, 1994; Benoit & Brinson, 1999; Benoit & Lindsey, 1987; Ryan, 1988) conclude that accommodative message strategies are most effective for image repair. Coombs and Holladay (2004) in their SCCT demonstrate that strategies matched with a crisis type or more accommodative strategies than the ones suggested are more effective in experiments or case studies. Thus, according to SCCT, in this accident case, diminish or repair cluster strategies should bring more positive effects than deny cluster strategies. However, unlike in the previous research, 'denial' message or combination messages with 'denial' were most successful in this study.

For instance, in the case of the *normative beliefs*, a low involvement with ‘excuse’ message and high involvement with a combination of ‘denial and corrective action’ messages were effective in increasing normative beliefs. For the *attitude* toward drinking Brand A milk, the ‘denial’ group and ‘apology + corrective action’ group were most influential. Regarding the *subjective norm*, the ‘denial’ group and ‘denial + corrective action’ group were most effective. For the *behavior intention*, the ‘denial’ group and ‘denial + corrective action’ group showed statistically significant differences in behavior intention.

These unique results in this food crisis context have both practical and academic implications. For practitioners, we can learn that the ‘denial’ message can be used as the most effective strategy in this unique circumstance. Actually, more defensive strategies result in less cost than accommodative strategies (Coombs, 1999; Coombs & Holladay, 1996, 2001; Coombs & Schmidt, 2000). Given that there are more theoretical or empirical studies to support the effectiveness of defensive message strategies and to specify the situation appropriate to those strategies, companies will more convincingly be able to use ‘denial’ as an effective strategy in the real world.

Additionally, for scholars, this study calls for more empirical studies to refine SCCT and explore the ‘denial’ message strategy. In this crisis setting, SCCT was not the best solution. Rather, interestingly, the results were opposite. Moreover, this study can be an empirical study which supports previous cases, which used the ‘denial’ message successfully during a crisis. Pepsi-Cola suffered from the hoax that syringes were being found inside cans of Pepsi. The company not only recalled their product but also reassured consumers that their products were safe and drinkable. Then, Pepsi explained why the tampering would be nearly impossible. Ultimately, those kinds of defensive messages calmed nervous consumers and swung public

confidence back to Pepsi. Wendy's burger chain also used defensive message strategies to respond to the claim that a woman found a human finger in a bowl of Wendy's chili. Finally, it turned out that the claim was a hoax, but during the period, the company continued to release the message that such an event never happened in its products in order to repair its image, and it was successful.

Furthermore, a corrective action does not always increase the effect of single message strategies. Studies (Sellnow, Ulmer, & Snider, 1998) assumed that corrective action improved the effects of single message strategies. However, as the results show above, it cannot be concluded that corrective action is always better than single message strategies.

#### The moderating effect of product involvement

Milk involvement has little effect on news article and message effects. The involvement seemed to influence several dependent variables such as behavior beliefs and behavior intention toward drinking milk and normative beliefs toward drinking Brand A milk because of interaction effects. However, when they were examined more closely, there was no significant effect of milk involvement. In other words, news article effects and message effects were applied to all participants regardless of their levels of milk involvement.

The result means that it may be effective for companies publicly to release the response messages. If there were significant differences in message effects depending on participants' milk involvement, it would be more effective to tailor the messages to target audiences, in particular, segmented by milk involvement. In this study, however, there was no moderating effect of milk involvement. There could be other variables which influence the message effects, but at least regarding milk involvement, companies can apply the same message strategies to people who exhibit all levels of milk involvement.

Additionally, there was a difference in the degrees of perceptions or feeling toward drinking milk depending on the level of milk involvement. Overall, the high involvement group had higher ratings on each component of TPB toward drinking milk: People with higher milk involvement had higher beliefs, attitude, subjective norm, and behavior intention toward drinking milk in general. On the other hand, there was no difference depending on milk involvement with regards to drinking Brand A milk.

In sum, regardless of product involvement, the news article and message had the same effects on seven components of TPB. This finding implies that a general public message such as public campaign messages, which target people from all levels of product involvement, can be produced in a food crisis situation or in a similar case.

#### Limitations of the Study

There are limitations to this study. First, the biggest problem lies in the nature of the research methodology. While the experiment has numerous advantages, discussed previously, it also possesses certain inherent weaknesses. These built-in limitations of the experimental method are thus limitations of this study as well. Specifically, the strength of the experimental setting in terms of control also creates an artificial environment that must be dealt with.

Second, similarly, there is a generalization problem. The fictitious case of milk contamination is just one crisis situation. In reality, even in a similar situation, more dynamic and various situations can occur, so that the message effects can be different. Therefore, it is questionable whether the results can be applied to other similar research or other crisis situations.

Third, more research should be conducted on message effects studies. The results regarding the effects of different types of message strategies were inconsistent with SCCT and results from Benoit's case studies. Initially, the milk contamination situation was categorized

into an accident crisis cluster, and this assumption induced the hypotheses and research questions. However, it is possible that the participants perceived the crisis differently. If the participants perceived the crisis as less severe or less attributable to the company, then they might put the milk contamination accident into the victim crisis cluster. Then, the results from this study would support SCCT rather than confound the theory.

Fourth, no consistent pattern to the effects of message strategies was found. Not only the most effective strategies but also the effects of product involvement were different from dependent variables. Therefore, even though there were several interesting results from this study, it is very hard to suggest a conclusive practical guideline.

Fifth, external and internal validity issues can be raised. Validity is achieved when a measuring device measures what it intends to measure (Wimmer & Dominick, 2003). To minimize external validity problems, all scales and the structure of the experiment were based on relevant literature reviews and strictly followed the guideline Ajzen (2006) set for TPB study. Also, the internal validity issue can be argued regarding the use of a student sample because of the problem of generalization to the public at large. However, a homogeneous sample was appropriate for this study because, according to TPB, a target should have similar backgrounds or characteristics so that confounding variables can be controlled (Ajzen, 2006). Many researchers who study image restoration messages used student samples in their experiment due to their accessibility (Coombs, 1998; Coombs & Holladay, 1996; Sallot, 2002).

#### Future research

Despite several limitations of this study, the findings have a great deal to say in terms of future research. The findings show that this empirical study failed to confirm a number of previous discussions largely derived from case analyses, descriptive studies, and some empirical

studies. Crisis communication researchers have attempted to establish general rules to set guidelines for coping with a crisis. However, the findings and guidelines developed so far seem to be inadequate to be generalized. Through future research, current crisis communication should be more refined and validated.

First, there should be more research to clarify the effect of a negative news article on normative beliefs and subjective norm. The possible explanation in the findings section can be an idea for a future direction. Furthermore, research to explain the news article's effects and messages' effects on other variables can be done. Some variables were increased while some variables were decreased. To explore what causes the phenomena will advance our understanding of the news article and message effects.

Second, more vigorous tests for message strategies can be performed. Testing messages in other crisis situations can be one method of vigorous testing, and creating different types of messages can be another. Even though many researchers are trying to test messages in controlled settings such as experiments and to find some patterns for suggesting practical guidelines, it seems like the research done so far does not quite provide a clear answer. Also, exploring the 'denial' messages will be very meaningful. In this study, the 'denial' message was designed to defend the corporate-specific image by emphasizing why the milk contamination could not have occurred in Brand A. However, a company also can focus on the whole product category and create a 'denial' message which negates that the crisis itself is happening. In other words, this type of 'denial' message claims that there is no milk contamination accident. Additionally, more research, such as what kinds of unique characteristics of this food crisis context bring about these results, and why the 'denial' message was effective, can be explored as well.

Third, by using the data measuring each component of TPB in this study, the theory can be tested. Through path analysis or structural equation modeling, the relationships among all components can be clarified, and then also more explanations for the current results can be offered. For example, the news article increased normative beliefs while it decreased control beliefs. With the current study, it is not clear why the news article had no effect on behavior intention, which was supposed to be predicted by belief composites. One possible explanation is that belief composites such as normative beliefs and control beliefs in fact did not predict behavior intention in this situation. At the same time, it is possible that the counterbalance of the effects of normative beliefs and control beliefs caused no change of behavior intention. Examining the relationship among the components also will enrich the study of TPB by testing the theory in a food crisis context.

Fourth, the image of or attitude toward the product and company can be examined in the same context. In this study, the target of study was a particular behavior: drinking milk and drinking Brand A milk. It is hard to change the attitude or behavior intention toward drinking milk of those who originally do not drink milk due to an allergy or some other problem. However, even for them, it is possible that news article or image restoration strategies could change the overall image or attitude toward milk or the company.

Fifth, other moderating variables can be considered. Risk perception, the degree of concern about health, and news credibility are feasible variables. Even though the overall product involvement showed a very weak moderating relationship in this study, other variables still can be considered to develop more sophisticated and audience-segmented message strategies.

Sixth, the agenda setting or framing effect can be tested in a similar setting. The same accident with several differently framed news articles can be tested in the same manner.

Additionally, then, the way the same accident can differently affect people's cognitive process toward the behavior and their perception toward the accident depending on the way the news article was framed can be examined.

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**Morbidity and Mortality Weekly Report  
Centers for Disease Control and Prevention  
MMWR 44(27):1995 July 14**

**Outbreak of Acute Gastroenteritis Attributable to *Escherichia coli* Serotype O104:H21--  
Helena, Montana, 1994**

During February-March, 1994, four persons in Helena, Montana (1995 population: 24,569), developed bloody diarrhea and severe abdominal cramps. Stool cultures for Salmonella, Shigella, Campylobacter, and Escherichia coli O157:H7 were negative; however, sorbitol-negative E. coli colonies were identified in stools from all four patients. Isolates from three patients were identified at CDC as a rare serotype--E. coli O104:H21 that produced Shiga-like toxin II. This report summarizes the epidemiologic and laboratory investigations of this outbreak by the Lewis and Clark County Department of Health and Environmental Sciences, the Montana Department of Health and Environmental Sciences (MDHES), and CDC. A confirmed case was defined as acute infection with E. coli O104:H21 during February 20-May 25, 1994--based on stool culture or serologic evidence--in a resident of or a visitor to the Helena area. A suspected case was defined onset of bloody diarrhea or abdominal cramps during the same period in a resident of or visitor to the Helena area. MDHES and county health departments contacted clinicians, laboratories, and the public through news media reports and requested that suspected cases be reported. Eleven confirmed and seven suspected case-patients were identified (Figure 1). Manifestations included abdominal cramps (18 [100%]), diarrhea (17 [94%]), bloody stools (16 [89%]), vomiting (10 [56%]), and fever (six of 15 [40%] for whom information was available). The median age was 36 years (range: 8-63 years), and 12 (67%) were female. Four (22%) persons were hospitalized.

Potential sources and risk factors for illness were assessed by a case-control study that included 17 case-patients and three age-, sex-, and neighborhood-matched controls for each case-patient. A history of milk consumption during the 7 days before illness was reported by all 17 case-patients compared with 40 (83%) of 48\* controls (matched odds ratio [OR]=undefined). One brand of milk (Brand A) was significantly associated with illness: of those persons who drank milk at home, 11 (92%) of 12 case patients compared with 17 (47%) of 36 controls reported drinking Brand A (matched OR=16.0; 95% CI=1.3-492.7). Within this brand, no specific type of milk product was associated with illness. Factors were not associated with illness included consumption of other brands of milk, other foods or drinks, and dining in specific restaurants.

On May 16, the local and state health departments, the Food and Drug Administration, and CDC inspected the dairy plant where Brand A milk was produced. Based on review of the plant's records for internal microbiologic quality-control testing, on 12 days during February 1-May 13, 1994, the coliform count exceeded the state regulation limiting maximum coliform levels in milk products to less than 10 coliforms per 100 mL on at least one ready-for-sale milk product. Cultures from selected post-pasteurization piping and equipment surfaces in contact with finished milk products yielded fecal coliforms; however, E. coli O104:H21 was not isolated from any culture samples obtained at the dairy. Two farms provided raw milk for this dairy; rectal swabs obtained from a sample of cattle from these farms did not yield E. coli O104:H21.

Reported by: K Moore, Lewis and Clark County Dept of Health and Environmental Sciences; T Damrow, PhD, State Epidemiologist, Montana Dept of Health and Environmental Sciences; DO Abbott, PhD, Montana State Public Health Laboratory. S Jankowski, Microbiology Dept, St. Peter's Community Hospital, Helena. Foodborne and Diarrheal Diseases Br, Div of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC.

Editorial Note: Shiga-like toxin-producing *E. coli* (SLTEC) are well-recognized causes of gastrointestinal illness, including both bloody and nonbloody diarrhea. *E. coli* O157:H7, the most common SLTEC, was recognized as a human pathogen in 1982 during the investigation of two outbreaks of bloody diarrhea associated with consumption of commercially sold hamburgers (1). In addition to causing bloody diarrhea, *E. coli* O157:H7 is the most common cause of hemolytic uremic syndrome (HUS) in children. Although other SLTECs also have been identified in sporadic cases of diarrhea and HUS, the findings in this report document the first reported outbreak of a non-O157 SLTEC in the United States, and the first documentation of illness attributable to Shiga-like toxin-producing *E. coli* O104:H21.

The clinical manifestations of infection in this outbreak were similar to those reported for patients infected with *E. coli* O157:H7 (2). Although HUS is a well-recognized complication of *E. coli* O157:H7 infection, no patients developed HUS in this outbreak, possibly reflecting the limited size of the outbreak and the age distribution of patients. Although most outbreaks of *E. coli* O157:H7 infection have been associated with consumption of ground beef, raw milk also transmits this pathogen (3). Healthy cattle may serve as a reservoir for *E. coli* O157:H7 and other serotypes of SLTEC (4). The implication of milk in the outbreak in Montana suggests that cows were the original source of this specific strain of *E. coli* O104:H21. Although the investigation documented post-pasteurization contamination of milk products with fecal coliforms, *E. coli* O104:H21 was not isolated from cultures obtained at the dairy, possibly because not all post-pasteurization equipment surfaces were sampled or because of the absence of the pathogen within the dairy at the time of the inspection. Because the techniques used to identify non-O157 SLTEC are not available in most laboratories (3), infections caused by this pathogen are most likely to be unrecognized. Most clinical laboratories that test for *E. coli* O157:H7 screen stools on a special medium (sorbitol-MacConkey agar [SMAC]) because *E. coli* O157:H7 isolates do not ferment sorbitol after overnight incubation (5), and most laboratories routinely discard sorbitol-positive colonies and sorbitol-negative colonies that do not agglutinate in O157 antiserum. Therefore, isolates of *E. coli* O104:H21 and other non-O157 SLTEC are not recognized. The increased availability in clinical laboratories of techniques such as testing for Shiga-like toxin or the genes encoding this protein may enhance the detection of disease attributable to non-O157 SLTEC. When evaluating clusters of patients with bloody diarrhea and other severe diarrhea illness, health-care providers also should consider the potential roles of *E. coli* O104:H21 or another non-O157 SLTEC. When cultures of stool are negative for specific pathogens, the state health department can be contacted to determine whether specimens should be examined further for SLTEC. When advised, health-care providers should freeze fecal specimens and store isolates from patients with bloody diarrhea; such specimens may assist in a subsequent investigation.

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\* Persons who responded "Don't know" to any question were excluded from the analysis.

[Appendix B] Participation Consent Form

**PARTICIPATION CONSENT FORM**

I, \_\_\_\_\_, agree to participate in a research study titled "Image Repair in a Health Crisis" conducted by Sunyoung Lee, an Master of Arts candidate in the Grady College of Journalism and Mass Communication at the University of Georgia, under the direction of Dr. Ruthann W. Lariscy, Department of Advertising and Public Relations, University of Georgia (542-5008). I understand that my participation is voluntary. I can refuse to participate or stop taking part without giving any reason, and without penalty. I can ask to have all of the information about me returned to me, removed from the research records, or destroyed.

This survey is for Ms. Lee's thesis, and results may be published. This study is designed to examine the relationships among a food crisis situation, crisis response strategies, and their influences related to resuming or not resuming the pre-crisis relationship with the product category and the specific corporate brand.

If I volunteer to take part in this study, I will be asked to fill out a survey with questions about my demographic information, product involvement, and health risk assessment as background information. After reading a news article about the crisis and the company's response, I also will be asked my beliefs, attitudes, subjective norms, and ultimately behavior intentions toward the product category and the specific brand. The entire study will take approximately 30 minutes to complete.

No risk or discomfort is expected from this study. My grade, status in the class, or relationship with my professor will not be affected if I choose not to participate or if I decide to stop taking part. In order to make this study a valid one, some information about your participation will be withheld until after the study.

There are no direct benefits to me but the findings from this project may provide valuable information on advancing theory in public relations and health communication.

My participation will earn me 1 extra credit points in the class for completing the questionnaire. I am also elect to receive the amount of extra credit by completing an alternative assignment that does not involve participation in research but involves comparable effort and duration to research participation. I may ask my course instructor about pursuing this option. If I withdraw my participation from this project, I will not receive any extra credit.

The researchers will keep my identity confidential. No identifying information about me, or provided by me during the research, will be shared with others, unless required by law.

The investigator will answer any further questions about the research, now or during the course of the project (706-201-5178).

I understand that I am agreeing by my signature on this form to take part in this research project and understand that I will receive a signed copy of this consent form for my records.

_____ <b>Name of Researcher</b> Email: _____ Telephone: _____	_____ <b>Signature</b>	<b>Date</b>
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_____ <b>Name of Participant</b>	_____ <b>Signature</b>	<b>Date</b>
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**Please sign this before you go to the next page.**

*Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu*



2. The next group of questions asks for your attitudes toward ‘drinking milk’ in general. Some of the questions may appear to be similar, but they do address somewhat different issues. Please read each question carefully, and place a check mark in the space that best reflects your feelings about the issues listed:

1) Drinking milk will cause me **health problems** (stomachaches, diarrhea, etc.)

Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

2) Drinking milk will help me **get nutrition such as calcium or vitamin D**.

Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

3) Drinking milk will help me **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)**.

Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

4) For me to **have a health problem** is

Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

5) For me to **get nutrition such as calcium or vitamin D** is

Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

6) For me to **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)** is

Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

7) For me **to drink milk** is

Extremely good	___ : ___ : ___ : ___ : ___	Extremely bad
Extremely valuable	___ : ___ : ___ : ___ : ___	Extremely worthless
Extremely pleasant	___ : ___ : ___ : ___ : ___	Extremely unpleasant
Extremely beneficial	___ : ___ : ___ : ___ : ___	Extremely harmful
Extremely enjoyable	___ : ___ : ___ : ___ : ___	Extremely unenjoyable

8) My **parents** think that I should drink milk.

Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

9) My **close friends** think that I should drink milk.

Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

10) My **school** encourages me to drink milk.

Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

11) The **government** encourages me to drink milk.

Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

12) Generally speaking, how much do you care what your **parents** think you should do?

Not at all    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much

13) Generally speaking, how much do you care what your **close friends** think you should do?

Not at all    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much

14) Generally speaking, how much do you care what **your school** encourages for you to do?

Not at all    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much

15) Generally speaking, how much do you care what **the government** encourages for you to do?

Not at all    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much

16) Most people who are important to me drink milk

Definitely true    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Definitely false

17) The people in my life whose opinions I value drink milk.

Definitely true    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Definitely false

18) Most people who are important to me think that (    ) drink milk.

I should    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    I should not

19) It is expected of me that I drink milk

Extremely likely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely unlikely

20) For me to drink milk would be

Impossible    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Possible

21) If I wanted to, I could drink milk

Definitely true    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    definitely false

22) Whether or not I drink milk is completely up to me

Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

23) How often do you encounter that the price of milk goes up?

Very rarely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very frequently

24) How often do you hear news of a milk-related accident or problem?

Very rarely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very frequently

25) How often do you hear news of disease from cow?

Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently

26) If **the price of milk goes up**, it would make it more difficult for me to drink milk.

Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree

27) If you heard news of **a milk-related accident or problem**, it would make it more difficult for you to drink milk.

Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree

28) If you heard news of **disease from cow**, it would make it more difficult for you to drink milk.

Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree

29) I intend to drink milk in the **coming month**.

Extremely unlikely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Extremely likely

3. The following questions are to gather background information. Please place a check mark (v) in the space that best describes you or fill in the blank.

1) Student ID \_\_\_\_\_ (for matching purpose only)

2) Gender: Male \_\_\_ Female \_\_\_

3) Age: \_\_\_

4) Hometown / State: \_\_\_\_\_ / \_\_\_\_\_

5) What is your year in college?

\_\_\_ Freshman      \_\_\_ Sophomore      \_\_\_ Junior  
\_\_\_ Senior      \_\_\_ Master      \_\_\_ Ph.D.  
\_\_\_ Other (please specify) \_\_\_\_\_

6) Ethnicity:

White/ Caucasian      \_\_\_  
Black/ African American      \_\_\_  
Hispanic/ Spanish Origin      \_\_\_  
Asian      \_\_\_  
Native American      \_\_\_  
Other (please specify)      \_\_\_

**Thank you very much for your participation!**

[Appendix D] Pilot Test I

Please match the following messages with the message strategies described on the next page.

1. \_\_\_\_\_

***No accident happened with Brand A milk***

This accident is not associated with Brand A milk since the E.coli outbreak cannot be caused by Brand A milk. We at Brand A are confident that, when the source of the e-coli contamination is isolated, it will NOT be in any of our farms or facilities. We have, over the years, completely overhauled the way we test, produce, process, and package milk. Moreover, any bacterium cannot be found in our milk because the last stage of processing our milk is pasteurization at a high temperature, usually at 110 F, where any bacterium cannot survive. It is impossible that our milk occurred E.coli problem.

2. \_\_\_\_\_

***An important action for our milk consumers***

We at Brand A have today taken what we believe to be the right action needed to prevent a repeat of the crisis in the future. We have voluntarily recalled all varieties of Brand A milk. We continue to work with the FDA to investigate the link between our products and the illness E.coli. You can also get refund by returning your open or unopened Brand A to the store where you bought it. If you need any additional information about the recall of Brand A milk or have any questions or concerns, call our 24-hour, toll-free hotline number at (800) 690-3200.

3. \_\_\_\_\_

***Michael A, Brand A president, apologizes: "Truly sorry about this accident"***

We are truly sorry about this tragic accident. As a leading producer and supplier of milk in the Atlanta area, we have an enormous responsibility. We will do whatever is necessary to protect the health and safety of the public. We have learned many lessons from this accident. Regardless of the source or method of contamination, we are better prepared to prevent it in the future. We are doing our best to identify the source and fully cooperate with the government.

4. \_\_\_\_\_

***Beyond our control***

E.coli outbreak is a serious accident beyond our control. We at Brand A followed the regulations the government sets, and we as a leading dairy company do our best to produce a best quality of milk. However, no matter how completely designs the process, there is always possibility of problems nobody can control. When you see the Spinach E.coli problems, Taco Bell's green onion, and the recent peanut butter case, they are all the case the companies could not control. We think the unusually warm temperatures of this winter may have caused the problems during transport. Especially, E.coli outbreak is one of the frequent problems caused by food and not a problem unique to milk. According to the national Centers for Disease Control and Prevention, there have been over 400 big or small E.coli cases every year.

- A **Denial** - A company denies the crisis happened and reinforces the denial by explaining why the even could not have happened.
- B **Excuse** - A company argues that the organization could not control events leading to the crisis.
- C **Corrective Action** - A company offers gifts or compensations to counterbalance the crisis. A company also takes actions to restore the crisis situation to normal operation or promises to make changes which will prevent a repeat of the crisis in the future.
- D **Apology**: A company has the organization accept responsibility for the crisis and apologizes for the accident.

**Please answer the following questions. You can leave blank if you don't have any idea.**

1. What do you believe the advantages of your drinking milk?
2. What do you believe the disadvantages of your drinking milk? Is there anything else you associate with your drinking milk?
3. Are there any individuals or groups (family members, close friends, organizations, government, etc.) who would approve or encourage you to drink milk?
4. Are there any individuals or groups (family members, close friends, organizations, government, etc.) who would disapprove or discourage you to drink milk?
5. Are there any other individuals or groups who come to mind when you think about drinking milk?
6. What factors or circumstances would enable you to drink milk?
7. What factors or circumstances would make it difficult or impossible for you to drink milk?
8. Are there any other issues that come to mind when you think about the difficulty of drinking milk?

## NO CLEAR ANSWERS YET

# ‘Food detectives’ search for E.coli source

By Mark Johnson  
Associated Press

ATLANTA --- An E. coli outbreak that was first identified in Tennessee in February and appears linked to Milk spread to 20 states by Monday, sickening at least 300 people and killing 20 more.

Earlier this month, 100 persons in Atlanta developed bloody diarrhea and severe abdominal cramps.

Government scientists struggled to pinpoint the source of an E.coli outbreak, and they strongly suspect milk as a potential source and a risk factor. A case-control study reported that all 100 case-patients had a history of milk consumption during the 7 days before the onset of the illness.

One brand of milk (**Brand A**), produced by a leading dairy company, is significantly associated with the illness of those persons who drank milk at home, 90 (90%) of 100 case



patients. At the same time, 8 (8%) reported drinking **Brand B** milk, and 2 (2%) reported drinking **Brand C** milk.

Grocery stores are voluntarily removing all milk products from their dairy cases. Atlanta public schools are closed until the source of

File /AP  
contamination can be determined.

The U.S. Food and Drug Administration was alerted on March 10, and within hours, it had launched one of the most extensive investigations in its history.

“Most outbreaks related with E.coli are caused by vegetables, salami, and juices. However, no milk case has previously been associated with an outbreak of E.coli until now,” said Jack Guzewich, director of emergency coordination and response for the FDA’s Center for Food Safety and Applied Nutrition.

On March 26, the local and state health departments, the FDA, and the CDC inspected the dairy plant in Tennessee where the outbreak apparently began. Based on a review of the plant's quality-control, the microorganism count did not exceed the state regulation. Cultures from selected post-pasteurization piping and equipment surfaces in contact with finished milk products also did not yield fecal coliforms.

[Appendix G] Stimuli II: Messages

[Type1: Denial]

## Statement by CEO

### A Dairy Company's Statement regarding the E.coli outbreak

Undated: March 27, 2007, 1:40 pm ET

#### **No accident happened with Brand A milk**

We at **Brand A** are confident that, when the source of the e-coli contamination is isolated, it will **NOT** be in any of our farms or facilities. We have, over the years, completely overhauled the way we test, produce, process, and package milk. Moreover, no bacteria can be found in our milk because the last stage of processing our milk is pasteurization at a high temperature, 110° F, where no bacterium can survive. It is impossible that our milk is contaminated by E.coli and has caused this outbreak.

**Contact:** David B. Caruso  
(562) 353-0490  
carusod@aXXXXXX.com

Michael Johnson  
Chief Executive Officer

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401 Union St. Nashville, TN 37219  
Tel. (562) 698-6800 / Fax (562) 698- 5636

[Type2: Excuse]

## Statement by CEO

### A Dairy Company's Statement regarding the E.coli outbreak

Undated: March 27, 2007, 1:40 pm ET

#### Beyond our control

This E.coli outbreak is a serious accident beyond our control. We at **Brand A** followed the regulations set by the government, and we as a leading dairy company do our best to produce the best quality of milk. However, no matter how completely well-designed the process, there is always the possibility of problems nobody can control. When you consider the Spinach E.coli outbreak, Taco Bell's green onion E.coli outbreak, and the recent peanut butter salmonella case, they were all cases the companies could not control.

In particular, an E.coli outbreak is one of the frequent problems caused by food and not a problem unique to milk. According to the national Centers for Disease Control and Prevention, there have been over 400 widespread or localized E.coli cases every year. E.coli sickens about 40,000 people a year in the U.S. and kills about 600. We suspect that the unusually warm temperatures of this winter might have caused this outbreak during transport of our dairy products.

Michael Johnson  
Chief Executive Officer

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[Type3: Apology]

## Statement by CEO

### A Dairy Company's Statement regarding the E.coli outbreak

Undated: March 27, 2007, 1:40 pm ET

#### **We apologize: "Truly sorry about this accident"**

We are truly sorry about this tragic accident. As a leading producer and supplier of milk in the Atlanta area, we have an enormous responsibility. We will do whatever is necessary to protect the health and safety of the public. We have learned many lessons from this accident. Regardless of the source or method of contamination, we are better prepared to prevent it in the future. We are doing our best to identify the source and fully cooperate with the government.

Michael Johnson  
Chief Executive Officer

**Contact:** David B. Caruso  
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[Type4: Corrective Action]

## Statement by CEO

### A Dairy Company's Statement regarding the E.coli outbreak

Undated: March 27, 2007, 1:40 pm ET

#### **An important action for our milk consumers**

We at **Brand A** have today taken what we believe to be the right action needed to prevent a repeat of this crisis in the future. We have voluntarily recalled all varieties of Brand A milk. We continue to work with the Food and Drug Administration to investigate the link between our products and the illness caused by E.coli. You can also get a refund by returning your open or unopened Brand A milk to the store where you bought it. We have installed a hot-line. If you need any additional information about the recall of Brand A milk or have any questions or concerns, call our 24-hour, toll-free number at (800) 690-3200.

Michael Johnson  
Chief Executive Officer

**Contact:** David B. Caruso  
(562) 353-0490  
carusod@aXXXXXX.com

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[Type5: Denial + Corrective Action]

## Statement by CEO

### A Dairy Company's Statement regarding the E.coli outbreak

Undated: March 27, 2007, 1:40 pm ET

## An important action for our milk consumers, but No accident happened with Brand A milk

We at **Brand A** have today taken what we believe to be the right action needed to prevent a repeat of this crisis in the future. We have voluntarily recalled all varieties of Brand A milk. We continue to work with the Food and Drug Administration to investigate the link between our products and the illness caused by E.coli. You can also get a refund by returning your open or unopened Brand A milk to the store where you bought it. We have installed a hot-line. If you need any additional information about the recall of Brand A milk or have any questions or concerns, call our 24-hour, toll-free number at (800) 690-3200.

However, we at Brand A are confident that, when the source of the e-coli contamination is isolated, it will **NOT** be in any of our farms or facilities. We have, over the years, completely overhauled the way we test, produce, process, and package milk. Moreover, no bacterium can be found in our milk because the last stage of processing our milk is pasteurization at a high temperature, 110° F, where any bacterium cannot survive. It is impossible that our milk is contaminated by E.coli and has caused this outbreak.

Michael Johnson  
Chief Executive Officer

**Contact:** David B. Caruso  
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[Type6: Excuse + Corrective Action]

## Statement by CEO

### A Dairy Company's Statement regarding the E.coli outbreak

Undated: March 27, 2007, 1:40 pm ET

## An important action for our milk consumers: It was beyond our control

We at **Brand A** have today taken what we believe to be the right action needed to prevent a repeat of this crisis in the future. We have voluntarily recalled all varieties of Brand A milk. We continue to work with the Food and Drug Administration to investigate the link between our products and the illness caused by E.coli. You can also get a refund by returning your open or unopened Brand A milk to the store where you bought it. We have installed a hot-line. If you need any additional information about the recall of Brand A milk or have any questions or concerns, call our 24-hour, toll-free number at (800) 690-3200.

This E.coli outbreak is a serious accident beyond our control. We at Brand A followed the regulations set by the government, and we as a leading dairy company do our best to produce the best quality of milk. However, no matter how completely well-designed the process, there is always the possibility of problems nobody can control. When you consider the Spinach E.coli outbreak, Taco Bell's green onion E.coli outbreak, and the recent peanut butter salmonella case, they were all cases the companies could not control. In particular, an E.coli outbreak is one of the frequent problems caused by food and not a problem unique to milk. According to the national Centers for Disease Control and Prevention, there have been over 400 widespread or localized E.coli cases every year. E.coli sickens about 40,000 people a year in the U.S. and kills about 600. We suspect that the unusually warm temperatures of this winter might have caused this outbreak during transport of our dairy products.

Michael Johnson  
Chief Executive Officer

**Contact:** David B. Caruso  
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[Type7: Apology + Corrective Action]

## Statement by CEO

### A Dairy Company's Statement regarding the E.coli outbreak

Undated: March 27, 2007, 1:40 pm ET

#### **An important action for our milk consumers**

*We apologize: "Truly sorry about this accident"*

We at **Brand A** have today taken what we believe to be the right action needed to prevent a repeat of this crisis in the future. We have voluntarily recalled all varieties of Brand A milk. We continue to work with the Food and Drug Administration to investigate the link between our products and the illness caused by E.coli. You can also get a refund by returning your open or unopened Brand A milk to the store where you bought it. We have installed a hot-line. If you need any additional information about the recall of Brand A milk or have any questions or concerns, call our 24-hour, toll-free number at (800) 690-3200.

We are truly sorry about this tragic accident. As a leading producer and supplier of milk in the Atlanta area, we have an enormous responsibility. We will do whatever is necessary to protect the health and safety of the public. We have learned many lessons from this accident. Regardless of the source or method of contamination, we are better prepared to prevent it in the future. We are doing our best to identify the source and fully cooperate with the government.

Michael Johnson  
Chief Executive Officer

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[Appendix H] Experiment Questionnaire

Student ID \_\_\_\_\_ (for matching purposes only)

**Section I.**

Turn to the next page and carefully read the newspaper article.

When you finish reading, answer the following questions. Please place a check mark (v) in the space which best reflects your perception.

**To make this study valid, assume this news is totally true.**

When answering the questions, you may **NOT TURN BACK** to the pages you have already completed, but you can turn back to the newspaper article on the next page.

**\*\*\* Answer the following items, assuming the news story is totally true!**

1. The next group of questions asks for your attitudes toward ‘**Drinking Milk**’ in general. Some of the questions may appear to be similar, but they do address somewhat different issues. Please read each question carefully, and place a check mark (v) in the space that best reflects your feelings about the issues listed:

1) Drinking milk will cause me **health problems** (stomachaches, diarrhea, etc.)  
 Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

2) Drinking milk will help me **get nutrition such as calcium or vitamin D**.  
 Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

3) Drinking milk will help me **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)**.  
 Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

4) For me to have a **health problem** is  
 Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

5) For me to **get nutrition such as calcium or vitamin D** is  
 Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

6) For me to **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)** is  
 Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

7) For me **to drink milk** is

Extremely good	___ : ___ : ___ : ___ : ___	Extremely bad
Extremely valuable	___ : ___ : ___ : ___ : ___	Extremely worthless
Extremely pleasant	___ : ___ : ___ : ___ : ___	Extremely unpleasant
Extremely beneficial	___ : ___ : ___ : ___ : ___	Extremely harmful
Extremely enjoyable	___ : ___ : ___ : ___ : ___	Extremely unenjoyable

8) My **parents** think that I should drink milk.  
 Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

9) My **close friends** think that I should drink milk.  
 Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

10) My **school** encourages me to drink milk.  
 Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

11) The **government** encourages me to drink milk (i.e. through campaigns).  
 Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

12) Generally speaking, how much do you care what your **parents** think you should do?  
 Not at all        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much

13) Generally speaking, how much do you care what your **close friends** think you should do?  
 Not at all        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much

14) Generally speaking, how much do you care what **your school** encourages you to do?  
 Not at all        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much

- 15) Generally speaking, how much do you care what **the government** encourages you to do?  
Not at all    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much
- 16) Most people who are important to me drink milk  
Definitely true    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Definitely false
- 17) The people in my life whose opinions I value drink milk.  
Definitely true    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Definitely false
- 18) Most people who are important to me think that (    \_\_\_ ) drink milk.  
I should    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    I should not
- 19) It is expected of me that I drink milk  
Extremely likely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely unlikely
- 20) For me to drink milk would be  
Impossible    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Possible
- 21) If I wanted to, I could drink milk  
Definitely true    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    definitely false
- 22) Whether or not I drink milk is completely up to me  
Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree
- 23) How often do you find that **the price of milk goes up**?  
Very rarely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very frequently
- 24) How often do you hear news of **a milk-related accident or problem**?  
Very rarely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very frequently
- 25) How often do you hear news of a **disease from cows**?  
Very rarely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very frequently
- 26) If **the price of milk goes up**, it would make it more difficult for me to drink milk.  
Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree
- 27) If I heard news of **a milk-related accident or problem**, it would make it more difficult for me to drink milk.  
Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree
- 28) If I heard news of a **disease from cows**, it would make it more difficult for me to drink milk.  
Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree
- 29) I intend to drink milk in the **coming month**.  
Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

2. The next group of questions asks for your attitudes toward ‘**Drinking Brand A Milk.**’ Some of the questions may appear to be similar, but they do address somewhat different issues. Please read each question carefully, and place a check mark (v) in the space that best reflects your feelings about the issues listed:

\*\*\* Please note that *Brand A* is a leading dairy company in the United States.

- 1) Drinking *Brand A* milk will cause me **health problems** (stomachaches, diarrhea, etc.)  
Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely
- 2) Drinking *Brand A* milk will help me **get nutrition such as calcium or vitamin D.**  
Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely
- 3) Drinking *Brand A* milk will help me **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)**.  
Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely
- 4) For me to have a **health problem** is  
Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad
- 5) For me to **get nutrition such as calcium or vitamin D** is  
Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad
- 6) For me to **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)** is  
Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad
- 7) For me to **drink Brand A milk** is  
Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad  
Extremely valuable    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely worthless  
Extremely pleasant    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely unpleasant  
Extremely beneficial   \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely harmful  
Extremely enjoyable    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely unenjoyable
- 8) My **parents** will think that I should drink *Brand A* milk.  
Strongly agree        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree
- 9) My **close friends** will think that I should drink *Brand A* milk.  
Strongly agree        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree
- 10) My **school** will encourage me to drink *Brand A* milk.  
Strongly agree        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree
- 11) The **government** will encourage me to drink *Brand A* milk (through campaigns, ads, or press releases...)  
Strongly agree        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree
- 12) Generally speaking, how much do you care what your **parents** think you should do?  
Not at all            \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much
- 13) Generally speaking, how much do you care what your **close friends** think you should do?  
Not at all            \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much
- 14) Generally speaking, how much do you care what **your school** encourages you to do?  
Not at all            \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Very much

- 15) Generally speaking, how much do you care what **the government** encourages you to do?  
Not at all \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very much
- 16) Most people who are important to me will drink **Brand A** milk  
Definitely true \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Definitely false
- 17) The people in my life whose opinions I value will drink **Brand A** milk.  
Definitely true \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Definitely false
- 18) Most people who are important to me will think that ( \_\_\_ ) drink **Brand A** milk.  
I should \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ I should not
- 19) It will be expected of me that I drink **Brand A** milk  
Extremely likely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Extremely unlikely
- 20) If I want to drink milk, choosing a milk brand will be completely up to me  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 21) How much control do you believe you have over choosing a milk brand?  
No control \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Complete control
- 22) How often do you find that **the price of milk goes up**?  
Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently
- 23) How often do you hear news of **a milk-related accident or problem**?  
Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently
- 24) How often do you hear news of a **disease from cows**?  
Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently
- 25) If **the price of Brand A milk goes up**, it would make it more difficult for me to drink **Brand A** milk.  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 26) If I heard news of a **Brand A milk-related accident or problem**, it would make it more difficult for me to drink **Brand A** milk.  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 27) If I heard news of a **disease from cows**, it would make it more difficult for me to drink **Brand A** milk.  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 28) I intend to drink **Brand A** milk in the **coming month**.  
Extremely unlikely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Extremely likely

**Stop!!**

**Section II.**

Turn to the next page and read carefully the messages from **Dairy Company A.**

You may **NOT TURN BACK** to the newspaper article or pages you have already completed. However, you can turn back to the press release on the next page.

1. How would you describe the messages from the company? (Please choose a number which best describes the messages on the press release you just read.) (        )

- ① **Denial** - A company denies the crisis happened and reinforces the denial by explaining why the event could not have happened.
- ② **Excuse** - A company argues that the organization could not control events leading to the crisis.
- ③ **Corrective Action** - A company offers gifts or compensations to counterbalance the crisis. A company also takes actions to restore the crisis situation to normal operation or promises to make changes which will prevent a repeat of the crisis in the future.
- ④ **Apology**: A company has the organization accept responsibility for the crisis and apologizes for the accident.

1. The next group of questions asks for your attitudes toward ‘**Drinking Milk**’ in general. Some of the questions may appear to be similar, but they do address somewhat different issues. Please read each question carefully, and place a check mark (v) in the space that best reflects your feelings about the issues listed:

1) Drinking milk will cause me **health problems** (stomachaches, diarrhea, etc.)  
 Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

2) Drinking milk will help me **get nutrition such as calcium or vitamin D**.  
 Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

3) Drinking milk will help me **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)**.  
 Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

4) For me to have a **health problem** is  
 Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

5) For me to **get nutrition such as calcium or vitamin D** is  
 Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

6) For me to **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)** is  
 Extremely good        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

7) For me **to drink milk** is

Extremely good	___ : ___ : ___ : ___ : ___	Extremely bad
Extremely valuable	___ : ___ : ___ : ___ : ___	Extremely worthless
Extremely pleasant	___ : ___ : ___ : ___ : ___	Extremely unpleasant
Extremely beneficial	___ : ___ : ___ : ___ : ___	Extremely harmful
Extremely enjoyable	___ : ___ : ___ : ___ : ___	Extremely unenjoyable

8) My **parents** think that I should drink milk.  
 Strongly agree        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

9) My **close friends** think that I should drink milk.  
 Strongly agree        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

10) My **school** encourages me to drink milk.  
 Strongly agree        \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

- 11) The **government** encourages me to drink milk (i.e. through campaigns).  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 12) Generally speaking, how much do you care what your **parents** think you should do?  
Not at all \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very much
- 13) Generally speaking, how much do you care what your **close friends** think you should do?  
Not at all \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very much
- 14) Generally speaking, how much do you care what **your school** encourages you to do?  
Not at all \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very much
- 15) Generally speaking, how much do you care what **the government** encourages you to do?  
Not at all \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very much
- 16) Most people who are important to me drink milk  
Definitely true \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Definitely false
- 17) The people in my life whose opinions I value drink milk.  
Definitely true \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Definitely false
- 18) Most people who are important to me think that ( \_\_\_ ) drink milk.  
I should \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ I should not
- 19) It is expected of me that I drink milk  
Extremely likely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Extremely unlikely
- 20) For me to drink milk would be  
Impossible \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Possible
- 21) If I wanted to, I could drink milk  
Definitely true \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ definitely false
- 22) Whether or not I drink milk is completely up to me  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 23) How often do you find that **the price of milk goes up**?  
Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently
- 24) How often do you hear news of **a milk-related accident or problem**?  
Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently
- 25) How often do you hear news of a **disease from cows**?  
Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently
- 26) If **the price of milk goes up**, it would make it more difficult for me to drink milk.  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 27) If I heard news of **a milk-related accident or problem**, it would make it more difficult for me to drink milk.  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree

28) If I heard news of a **disease from cows**, it would make it more difficult for me to drink milk.  
Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

29) I intend to drink milk in the **coming month**.  
Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

2. The next group of questions asks for your attitudes toward '**Drinking Brand A Milk**.' Some of the questions may appear to be similar, but they do address somewhat different issues. Please read each question carefully, and place a check mark (v) in the space that best reflects your feelings about the issues listed:

\*\*\* Please note that **Brand A** is a leading dairy company in the United States.

1) Drinking **Brand A** milk will cause me **health problems** (stomachaches, diarrhea, etc.)  
Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

2) Drinking **Brand A** milk will help me **get nutrition such as calcium or vitamin D**.  
Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

3) Drinking **Brand A** milk will help me **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)**.  
Extremely unlikely    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely likely

4) For me to have a **health problem** is  
Extremely good    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

5) For me to **get nutrition such as calcium or vitamin D** is  
Extremely good    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

6) For me to **enjoy foods (bread, cereal, etc.) or drinks (coffee, tea, etc.)** is  
Extremely good    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Extremely bad

7) For me to **drink Brand A milk** is

Extremely good	___ : ___ : ___ : ___ : ___	Extremely bad
Extremely valuable	___ : ___ : ___ : ___ : ___	Extremely worthless
Extremely pleasant	___ : ___ : ___ : ___ : ___	Extremely unpleasant
Extremely beneficial	___ : ___ : ___ : ___ : ___	Extremely harmful
Extremely enjoyable	___ : ___ : ___ : ___ : ___	Extremely unenjoyable

8) My **parents** will think that I should drink **Brand A** milk.  
Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

9) My **close friends** will think that I should drink **Brand A** milk.  
Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

10) My **school** will encourage me to drink **Brand A** milk.  
Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

11) The **government** will encourage me to drink **Brand A** milk (through campaigns, ads, or press releases...)  
Strongly agree    \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_    Strongly disagree

- 12) Generally speaking, how much do you care what your **parents** think you should do?  
Not at all \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very much
- 13) Generally speaking, how much do you care what your **close friends** think you should do?  
Not at all \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very much
- 14) Generally speaking, how much do you care what **your school** encourages you to do?  
Not at all \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very much
- 15) Generally speaking, how much do you care what **the government** encourages you to do?  
Not at all \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very much
- 16) Most people who are important to me will drink **Brand A** milk  
Definitely true \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Definitely false
- 17) The people in my life whose opinions I value will drink **Brand A** milk.  
Definitely true \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Definitely false
- 18) Most people who are important to me will think that ( \_\_\_ ) drink **Brand A** milk.  
I should \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ I should not
- 19) It will be expected of me that I drink **Brand A** milk  
Extremely likely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Extremely unlikely
- 20) If I want to drink milk, choosing a milk brand will be completely up to me  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 21) How much control do you believe you have over choosing a milk brand?  
No control \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Complete control
- 22) How often do you find that **the price of milk goes up**?  
Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently
- 23) How often do you hear news of **a milk-related accident or problem**?  
Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently
- 24) How often do you hear news of a **disease from cows**?  
Very rarely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Very frequently
- 25) If **the price of Brand A milk goes up**, it would make it more difficult for me to drink **Brand A** milk.  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 26) If I heard news of a **Brand A milk-related accident or problem**, it would make it more difficult for me to drink **Brand A** milk.  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 27) If I heard news of a **disease from cows**, it would make it more difficult for me to drink **Brand A** milk.  
Strongly agree \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Strongly disagree
- 28) I intend to drink **Brand A** milk in the **coming month**.  
Extremely unlikely \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ : \_\_\_ Extremely likely

**Thank you very much for your participation!**