SOME STORIES HURT MORE:
THE INTERACTION OF SALIENCE AND EXEMPLIFICATION
ON AUDIENCE PERCEPTION IN NEWS REPORTS

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ABSTRACT

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Some Stories Hurt More:

The Interaction of Salience and Exemplification in News Reports

(Under the direction of Rhonda Gibson, Ph.D.)

A print news report on an infection spreading through food products was manipulated to create versions differing in exemplar distortion (minimally, moderately, and substantially) and personal salience (risk absent, risk present). Readers evaluated the disease as a national threat, local threat, and as a personal threat. They also estimated the percentage of people developing symptoms in the three distortion categories. The research hypothesized an exemplar distortion/personal salience interaction in that the effects of exemplification would be greater in situations with greater personal salience. A main effect was observed for both exemplar distortion and personal salience; more research is necessary to support any conclusion on the possibility of an interaction. This is the first known exemplification research to explore such an interaction.

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Introduction and Review of the Literature

Enter any journalism classroom or newsroom and the mantra is the same: tell the story through people. Unemployment stories show the unemployed. Crime stories detail a victim. Disease stories hinge on patients. All these are examples of how people are used to tell the story of statistics.

In a story the data and the people both make an impression on the reader, but the people have a more powerful ability to affect a reader's understanding of an issue than often expected. To understand this idea of how people appearing in a story shift reader opinion, examine the issue of hormone replacement therapy and its safety. HRT has long been used to ease the symptoms of post-menopausal women. Usage of HRT was prevalent until a recent study revealed that HRT may present more significant risks of heart attacks and certain cancers than previously expected; HRT usage suddenly and significantly dropped. Putting aside the particular scientific and medical concerns with this issue, imagine reading a story that states that only a small percentage of women were found to be at the higher risks. A reader's fears might be minimized if the story including such a statistic featured women who received HRT, benefited greatly, and remained in perfect health for many years. But the perception of the issue would be very different if the story featured only men whose wives had died as a result of heart attack or cancer while using HRT. This ability of people interviewed in a story, the *exemplars*, to affect the perception of facts, the *base-rate data*, is the heart of exemplification research.

Research has consistently shown that it is not only the presence of exemplars but the degree to which exemplars accurately represent the base-rate data that also affects issue perception. In an ideal application, exemplars would reflect the base-rate data

mathematically such that, if the data stated one of 400 people died of HRT side effects, one person in the story would tell the story of someone who died and 399 others would tell the story of not dieing. Of course this is impractical to do in the scope of a normal news story. For this reason, choosing exemplars for use in a news story is most often an imperfect and imprecise process, and it is the varying effects of this non-representative usage of people to represent data that is of research interest.

Information Processing

The inability for a reader or viewer to accurately form opinions after being presented data is based in a psychological phenomenon called heuristics processing. Heuristics applies not just to media but all social interaction. The assertion is that people cannot or do not sift through all presented information when making a decision. Rather, heuristics, or shortcuts, are employed to process the information. Several studies reveal that as depth of information analysis is sacrificed for processing speed, the likelihood of erroneous judgment increases (Zillmann & Brosius, 2000).

Tversky and Kahneman published several works (1971, 1972, 1973, 1982) that form the outline for classifying heuristics, or mental shortcuts. From Tversky and Kahneman's findings, Zillmann & Brosius (2000) summarize heuristics as "generalizations that are based on limited individual experience, a circumstance that makes them especially prone to distortion" (p. 40).

Representativeness Heuristic.

The representativeness heuristic describes a recipient's tendency to process single pieces of information as representative of a larger group. In the case of exemplars, the heuristic helps a reader determine how well an exemplar represents the group of which he/she is an example. Tversky and Kahneman (1982c) defined the respresentativeness heuristic as follows:

1. People judge representativeness with little or no regard to the stated prior probability of an outcome, which can be considered the base-rate frequency. Tversky and Kahneman asked respondents to identify anonymous profiles of working professionals as engineers and lawyers. Despite defined ratios of one professional group to the other, respondents identified the profiles based on their stereotypes rather than the stated prior probability.

2. People are insensitive to sample size and its statistical implications for applying an exemplar to a situation. Basically, respondents draw the same conclusions independent of sample size, even though conclusions based on a small sample are much less reliable than from a large sample.

3. Respondents inaccurately judge the chance associated with a random process. For example, people are more likely to say that, when rolling a die six times, it is more probable to roll 2-6-4-4-3-5 than 1-2-3-4-5-6. In fact the *chance* is exactly the same.

Availability Heuristic.

People use the availability heuristic to assess the frequency or probability of an event by their own ease of bringing relevant information to mind (Tversky & Kahneman, 1982c). In their 1973 study (reported in 1982a), the researchers tested this by presenting respondents a list of names with equal numbers of men and women. One version of the list had more famous men, the other more famous women. When respondents were asked to recall the percentage of men and women, men were overestimated when more famous men were on the list, and women were overestimated when more famous women were on the list. When looking at the results of this study, it becomes clear that probability and frequency are not the only factors affecting availability of information for recall.

Vividness and Salience.

Tversky and Kahneman (1982c) assert that the impact of seeing a child die in a fire is more vivid and salient than hearing about such events. As a result, someone seeing the fire first hand is more likely to overestimate such occurrences. Zillmann and Brosius (2000) provided several techniques to manipulate vividness in their exemplification experiments. They have used concrete, visual language rather than abstract description; visual representations such as photographs rather than written word; direct experience rather than experience only through media; and case-history information rather than data summaries.

Experiments designed to manipulate and directly test vivid stimuli have not been conclusive, however (Sundar, 2003). For every study finding a positive effect of vivid stimuli, there is another showing the opposite. None of these studies, however, tested

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vividness within the context of a news story. Brosius (2003) suggested that vividness is not a measurable aspect of a stimulus but a significant aspect of personal methods for identifying differences between two stimuli. In the realm of exemplar testimony, both Sundar and Brosius cite the Nisbett and Ross (1980) conclusion that vivid exemplars are more likely to make a stronger impression than pallid exemplars and, thus, be more easily called to mind as predicted by the availability heuristic.

Salience is another factor contributing to the availability heuristic, and it is tied closely to the concept of vividness. Salience is the perceived importance or relevance of something. The reader has a tendency to pay more attention to a salient fact or detail among others. Taylor (1982) described this as the ability for a "distinctive stimuli [to] disproportionately engage attention and accordingly disproportionately affect judgments" (p. 192). Brosius (2003) described an exemplar as having the ability to stick out among summary data presented in a news article, thus making exemplars more salient than data. Thus it would reason, according to the availability heuristic, that a more salient exemplar would be more easily called to mind and thus more available for processing when making a decision about the facts of a situation.

Exemplification in the News

The concepts of heuristics, vividness and salience were originally conceived in a psychological context. But exemplification research goes beyond the psychological inquiry of information processing shortcuts (heuristics) to apply the effect of exemplars to the perception of issues in the news media.

Exemplification theory in a news media context is important because of the overwhelming prevalence of exemplars in stories produced by U.S. media. Nearly all print stories and more than half of television news stories use exemplars, according to media analysis reported by Zillmann and Brosius (2000). The study analyzed four randomly selected issues of each of three news magazines (*Time*, *Newsweek,* and *U.S. News & World Report*) from 1994 and found that 93% of all the printed stories contained exemplars, with most stories containing three to four exemplars. The exemplars were approximately 44% percent of the textual content of the stories.

The sample for television was drawn from five randomly selected broadcasts from each of four networks (ABC, CBS, CNN and NBC) for two months in 1994. Exemplars were present in 53% of all television stories, with the less frequent use than print media attributed to television's pressure for story brevity and ability, or lack thereof, to obtain video footage. Television stories with exemplars were considerably longer than those without exemplars, an average of 139 seconds versus an average of 45 seconds, respectively, a 3:1 difference. In the stories containing exemplars, the exemplars constituted 32%, or a little less than one-third, of the story.

The first exemplification research within news media simply questioned if an exemplar would affect processing of base-rate data in news media. The findings were quite simple and clear: the exemplars proved to be more powerful than base-rate data (Sundar, 2003). But the research trying to understand exemplar effects had to move beyond simply the data and the existence of exemplars because real news stories more commonly employ multiple exemplars illustrating the multiple facets of an issue. The first major study to test exemplar aggregation was by Zillmann, Perkins and Sundar

(1992). The hypothetical news story was about dieters regaining weight within one year. Several versions of the story were created, varying the precision of the base-rate data, as either precise or imprecise, and the distribution of exemplars who supported the base-rate data. One condition used *selective exemplars* who were all weight regainers. Sundar later asserted this selective condition best represented the "dominant script of mass media" (2003, p. 278). Using exemplars who all regained weight was supporting the "newsworthy" statistic that 32% (precise) or a minority of dieters (imprecise) regain their lost weight within one year, but this distribution is not considered *representative*. In the representative condition, the exemplars supported the base-rate data with a distribution of three weight gainers and six weight controllers. The third condition, *mixed or blended exemplars*, reversed the distribution of the representative condition, which resulted in over-representing the minority group (the weight gainers). The study also tested time as a variable by having some respondents answer surveys immediately and others two weeks later.

Respondents were asked their personal estimation of the percentage of weight regainers. Base-rate information provided in the stories seemed to be relatively immaterial to the respondent estimations, as there was no significant interaction between the base-rate variable and the exemplification variable. Respondents overestimated the percentage of weight regainers in both the precise and imprecise conditions, with those in the precise condition showing less estimation error. With respect to the exemplification effects, or the ability of the differing exemplar aggregation to affect issue perception, the selective exemplars condition resulted in the highest (most incorrect) estimation from respondents followed by the mixed distribution and then the representative. The

respondents' estimates measured after two weeks showed that the effects of exemplification wore off, with the delayed respondents estimating weight regainers at the level of respondents who did not read the stories at all. Thus, this study concluded that the different exemplar distributions can have an impact on the formation of perceptions of an issue in the short term.

One important shortcoming of this study was the use of dieting as the topic in the manipulated story. Many people may have pre-formed opinions from prior involvement with dieting, either by first-hand experience or through an acquaintance. Thus, the results of this study may not have accurately tested the effect of exemplars on long-term perceptions. Prior involvement with the issue is an important factor that most subsequent research tried to control.

Gibson and Zillmann (1994) expanded on the Zillmann et al. (1992) study by investigating whether the vividness of an account affects recall and issue perception. This study used carjacking stories as an issue readers would have been unlikely to have experienced. This study used four levels of exemplar distortion (in this case, level of injury of the carjacked person – minimally exaggerated, mildly exaggerated, substantially exaggerated, extremely exaggerated), two levels of base-rate precision (imprecise, precise) and two time periods for measurement (immediate, delayed). At the time of the study and in the location of the experiment (Alabama), carjacking was not well-known and was not a local problem. Thus, respondents' prior involvement with the issue was kept to a minimum.

Gibson and Zillmann's study gave credence to the idea that exemplification effects are gradient in nature. The mis-estimation by respondents became more

pronounced as the exemplar accounts were more distorted. Additionally, the study showed that respondents made the same decisions despite precise or imprecise base-rate data. The study was unable to prove or disprove conclusively whether the effects of exemplification would be realized over time (one week).

Most of the subsequent research has focused on exploring the nuances of exemplification theory. For example, Zillmann et al. (1996) chose the economics of family farming, a topic that respondents would not have pre-formed opinions about and where prior knowledge was minimal or non-existent, to continue to study the longevity of the exemplification effects. The study showed that, if the respondent did not have a prior opinion on the topic, the effects of exemplification were stable over time (two weeks).

Perry and Gonzenbach (1997) tested the ability of exemplars in television stories to prime public opinion concerning an amendment to the U.S. Constitution about prayer in public schools. This study was important because it concluded that, while people are able to detect exemplar bias in interpersonal communication and reinterpret what they hear to reflect a more accurate portrayal of reality, people are less able to identify indicators of bias in media, and, as a result, their perceptions of the truth are *unknowingly* slanted or skewed.

Reporting on Risk

People learn about risk in three principle ways: direct experience, personal contact with other people, and indirect exposure through media (Singer & Endreny, 1993). It is important to examine reader reactions to media stories related to risk because the media

are a primary source of information regarding hazards, and thus reports of risk can have an impact on public opinion and action.

It is useful to examine the case of basketball star Earvin "Magic" Johnson to understand just how much of an impact media risk reporting can have. On November 7, 1991, Johnson announced that he would retire from basketball because he had tested positive for human immunodeficiency virus (HIV), the virus that causes AIDS. The announcement received widespread coverage, and AIDS became an instant buzz topic. A Los Angeles Times poll two weeks after the announcement confirmed the impact of the event. Of the people surveyed (N = 1,709), 99% had heard or read something about the announcement. A quarter of those surveyed said they were following the story "closely," and almost half responded that they were following it "somewhat closely." The Times also asked how concerned people were about getting AIDS. Overall, 32% said they were "very concerned" about their personal risk. The significance of these numbers is evident when compared to the stability of perceived risk in previous years. In 1985, 1987 and 1989 Times polls, only 20% of respondents said they were "very concerned" about their personal risk (Scott, 1991).

Risk is the probability of experiencing harm caused by some hazard. Hazards, as defined by Hohenemser et al. (1983), are "threats to humans and what they value" (p. 379). These definitions are important because, as Singer and Endreny (1993) pointed out, the media do not actually report directly on either of these things. The media report on the *effects* of hazards and risks. For example, reporting a death caused by a car accident is the effect of the hazardous activity of driving an automobile. It is rare to see a story warning against driving because of the risks it poses. In general, the nature of risk

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reporting is that the risk is not reported until there has been an accident. This is caused by the structure of media as reactive bodies -- media are not making the news or predicting the harms in most situations.

Risk reporting can be divided into three broad areas, according to a classification developed by Hohenemser et al. (1983) and reaffirmed by Singer and Endreny (1993): (1) *natural hazards*, which include hurricanes, blizzards, and floods; (2) *energy hazards*, also thought of as accidents, which include fires, airplane crashes, and train wrecks; and (3) *material hazards*, also known as technological risks, which include tobacco, nuclear power plants, and silicone implants. Singer and Endreny expanded the Hohenemser et al. system by adding four more categories for their content analysis. This was done to make clearer the placement of risk stories in the areas of (4) activities including costs and benefits, such as rigorous exercise; (5) chronic or acute illness; (6) complex technologies, with mixed technological hazards, such as surgical procedures; and (7) activities with costs only, such as crime.

Singer and Endreny (1993) coded stories from 15 media during four months in 1984. Local, national, and niche outlets were picked for the purpose of comparing coverage among the different levels. Every story was classified into one of the seven hazard areas. The study was novel because it dealt specifically with risk in mass media and was not limited to only a few types of hazards. Singer and Endreny make that point that because the news selected for coverage was often "relatively serious or relatively rare" (p. 82), the information was more prone to easier recall and a subsequent overestimation of the true prevalence of a particular risk factor.

The impact from reporting on risk can sometimes be sizeable, according to Weiner (1986), who concluded that media reporting of toxic shock syndrome in 1980 had a sizeable effect on the public. Toxic shock syndrome was discovered in 1980 to be linked with the usage of certain tampons and as the cause of severe sickness and sometimes death. Weiner tracked the discovery of toxic shock syndrome and the progression towards full-scale public awareness of a health crisis. He measured this as both an immediate and sharp reaction in the marketplace. Weiner cited marketing studies that showed that 95% of all women between 15 and 50 had heard of TSS (meaning that most had heard from it through direct or indirect contact with media). In only a short time, the percentage of women using tampons dropped from 70% to 55% -- 5-10 million women likely changed their behavior because of media reports about TSS.

The importance of the media in this situation is apparent when such dramatic changes in behavior are compared to American Council on Science and Health data. The actual death rate for TSS in menstruating women was only 0.5 per 100,000. That means that, in the same year, women had a 10 times or greater chance of dying from an accidental fall, as the rate for falls was 5.0 per 100,000 for the entire population, including men. Weiner commented, "Conveying to the public that a new disease is very serious but very infrequent is a difficult task" (1986, p. 158).

Not only are media the primary sources of information regarding hazards, but much of the content in media can be classified as hazard reporting. Of all the events in the world, risk-related events are more likely to be reported because they are more likely to be considered newsworthy (Singer & Endreny, 1993). Therefore, further study of the effects of risk reporting has significant implications for a large body of general reporting.

Salience as a Research Point

Knobloch, Zillmann, Gibson, and Karrh (2002) investigated issue salience as a function of the location of a risk factor. The study tested student respondents at two schools in two states with a story about a fictitious chigger disease outbreak. Salience was broadly defined as "experience-based, subjective and idiosyncratic importance of a domain of information" (p. 15) and *regional salience* was varied by changing the location of the outbreak. The study found that if the article read was regionally salient, the respondent had superior acquisition of the base-rate data. Estimates of perceived risk were greater for both the public and the self when the articles were regionally salient. To ensure that respondents were affected by the intended regional salience, the study also directly questioned the respondents' rating of the story's newsworthiness. The study concluded that salience can motivate processing (for easier recall/availability) of information that may have otherwise been ignored as insignificant.

Building on Zillmann (2000) to construct the *informational utility* theory, Knobloch et al. (2002) predicted the extent to which individuals will process information concerning their own possible personal encounter or difficulty. The model predicted that the degree of personal utility increased with a reader's expected level of harm or reward, likelihood of actualization, and sense of eminency. Basically, if a person has more reason to be interested in a topic, he/she will further process the information (which leads to better availability and recall).

What complicates the issue of salience is the subjectivity of something being salient. For example, a story about sudden infant death syndrome (SIDS) may be particularly salient to a mother who has children. But, salience can not be assumed to be

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solely a function of having a child. A respondent who may be considering having a child may also be particularly interested, and conversely, a parent who has an infant may simply not perceive this to be a problem that might affect him or her. Therefore, the challenge of exemplification research, as noted by Knobloch et al. (2002), is "to create conditions that are devoid of the indicated confoundings" (p. 9).

Expanding the Theory

While many exemplification experiments (Aust & Zillmann, 1996; Gan, Hill, Pschernig, & Zillmann, 1996; Gibson and Zillmann, 1994; Perry & Gonzenbach, 1997; Zillmann et al., 1996) have used stories about risk, there are no known exemplification studies that combine a manipulation of exemplars with a manipulation of topic salience. The present research aims to fill this gap in exemplification research by combining a standard exemplar manipulation with a salience manipulation, in the form of manipulated perceived personal risk. Doing this research will enable journalists to better understand the implications of their reporting choices when the stories involve matters of risk that are particularly salient to the readers.

The main hypothesis is derived from the findings of most exemplification research:

H_1: The more distorted toward serious risk an exemplar account in a news report, the greater perceived risk by a reader.

The secondary hypothesis is derived from the salience studies and relies on informational utility theory as a factor for personal salience:

H_2: If a topic is personally salient, then the reader will be more likely to process the information and label it cognitively as important.

And by combining these two separate theory areas, a new, topic salience-exemplar interaction can be hypothesized:

H_3: Effects of exemplar distortion will be greater for topics of personal salience.

Methods

Overview

A 3x2 design was employed, with three conditions of exemplar distortion (minimally exaggerated, moderately exaggerated, and substantially exaggerated) and two conditions of perceived personal risk (absent and present). Participants read the one version of the stimulus material and completed questions about the story.

Participants

Participants were drawn from an introductory public policy analysis class. A total of 149 students participated. Some participant responses were excluded from the final data set for the following reasons: participant had not consumed an at-risk product in the two weeks prior to the experiment (N = 5); the participant was in the risk absent condition and had visited California or the Pacific Northwest in the prior two weeks (N = 1); the participant was in the risk absent condition and had immediate family living in California or the Pacific Northwest (N = 7); and participant responses, such as marking straight down the dependent measures sheet, indicated lack of interest in completing the study (N = 15). The final sample (N = 121) consisted of 70 male students and 51 female students.

Procedure

When the experiment began, students were seated in seats of their own choosing. They were not given prior notice about the administration, and the study was introduced as voluntary, without academic benefit or consequence to the participants. Participants

were told that they were participating in a study that is examining current issues in media. After introductory remarks (see Appendix A), participants were given the experimental packet, which consisted of two booklets: 1) a copy of the questionnaires (Appendix D), which served as the outer booklet, and 2) two copies of the informed consent form (Appendix B) and stimulus material (Appendix C) tucked inside the first booklet. The booklets were arranged such that the six versions of the experimental story appeared randomly from booklet to booklet in groups of six. Participants were informed of their right to discontinue participation at any time. A period of time was allowed for questions, but none were raised.

Participants were instructed to remove the inner booklet without opening the outer booklet, to keep one copy of the consent form, to sign one copy of the consent form and to read the attached story. After a period of approximately five minutes, all consent forms and stimulus articles were collected. Only then were participants instructed to open the outer booklet and complete the questions.

After completing the final questionnaire and the booklets were collected, the participants were debriefed. The administrator read the prepared statement revealing that the content of the experimental article was not factual, and there was no reason to be fearful of any perceived personal risk. The administrator remained available for further questions to address any concerns of participants, but none were raised.

News-story Variations

The experimental story was about the spread of a (fictitious) food-borne illness. Six versions were created, two versions of the perceived personal risk varied with three

versions of exemplification of the situation. The base-rate data indicated that in 82.1 percent of people, exposure lead to nausea, fatigue and muscular weakness; in 17.5 percent, blurred vision, migraines and achy joints; and in 1.4 percent, skin lesions, dementia, coma and even death. All stories featured three exemplars. The story began with an exemplar, followed by presentation of the base-rate data, and concluded with the two remaining exemplars.

Exemplar Distribution

The exemplars appearing in the experimental story that illustrated the base-rate data were manipulated with respect to how sick they got. All exemplars supported the focus of the story; all exemplars experienced the new illness in some capacity. One version, minimally exaggerated, contained people (exemplars) who were inconvenienced by the illness and suffered minimal health consequences. The second version, moderately exaggerated, featured people who had more serious reactions to the illness leading to treatment in the emergency room. The third version, substantially exaggerated, included people who were hospitalized and in intensive care.

Personal Salience

Perceived personal risk was a component of the stories. This was varied by changing the location of the infected food products. In one version (risk absent), the disease was located in "California and the Pacific Northwest." The other version (risk present) described the illness as having contaminated food in "central North Carolina." All study participants were located in North Carolina. Any participants who read the risk

absent version and had recently visited or currently have family in California or the

Pacific Northwest were excluded from analysis.

Measure of Issue Perception and Vulnerability

Participants completed a questionnaire after reading one of the versions of the

experimental story and were then asked to record their opinions about various aspects of

the illness. Questions addressed perceptions of the level of national threat, the level of

local threat to people in the story, and the perceived level of personal threat. Another

section asked respondents to estimate the percentage of people who exhibited symptoms

in all three symptom categories (mild, significant, and serious).

Data Management and Analysis

All responses from the questionnaires were entered into a Microsoft Excel

database. Then, the data set was analyzed using SPSS. A univariate analysis of variance

was conducted for each of the dependent measures. All dependent measures were treated

as interval-level, which allowed for means to be calculated.

Results

Gender as a Factor

Participant sex, when examined as an independent variable, produced a significant difference of means in only one dependent measure (*national*), so gender was not included in the analysis.

Participant Perception of Threat Level

A univariate analysis of variance, with exemplar distortion and perceived personal risk as independent factors, was performed on the three items addressing participants' perception of the issue as a national, local (to people in story), and personal threat.

Analysis of the individual scales revealed a main effect of exemplar distortion for the perception of the disease threat as a national and local issue. For perception of a national threat the effect was calculated as $F = 3.07$, $p = .050$, $df = 2$; and $F = 5.18$, $p = .007$, $df = 2$ reflects the effect on perception of local threat. The means associated with these are presented in Table 1. All three measures exhibited a positive linear trend in their means; this pattern is as predicted but is not statistically significant.

Table 1
Means of Threat Estimates as a Function of Exemplar Distortion

Type of Threat	Degree of Exemplar Distortion		
	Minimal	Moderate	Substantial
National	3.81[a]	3.97[a/b]	4.74[b]
Local	6.17[a]	6.72[a/b]	7.47[b]
Personal	3.45[a]	3.53[a]	3.60[a]

Note. Means in the same row that do not share a superscript differ at $p < .05$ by the Dunnett T3 significant difference comparison.

Analysis of the scales as a function of risk revealed an effect for only the personal threat measure: $\underline{F}$ = 15.492, $\underline{p}$ = .000, df = 1. The means associated with this effect are presented in Table 2.

Table 2
Means of Threat Estimates as a Function of Perceived Personal Risk

Type of Threat	Perceived Personal Risk	
	Absent	Present
National	4.31[a]	4.08[a]
Local	6.98[a]	6.61[a]
Personal	2.85[a]	4.18[b]

Note. Means in the same row that do not share a superscript differ at $\underline{p}$ < .05

No significant interactions emerged for the scales. The means, as a function of risk and exemplar distortion, are presented in Table 3.

Table 3
Means of Threat Estimates for Perceived Personal Risk and Exemplar Distortion

Type of Threat	Degree of Exemplar Distortion					
	Minimal		Moderate		Substantial	
	Absent	Present	Absent	Present	Absent	Present
National	4.06	3.63	3.84	4.12	4.91	4.57
Local	6.39	6.00	6.63	6.82	7.77	7.14
Personal	2.67	4.04	2.53	4.65	2.85	3.95

Analysis of Estimates of Sickness Levels

Univariate analyses of variance were performed on all estimates. This revealed a main effect of exemplar distortion on estimates for the *serious* measure: $\underline{F} = 9.72$, $\underline{p} = .000$, df = 2. Means for estimations of sickness as a function of exemplar distortion are presented in Table 4.

Table 4
<u>Means of Sickness Category Percentage Estimates as a Function of Exemplar Distortion</u>

Level of Sickness	Degree of Exemplar Distortion		
	Minimal	Moderate	Substantial
Mild	78.72[a]	78.85[a]	77.86[a]
Significant	18.87[a]	19.25[a]	18.28[a]
Serious	2.45[a]	1.76[a]	4.19[b]

Note. Means in the same row that do not share a superscript differ at $\underline{p} < .05$
by the Dunnett T3 significant difference comparison.

There was no significant effect of perceived risk on any estimate category, and no interactions were observed. Table 5 presents means as a function of perceived personal risk, and Table 6 presents the means as a function of distortion and risk.

Table 5
Means of Sickness Category Percentage Estimates as a
Function of Perceived Personal Risk

| Level of Sickness | Perceived Personal Risk | |
	Absent	Present
Mild	78.26	78.64
Significant	18.81	18.74
Serious	2.83	2.89

Table 6
Means of Sickness Category Percentage Estimates for Perceived Personal Risk
and Exemplar Distortion

| Level of Sickness | Degree of Exemplar Distortion | | | | | |
| | Minimal | | Moderate | | Substantial | |
	Absent	Present	Absent	Present	Absent	Present
Mild	77.23	79.85	78.93	78.77	78.54	77.15
Significant	20.59	17.58	19.04	19.48	17.16	19.46
Serious	2.85	2.15	1.60	1.94	3.88	4.51

Discussion and Conclusions

Examining the Meaning of Experimental Data

The findings reinforce the premise of exemplification theory: the degree of distortion of exemplars in news reports has an effect on reader perception of base-rate data. With regards to H_1, participants exposed to a high distortion level were more likely to indicate a greater perception of threat at the national and local levels than those who read a story with low distortion. This effect did not carry over to perceptions of personal threat. These findings indicate that the effects of exemplification were powerful enough for participants to perceive the disease spread as a more severe national and local problem, but not necessarily strong enough for them to internalize the threat.

This lack of perceived personal risk may be explained by the research of cognitive psychologists suggesting that individuals, especially college-aged students, are less likely to project themselves accurately into a risky situation (Johnson et al., 2002; Weinstein, 1984). Because of this, individuals can often fail to make a link between identified risk factors and their own perceived susceptibility while still maintaining the ability to make judgments on third parties, in this case the national and local threat levels. Therefore, it is possible that participants in this study, wholly comprised of college students, did not fully consider the possibility of their own exposure to the infected product despite the fact that each study participant later indicated that he or she had consumed an at-risk product within two weeks of the study administration.

With regards to the sickness percentage estimates, a main effect was observed only in the *serious* category. As predicted, the mean for the risk present condition was higher than the risk absent condition.

The main effect of personal salience on personal threat estimates supports the idea that participants will cognitively label the issue as important, as proposed by H_2. When the risk was present, or occurring in the area local to the participant, participants were more likely to indicate that they were at higher risk of getting sick than were those who read risk-absent versions of the story. This finding does not contradict the rationale for explaining low perceived personal risk, as participants were in fact presented with a higher risk situation when the disease was spreading locally compared to spreading in a different geographic location.

Overall, there was no evidence to support an interaction between exemplar distortion and personal salience, as proposed by H_3. The effects of exemplar distortion did not differ in either of the risk conditions. At this time, though, the evidence does not support the opposite hypothesis that there is no interaction between personal salience and exemplar distortion because the effects of the exemplar distortion are not demonstrated in each experimental measure.

While exemplar effects were present in two of three threat level measures, the main effect of exemplar distortion was demonstrated only in one of the base-rate data measures (serious sickness). Other research has shown that exemplification can have significant effects at all levels of the base-rate data measures. Additionally, of the three measures in this study demonstrating a main effect of exemplification, all three were essentially reduced to two levels of distortion (low and high) because of the lack of significant difference among the means. Thus, it is unclear whether the exemplar distortion, as designed, was adequately graduated so as to cause a significant difference

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in perception among the three levels, which, according to exemplification theory, would lead to more significantly distorted estimations at each of the distortion levels.

The effectiveness of the design of the exemplar distortion lies at the heart of the inability to form an evidence-based conclusion for H_3. As such, it is important to address how the distortion could be improved. In all three cases where distortion effects were observed, the *minimal* distortion level was not significantly different than the *moderate* distortion level. This may indicate that, to the participants, the difference between *mild* symptoms and *significant* symptoms, which were used in the *minimal* and *moderate* distortions, was not significant. Studies such as Gibson and Zillmann (1994) had exemplars in the *minimal* condition suffering no physical harms from the presented risk. This study could adopt a similar structure by adding a fourth distortion level and symptom category that had all exemplars exhibiting no symptoms. This would also enable better statistical understanding of the exemplification effects. It is less likely for three of four means to exhibit no significant difference and reduce the distortion to a low/high situation as seen in this study.

Because H_3 assumes that exemplification effects will be present, it may be wise to pilot-test a new story for the exemplification effects before testing for the effects of interactions with personal salience. Stimulus material from a previous study could be used to accomplish this task, but a manipulatable risk factor for personal salience must be incorporated.

The risk factor may also need to be improved. Regional salience as the factor for personal salience may not demonstrate an effect for all risk-based situations for all types of participants. As discussed, prior research would lead to the logical expectation that

participants would perceive a greater local risk when the disease is spreading locally. Yet in this study there is no such difference observed. Many factors could be at play here. For example, the effects of regional salience may not be as strong as expected for this particular participant group because of their frequent mobility. Therefore, a different personal salience manipulation could be employed on the same demographic group, or the demographic background of the participant pool could be changed.

One other challenge encountered by this study was the atmosphere of the administration. All participants were completing the study at the same time, making it difficult to ensure that all participants complied with instructions – mainly not to look at the dependent measures before reading the story. It is advisable that in future administrations, participants be divided into manageable groups so that deviation from the prescribed procedure can more easily be detected. Prior knowledge of the questions may have changed the way that the participant read the stimulus material. For example, knowing to pay attention to the details of the different symptoms could have had an impact on information processing and subsequent estimation of threat levels.

Limitations

This study was limited mainly by time. As an undergraduate research project, this study could not be extended and, as such, could not be refined and retested. If more time had been available, the suggestions for improvement would have been implemented in hopes of gathering new data that would more substantially support or refute the proposed interaction between exemplar distortion and personal salience.

Conclusions

This study was an exploration into a new area of exemplification research. Because of the preponderance of risk-based stories appearing in mass media and the previously supported effects of exemplification, examination of possible personal salience-exemplar distortion interaction remains an important research question. Journalists already need to be more sensitive to the effects of exemplification, and if the proposed interaction could be supported though research, then the need to be sensitive to exemplar distortion when writing a risk-based story is even greater.

Looking forward, journalists should continue to be conscious that they have the decision making power over who appears in the news. Avoiding extreme examples, which are by their extreme nature distorted toward one aspect of the base-rate data, will lead to more accurate storytelling and more accurate perception of the stories by the audience. The effects of exemplification are real and powerful, and journalists have their own power to put together representative stories which accurately represent facts rather than distort them.

Appendix A: Proctoring script

Examining Current Issues in the Media

Experimenter: *Thank you for helping me with my undergraduate research study today: examining current issues in the media. You will be receiving a booklet with one story in it to read. Everyone is receiving a story taken from Saturday's edition of the* New York Times. *After reading the story, there are a few questions for you to answer.* **Please** *follow instructions today, as it is important that I be able to collect this data and use it for my honors thesis. Please wait to open your booklet until instructed to do so. If you choose not to participate in today's study, you will not be penalized academically. If you have a question, please ask it now*

Experimenter begins distributing booklets.

E: *Without opening your booklets, please remove the inner booklet of three pages. You will find that the first two pages are a consent form for you to sign. Please rip off the top copy now. It is yours to keep. Please read the second copy, sign it, and then begin reading the attached story. Remember, please do not open the first booklet with the stop sign until I give the signal.*

Elapsed ~5min

After everyone has completed the consent form:

E: *Now please pass in your consent form and story. Remember,* **please** *do not open your other booklet yet. It is important that you follow my instructions.*

After all consent forms and articles have been collected:

E: Please open the booklet. You will find a short questionnaire. Follow the instructions printed inside your booklet. When you are finished, please close your booklets and wait quietly until the end of the study. Do not write your name on the booklet.

Elapsed time ~3 minutes.

When everyone has finished:

E: *Please pass your booklets in now.*

When all booklets are collected:

E: *Thank you again for your participation in today's study. Now, if I could have your attention, I have some important information.*

*The story you read today was **fictional** and **completely untrue**. There is **no bacteria infecting corn**, and there is **no risk to anyone** who has consumed or plans to consume any products containing high fructose corn syrup.*

We were manipulating the perceived risk in the second story by varying the location of the problem. The goal is to measure how this may have affected how you interpreted the story when the level of sickness experienced by the people was varied.

If you have questions about anything, please contact me at the email address listed on your copy of the consent form. Thank you again for your participation.

Appendix B: Consent form
Examining Current Issues in the Media

Introduction to the Study:

- We are inviting you to be in a research study at the University of North Carolina at Chapel Hill School of Journalism and Mass Communication.
- Adam Geller of the University of North Carolina at Chapel Hill is the primary investigator in this study.

Purpose: The purpose of this study is to measure reader opinions of articles appearing in print media.

What Will Happen During the Study:

- We will ask you to read articles from news media.
- You will be provided short questionnaires about what you have read.
- You will complete the questionnaires.
- The entire study will last approximately 10 minutes.

If you have any questions or concerns about being in this study, you should contact Adam Geller at ageller@email.unc.edu or Rhonda Gibson at gibsonr@email.unc.edu.

Your Privacy is Important:

- We will make every effort to protect your privacy.
- We will not use your name in any of the information we get from this study or in any of the research reports.

Risks and Discomforts: Some topics covered in the articles may make some readers uncomfortable.

Your Rights:

- You decide on your own whether or not you want to be in this study.
- You will not be treated any differently if you decide not to be in the study.
- If you decide to be in the study, you will have the right to skip over questions you do not want to answer and stop being in the study at any time.

Institutional Review Board Approval:

- The Behavioral Institutional Review Board at The University of North Carolina at Chapel Hill has approved this study.
- If you have any concerns about your rights as a participant in this study, you may contact the Board at (919) 962-7761 or at aa-irb@unc.edu.

I have had the chance to ask any questions I have about this study, and they have been answered for me.

I have read the information in this consent form, and I agree to be in the study. There are two copies of this form. I will keep one copy and return the other to the investigator.

_____   _____
Printed Name   Signature

Appendix C: Stimulus material

The U.S. Department of Agriculture released information Thursday about a bacterium that has infested 5 million tons of corn used for the production of high-fructose corn syrup.

The bacterium is blamed for an outbreak of Ethanocaucous (eth-an-Oh-caw-kus) among the general population.

Many popular consumer foods contain HFCS, including soft drinks, fruit juices, breakfast cereals, ice cream and candy bars. HFCS is an alternative to sugar.

Ethanocaucous attaches to the lining of the intestine and prevents absorption of vitamin B3, niacinamide. The infection can be treated with a certain combination of prescription medicines and nutritional supplements.

USDA Secretary Mike Johanns and

(risk absent)   [California Department of Food and Agriculture Secretary A.G. Kawamura]

(risk present)   [North Carolina Department of Agriculture Commissioner Steve Troxler]

released a joint statement warning that HFCS containing food distributed throughout

(risk absent)   [California and the Pacific Northwest]

(risk present)   [central North Carolina]

may contain the bacterium.

Consumers are being caught by surprise.

"I never expected that something as simple as my Twix bar could make me sick," said Max Bryan, a construction worker in

(risk absent)   [San Francisco, Calif.,]

(risk present)   [Raleigh, N.C.,]

who

(minimally exaggerated)   [was treated by his family doctor for mild nausea and fatigue.]

(moderately exaggerated)   [visited the emergency department after waking up with blurred vision.]

(substantially exaggerated)   [was taken to the emergency department by ambulance three days ago. His roommate, Tom Guthert, called the ambulance when Bryan awoke confused and unable to communicate with him.]

Approximately 82.1 percent of people exposed to Ethanocaucous develop symptoms such as nausea, fatigue and muscular weakness. Of the remaining population, 17.5 percent develop more complications such as blurred vision, migraines and achy joints. More serious infections, occurring in 1.4 percent of people, lead to skin lesions, dementia, coma and even death.

As the body is deprived of vitamin B3, muscular weakness, fatigue, headaches and nausea are common.

"I'm appreciative that the doctor could give me something to treat this," said Bryan.

(minimally exaggerated)   [Bryan is fortunate that he sought treatment promptly and will have no permanent side effects.]

(moderately exaggerated)   [Bryan is fortunate that he sought treatment when he did. His blurred vision should return to normal within three days.]

(substantially exaggerated)   [Bryan came very close to slipping into a coma, according to his doctor.]

Doctors are concerned because it is often hard to diagnose Ethanocaucous early. Patients often do not notice they have been exposed until symptoms set in.

Cynthia Halton, a retired teacher in

(risk absent)   [Sacramento, Calif.]

(risk present)   [Morrisville, N.C.]

was

(minimally exaggerated)   [able to catch her sickness early like Bryan. After visiting her doctor, the muscular weakness disappeared within hours.]

(moderately exaggerated)   [in a similar situation to Bryan. She missed work for three days because of her fatigue and migraines. She sought treatment in the emergency department last night and is now feeling better.]

(substantially exaggerated)   [not as lucky as Bryan. Halton, who lives alone, had no one to call an ambulance for her as she lay in bed with debilitating dementia.

LeeAnn Rowe, Halton's daughter, finally found her mother last night and rushed her to the hospital, but it was too late. Halton died from complications of the bacterial infection.]

Because some of the symptoms of Ethanocaucous are similar to other infections, conducting a blood test is an important step in detection.

"I am glad that my doctor knew the symptoms of this infection and could diagnose me quickly," said Sara Graves, a small business owner in

(risk absent)   [Redding, Calif.]

(risk present)   [Durham, N.C.]

who had been exhibiting symptoms of the infection

(minimally exaggerated)   [for only one day. The drug regimen cleared her up quickly.]

(moderately exaggerated)   [for four days. After a night in the hospital, Graves went home and ready for her high-school tennis match the next day.]

(substantially exaggerated)   [for a week before she finally went to the hospital. Graves has been at the hospital for five days and is not scheduled for release until tomorrow. Her doctor noted that one more day without treatment could have resulted in a more extensive stay at the hospital to nurse her body back to health.]

Because HFCS is common in many foods, the USDA is suggesting that anyone with mild symptoms of Ethanocaucous visit a doctor for a blood test.

Appendix D: Dependent measures

Examining Current Issues in the Media
Participant Response Form
Story 2

Please read each question carefully and circle the number which best indicates your opinion.

1.   In your opinion, how serious a <u>national</u> threat is Ethanocaucous?

    1   2   3   4   5   6   7   8   9   10
(not at all serious)   (extremely serious)

2.   In your opinion, how serious a <u>local</u> threat is Ethanocaucous in the area where the people got sick?

    1   2   3   4   5   6   7   8   9   10
(not at all serious)   (extremely serious)

3.   In your opinion, how likely is it that <u>you</u> may get sick from Ethanocaucous-infected food?

    1   2   3   4   5   6   7   8   9   10
(not at all likely)   (extremely likely)

4.   In your opinion, what percentage of people develop symptoms in the following symptom categories:
                        Estimates should total 100%
Mild (nausea, fatigue and muscular weakness)   _____%

Significant (blurred vision, migraines and achy joints)   _____%

Serious (skin lesions, dementia, coma and death)   _____%
                                            +_____
                                            100 %

Examining Current Issues in the Media
Demographic Data

1.   **Please indicate your gender:**

_____ Female   _____ Male

2.   **Have you consumed a food product containing high-fructose corn syrup (i.e., soft drinks, fruit juices, breakfast cereals, ice cream and candy bars) in the past two weeks?**

_____ No   _____ Yes

3.   **Have you visited California or the Pacific Northwest in the last two weeks?**

_____ No   _____ Yes

4.   **Do you currently have immediate family living in California or the Pacific Northwest?**

_____ No   _____ Yes

5.   **Are you currently enrolled in JOMC 53 (News writing)?**

_____ No   _____ Yes

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