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**The Dissertation Committee for Carolyn Joan Yaschur Certifies that this is the approved version of the following dissertation:**

**A Visual-Verbal Agenda: The Interaction of News Stories and Photographs on Second-Level Agenda Setting**

**Committee:**

---

Renita Coleman, Supervisor

---

Maxwell McCombs

---

Thomas Johnson

---

Mary Angela Bock

---

Steven Hoelscher

**A Visual-Verbal Agenda: The Interaction of News Stories and  
Photographs on Second-Level Agenda Setting**

**by**

**Carolyn Joan Yaschur, B.A.; M.A.**

**Dissertation**

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

**Doctor of Philosophy**

**The University of Texas at Austin**

**May 2014**

## **Dedication**

To my father, Clifford, and in memory of my mother, Marjorie, for always encouraging me to pursue my dreams.

To my husband, Brian, and our son, Andrew, for being the greatest joys in my life.

## **Acknowledgements**

I greatly appreciate everyone who helped and encouraged me along the way. In particular, I am so grateful for my family. Thank you Brian, for your boundless love and support. Thank you Andrew, for reminding me every day what is most important in life. There is nothing that makes me happier than seeing you smile and hearing your laughter. You both are my world. I love you.

Thank you also Mom, Daddy, and Jeff, for the encouragement and love you have given me throughout my life. I love you and would never have made it this far without the foundation you provided and the faith you instilled in me.

Finally, thank you to my chair, Renita Coleman, for being a fantastic mentor at the University of Texas, and to my committee members: Maxwell McCombs, Tom Johnson, Mary Bock, and Steve Hoelscher. Your expertise and guidance have been invaluable in helping me becoming a better scholar.

# **A Visual-Verbal Agenda: The Interaction of News Stories and Photographs on Second-Level Agenda Setting**

Carolyn Joan Yaschur, Ph.D.

The University of Texas at Austin, 2014

Supervisor: Renita Coleman

This research explores the second-level agenda-setting effects of news photographs and news stories, separately and when presented together. The tone of photos and stories each independently influence public opinion on an affective level. Negative stories and photographs elicited negative opinions and emotions about the issue presented, while positive responses resulted from positive stories and photographs. When congruently toned stories and photos were presented together their affective agenda-setting effects were amplified. Positive stories paired with positive photos created stronger positive affect than negative stories and photos, which precipitated a strong negative response. However, because of the negativity bias, no significant differences were found between negative stories paired with negative photos and negative stories with positive photos. Audiences felt negative, regardless of the valence of the photo. When stories and photos were of incongruent tone, the audience's opinion about the issue followed the tone of the story. Findings from this study also confirmed that need for orientation was not a component of second-level agenda setting. However, a relationship was established between need for orientation and elaboration. Those with high need for orientation were more likely to process the information deeply than those with low need for orientation, thereby drawing ties between agenda-setting theory and the Elaboration Likelihood Model.

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## **Chapter One: Introduction**

Imagery and text are highly intertwined in modern American culture. It has long been established that the combination of pictures and words creates a synergy that is greater than the sum of its parts. Pictures and words work together to enhance learning and memory (Jahoda, Cheyne, Deregowski, Sinha, & Collingbourne, 1976; Levie & Lentz, 1982; Peeck, 1974), improve perceptions of credibility (Burgoon, Buller, & Woodall, 1996; Graber, 1996; Yaschur, 2010), attract and direct attention (Brosius, 1993; Garcia & Stark, 1991), and increase concern about the subject matter (Graber, 1990, 1996). In addition, words and images have unique sets of strengths and weaknesses, which enable them to influence attitudes in different ways (Lain & Harwood, 1992; R. A. Smith, 1991).

Although pictures help improve learning (Jahoda et al., 1976), when pictures do not overlap the information in the accompanying text, they do not help the learning process (Sewell & Moore, 1980). The picture superiority effect is the tendency of images to dominate text in memory, and may have consequences for attitudes, as well.

Media continually strive to incorporate the two communication modes in their presentation of the news across all platforms. Print, television, and even radio stations present stories audio-visually on the Web. Multimedia learning entails processing both visual and verbal information (Plass, Chun, Mayer, & Leutner, 1998). The growing popularity of, and emphasis on, multimedia as a mode for presenting and gaining access to information amplify the necessity of words and pictures to work in tandem. Often however, multimedia presentations do not provide duplicate visual and verbal

information. So learning about the interaction between images and words that offer similar viewpoints or tone versus those that differ is crucial to understanding these messages and the perceptions they create, including their effects on second-level agenda setting.

Second-level agenda setting theorizes the way media present issues affects audience perceptions of attribute salience, or how they feel about those issues (McCombs, 2005). Object attributes are composed of both substantive and affective dimensions. The substantive components are the object's traits. The affective component is the tone by which the object is presented – positive, neutral or negative. The affective component is what this research seeks to analyze.

The second-level agenda-setting effects of written stories are well documented (Coleman & Wu, 2010; McCombs, 2004). Although far fewer studies have delved into visual agenda setting, images also produce second-level agenda-setting effects (Coleman & Banning, 2006; Fahmy, Cho, Wanta, & Song, 2006). In light of the dearth of second-level agenda-setting research regarding photojournalism the proposed study is unique. By utilizing an experimental design this research seeks to establish causality between the media's visual and verbal agenda and the public's perceptions of issues with regard to positive and negative attitudes. Identifying a causal relationship is an important contribution to the theory because most agenda-setting studies are correlational.

A pair of experiments will investigate the effect that positive or negative tone of news stories and photographs, separately and in combination, have on audience perceptions of the issues they cover. The first part of this study investigates the second-level agenda-setting capabilities of news stories and news photographs independently with the intent of establishing whether still photos have an agenda-setting capability in isolation from a written story, and vice versa. No other studies could be found that have

looked at news stories and still news photographs independent of each other. Others that examined the effects of images or words have used real content that included both stories and photographs, so participants saw both formats, even if only one was being tested (Arpan et al., 2006).

However, given that most media provide the visual and verbal messages as a unit, analyzing the agenda-setting effects of words or images in isolation is an artificial constraint. The frequency with which words are paired with images in the real world and the synergistic effect they have on each other necessitates research into understanding how they work together, specifically how their combined tone impacts their second-level agenda-setting abilities. Therefore, the second part of this research will test the second-level agenda-setting effects of the interaction between story and photo tone.

Need for orientation is a key psychological component of first-level agenda-setting (McCombs & Weaver, 1973; Weaver, 1977). However its usefulness in predicting second-level agenda setting has not been sufficiently established (Chernov, Valenzuela, & McCombs, 2011; Matthes, 2008). Therefore, this study also will investigate the role that need for orientation (NFO) plays in the second-level agenda-setting ability of words and photographs.

Finally, this study seeks to examine the relationship between NFO and elaboration. The Elaboration Likelihood Model (ELM) posits two routes to persuasion, the central route, in which careful thought and high elaboration occur, and the peripheral route that requires little elaboration, relying on cues in decision-making. In testing these relationships, this research attempts to connect the cognitive elements that overlap between agenda setting and elaboration, an area of research that needs more investigation (Takeshita, 2006).

This research makes several important contributions. First, it broadens the limited body of knowledge about visual agenda setting. While the effects of news stories on affective agenda setting are well established, there is comparatively little empirical evidence that news photographs produce second-level agenda-setting effects. This research seeks to show a causal relationship between the two. In addition, this is one of the few studies that tests the interaction between news photographs and news stories on second-level agenda setting. It is the first to investigate the synergistic second-level agenda-setting effects of congruently toned stories and photos, and also compare their individual affective agenda-setting strengths when their tones are dissimilar.

This study also seeks to further second-level agenda-setting research by investigating its relationship with NFO. Need for orientation has been determined to be a key component of first-level agenda setting, however its correlation with second-level agenda setting is less understood. Finally, using NFO as a common component, this research also extends understanding of the Elaboration Likelihood Model, drawing connections between it and second-level agenda setting.

In addition to extending our knowledge about these two theories, this research has important implications for both journalists and the public. Understanding how the tone of news stories and photographs affects audiences' perceptions of issues is integral. For journalists, there is a responsibility to tell stories in a balanced manner. Armed with the knowledge of how words and images work separately and in tandem to sway audiences, journalists will be better equipped to make decisions about the content and tone of their news product.

News audiences also will benefit from the findings of this study. Understanding the effects news stories and news photographs have on setting the public's agenda is important in our highly visual culture. As we become increasingly reliant on images and

words working together to tell stories in multimedia presentations, an appreciation for the impact that their individual and combined tones has on swaying opinions and feelings is crucial to news literacy. The more audiences recognize these effects, the more critically they may process what they read and view in the news. Findings from this study may encourage news audiences to think beyond what is presented both visually and verbally and consider alternate viewpoints about issues.

## **Chapter Two: Agenda Setting Theory**

### **FIRST-LEVEL AGENDA SETTING**

How do we know what we know about public issues in the world? Because of our inability to be present at events around the globe at all times, we rely heavily on journalists to be our eyes and ears, to inform us. However, even journalists cannot be omnipresent. They must make selections about what to cover, or not, and how to present the story. These decisions ultimately affect public perceptions about what is important in the news. This is the basis of agenda setting.

Agenda-setting theory, introduced by McCombs and Shaw in their Chapel Hill study (1972) has been one of the most influential communication theories and has been replicated and expanded considerably over the past 40 years. The original study was conducted in 1968, where by pairing a survey and content analysis, they found that the five most important issues as perceived by undecided voters were identical to the most prominent issues in the news that election year. The resulting theory rests on the principle that issues presented as salient by the media are perceived as important by the public (McCombs, 2004). Repeated exposure of a particular issue in the mass media cues citizens that it is relevant and deserves their attention. So these issues become foremost on the public's agenda.

Since these foundational studies, agenda-setting effects have been found in more than 500 published studies regarding issues in addition to politics and elections, and in a variety of nations and cultures (Weaver, 2014). As a result, the definition of agenda setting has evolved and is currently encapsulated as “elements prominent in the mass



media's picture of the world influence the salience of those elements in the audience's picture" (McCombs, Lopez-Escobar, & Llamas, 2000, p. 77).

Need for orientation (NFO), based on relevance and uncertainty, is a key psychological component of agenda setting (McCombs & Weaver, 1973; Weaver, 1977). It accounts for individual differences in the strength of first-level agenda-setting effects. NFO will be tested as a moderating variable in this study and will be reviewed at the end of the literature.

Like written stories, photographs have been found to have first-level agenda-setting effects (Wanta, 1988). However, first-level agenda setting is not the focus of this study. This research seeks to determine the second-level effects of images and words.

## **SECOND-LEVEL AGENDA SETTING**

Extending the agenda-setting effects of the media from simply telling the public *what* to think about, research has shown that media also can influence *how* readers feel about issues (McCombs, 2005). The idea for second-level or attribute agenda setting was first introduced in Shaw and McCombs' Charlotte study (1977).

While first-level agenda setting focuses on an object as the unit of analysis, second-level agenda setting is concerned with the attributes of an object. An object is defined as, "that thing towards which our attention is directed or the thing about which we have an attitude or opinion" (McCombs, 2004, pp. 69-70). In agenda-setting research the object has traditionally been a public issue or a political candidate, however the media's agenda can influence the public agenda about a much broader spectrum of topics.

Each object has its own set of attributes or characteristics. Attributes are defined as, "a generic term encompassing the entire range of properties and traits that characterize

an object” (McCombs, 2004, p. 70). An analogy using grammatical terms is that objects are the nouns, and attributes are like the adjectives used to describe them.

The concept behind second-level agenda setting is the way in which the media shape the image of someone or something influences how the public perceives that person, object or issue. Agenda setting on the first level affects perceptions of object salience – that is, how important something is. On the second level, it affects perceptions of attribute salience – that is, how a person should feel about it.

The 1976 tri-city study was the first to empirically test the idea (Weaver, Graber, McCombs, & Eyal, 1981). After a lull, a renewed interest in second-level agenda-setting research emerged during the 1996 elections in Spain (McCombs, Llamas, Lopez-Escobar, & Rey, 1997; McCombs et al., 2000). Using a voter survey and content analysis, this study compared newspaper, television, and advertisements’ portrayal of five mayoral candidates with audience perceptions of their attributes. Findings showed striking similarities between the way the political candidates were presented in the mass media and the public’s images of them.

Object attributes have two dimensions – substantive and affective. The substantive dimension revolves around the facets or traits of an object. The affective dimension is the tone by which those traits are conveyed in the media – whether they are presented as positive, negative or neutral. The affective dimension of the media’s presentation of attributes is what evokes an emotional response by audience members. *Affective attributes* are defined as “the tone in which some attributes of a given object as described in the media will influence how audience members feel about those attributes and thus about the object as a whole” (Takeshita, 2006, p. 283). The Spanish Election study was the first to incorporate both substantive and affective dimensions in attribute agenda-setting research. McCombs and his colleagues (1997) found both the substantive

and especially the affective dimensions are among the strongest second-level agenda setters.

Wu and Coleman (2009) concluded that second-level agenda setting is more powerful than first-level agenda setting with regard to elections. In particular, candidates' attributes are more relevant than their position on issues in influencing citizens to vote for them. Additionally, the authors found a contingent condition for second-level agenda-setting effects, that negative information had a stronger influence than positive information on the public's attitudes. This research focuses on the affective dimension because it has been found to have such notable effects.

### **Story Tone in Second-Level Agenda Setting**

The tone with which media portray an object – positive, negative or neutral – not only influences public perception about the object's importance, but also helps shape their opinions about it (McCombs et al., 1997). These objects include political candidates (Coleman & Banning, 2006; Golan & Wanta, 2001; McCombs et al., 1997; McCombs et al., 2000), countries (Rill & Davis, 2008; Wanta, Golan, & Lee, 2004), and issues (Blood & Phillips, 1997). Kiouisis, Bantimaroudis, and Ban (1999) state, "The tone of a story, for instance, is believed to be a vital thread in the overall composition of news, partially organizing how people will process new information. Thus, a positively reported story may lead to a positive evaluation of the topic in that story" (1999, p. 417).

Several studies that looked at the differences between positive and negative tone on public perception have had varied results. Wanta, Golan, and Lee (2004) conducted an agenda-setting study that found a link between the way foreign countries were reported on and the public's opinion of those nations. They found positive coverage did not have

an effect on audiences, but negative portrayals resulted in negative perceptions. While they analyzed mostly neutral or balanced stories for this research, the authors suggested that future studies “examine stories that have a mix of positive and negative information” (p. 375).

Another study looked at agenda setting of an issue (the economy.) Findings suggest the more negatively the economy was covered by the media, the more important that issue was perceived by the public. Additionally, the researcher found evidence of both positive and negative priming effects, but the negative priming was stronger. (Sheafer, 2007).

When the second-level agenda setting of political advertising in 2004 presidential race between George Bush and John Kerry was studied, researchers found Kerry’s negative ads were effective in damaging public opinion of Bush. However Bush’s negative campaign ads did not produce agenda-setting effects. Positive ads by both candidates had no second-level agenda-setting effects (Golan, Kiouisis, & McDaniel, 2007). While negatively toned stories appear to have greater impact on public perception, it is not always the case.

In an experiment that looked at perceptions of Hezbollah and Israel, Rill and Davis (2008) showed the way a story is framed, either positively or negatively, affects readers’ perceptions about the topic. Further, by using open-ended questions, they demonstrated that “research participants attributed qualities, ideas, and actions to Hezbollah and Israel consistent with the qualities, ideas, and actions attributed to Hezbollah and Israel in the news stories they read” (2008, p. 620). Their findings reiterate that tone as well as phrasing in news articles influence the audiences’ perception about the topic.

Takeshita (2006) calls for further explanation of the process by which affect is transferred from the media to the public, as well as identification of the factors that constrain affective attribute agenda setting. This study seeks to fill that gap by investigating the way format and tone of a message influence affective attribute agenda setting. For the purposes of this research, *tone* is conceptually defined as being either positive or negatively valenced and *format* is conceptually defined as being either a news story or news photograph. Therefore, this study seeks to understand how positive and negative stories and photos influence public opinion when presented independently and together.

#### **VISUAL AGENDA SETTING**

Agenda-setting theory is rooted in Walter Lippmann's (1922) idea that we know about the world based on "the pictures in our heads," and those imagined pictures guide our actions (McCombs, 2004). However, there are only a handful of studies that delve into the question of how the actual *pictures* presented by the media affect the pictures in our heads.

In the first agenda-setting experiment dealing with photos, Wanta (1988) showed causality for issue salience as suggested by newspaper design on perceived importance of issues by the public. He found that issues described in stories paired with one large, dominant photo were perceived as more salient than those accompanied by multiple photos. Additionally, the mere inclusion of photos made a difference. Reading stories in the text-only version did not change perception of issue importance, while images paired with text did. This groundbreaking study with regard to visual agenda setting dealt with first-level agenda setting.

Few studies explore the second-level agenda-setting abilities of visuals. Coleman and Banning's (2006) was the first. The study found television visuals have an impact on audiences' perceived attributes of political candidates. The authors state the agenda-setting ability of visuals is not necessarily more influential than that of words, rather both the two channels work together to set agendas. Therefore, they recommend visual and verbal information are both considered when studying second-level agenda setting. While this attribute agenda-setting study found effects with visuals, they were on television.

Another study tested the ability of still images to influence audience perception of issues (Arpan et al., 2006). In an experiment, a positive or negative photo was paired with a story about a social protest. Although the text was consistent for all conditions, when a negative photo was included, viewers felt negatively toward the protestors and protest. This indicates a transfer of affective salience from the media's agenda to the public's agenda. However, it is noteworthy that this effect only occurred when the issue was of high personal interest (Arpan et al., 2006).

This study seeks to further explore the little chartered territory of second-level agenda setting of visuals. First it tests the affective agenda-setting effects of still news images and words separately, and then takes it one step further by testing the interaction between words and photographs. There is a gap in the agenda-setting literature with regard to investigating the interaction between visuals and text. Words and images are often studied independent of each other, but the proposed study, which looks at the second-level agenda-setting effects of the combination of news stories and still photographs online, seeks to fill that void.

This platform differs from television because it consists of still images paired with the written word, as opposed to moving images and audio. This study presents text and images on a computer screen, which simulates the way news stories are read via the

Internet. This is a popular means of getting news, as 78 percent of American adults read news online ("Pew Internet & American life project tracking surveys (March 2000–December 2012)," 2012).

As multimedia presentations grow in popularity, this research is relevant. Although multimedia can take many forms, such as videos, interactive graphics and still photographs with text or audio, this study is a starting point to test the second-level agenda-setting effects of one type of one type of presentation – the interaction between still news images and text as viewed online.

## **Chapter Three: The Impact of Visuals**

### **ATTENTION AND EMOTION**

Little is known about how emotion impacts the process of reading text (for a review see (Kissler, Assadollahi, & Herbert, 2006). Even though emotional connotations of words are symbolic and learned, whereas visuals can convey a more direct representation of emotion, some researchers suggest the processing of emotional words and images is similar (Kissler, Herbert, Peyk, & Junghofer, 2007). Schacht and Sommer (2009) found positively valenced words were processed the same way in the brain as pictures of positive facial expressions. However the images were processed faster than the words.

Images increase affective involvement by encouraging viewers to care about what they're seeing (Graber, 1990, 1996). They pique viewers' interest and increase attention by making them feel that they are a part of the event being viewed (Graber, 1996). This sense of being an eyewitness is due to the ability of visuals to give a sense of authenticity, credibility and reality (Brosius, Donsbach, & Birk, 1996; Graber, 1996; Newton, 2001). Images are usually more easily visualized than written material (Liu, Jin, Wang, & Hu, 2010). This occurs because mental imagery impacts emotions more than verbal processing of information (Holmes, Mathews, Mackintosh, & Dalglish, 2008). Domke and his colleagues (2002) suggest the inclusion of visuals in news coverage engages both cognitive and affective processes, which connects with individuals' schemas, or mental frameworks, to influence the way they process information.



The size of the images matters, as well. Huh (1994) found in an experiment that more than one-third of participants presented with a story and a large photo read almost the entire story, as compared to only 10 percent of those who viewed a small photo or no photo with the text. The larger the photo, the more text was read, indicating the presence and size of a photograph attracts attention to the news story it accompanies.

It is commonly agreed that the strength of photography is in its capacity to elicit emotion, which increases its impact on audiences. Photographs that are emotion-laden (Brosius, 1993) and novel or vivid (Nisbett & Ross, 1980) have the ability to attract attention. Emotional pictures are processed differently in our brains than neutral images and guide our selective attention, especially when they depict people (Schupp, Flaisch, Stockburger, & Junghöfer, 2006). However, because photos are not complete representations of reality, merely slices of life, photographs rely on the viewer's ability to discern implied meaning via visual cues (Messaris & Abraham, 2001). This increases viewers' emotional involvement with the photo. In her book, *About to die: How news images move the public*, Barbie Zelizer states that photographs encourage the viewer to envision what occurs outside the frame, inviting an emotional release (2010).

Emotional content in imagery also affects public perception of issues. People perceive more danger and risk to themselves as they relate to these events after watching the emotionally-driven newscasts than unemotional newscasts (Aust & Zillmann, 1996). Zillmann, Gibson, and Sargent (1999) applied the findings about issue perception to print. In an experiment, participants read a balanced story with either no photo, one photo that presented either a positive or negative aspect of the issue, or two photos (one positive and one negative.) The emotionality of the topics also varied. One story, about farming had unemotional photographs, but the other about the dangers of roller coasters had highly arousing photos. Results demonstrate the importance of balanced visual news

coverage. When two photos presented both sides of the story, distortions of issue perception did not occur. However, when images presenting one side or the other were paired with the story effects were found. Unemotional images swayed perceptions of the issue toward the message presented in the photo but only after time had passed. Emotionally arousing images resulted in ambiguous effects. The more threatening images distorted issue perception negatively both immediately and after the passage of time, but the less threatening photos had no effect.

The strong connection between visuals and emotions may be due to the fact that they are both processed in the same region of the brain. The amygdala, part of the limbic system, is the area of the brain that primarily processes emotions. It also is involved in absorbing and connecting visual and other types of stimuli. Together with the hippocampus, the amygdala creates mental images, and is involved in attention, learning and memory (Rhawn, 1990, 2000).

## **VISUAL TONE**

As discussed in an earlier chapter, the tone of news stories has an impact on their second-level agenda-setting abilities. Because this research focuses on the effects of positive and negative news stories and photos, the tone of visuals also must be considered.

In general, images are powerful in their capacity to affect audiences on a psychological level. They can sway memories, attitudes, opinions and perceptions. More specifically, the *tone* of visuals also can influence readers' attitudes about its subject matter.

Audiences are susceptible to making judgments about people based on the tone of their photo. The positive, negative or neutral affect as presented in a mugshot that accompanies a news article can influence audience perceptions about that person depicted. Readers' attitudes about subjects' congeniality and integrity were altered by the accompanying mugshot. However, their perceived credibility was not affected (Lain & Harwood, 1992).

In another study, the addition of a positive or negative photograph to a news story about a political candidate swayed readers' impressions of him. There were differences by gender. Favorable photographs were more likely to sway the opinions of women in a positive direction, whereas unfavorable photos influenced men more, driving their opinions in a negative direction (Barrett & Barrington, 2005).

Visual tone also can influence audience perceptions about political advertisements. A field experiment by Cappella and Jamieson (1994) looked at the effectiveness of ad watches, a technique adopted by the major news networks that criticized and corrected misleading political campaign advertisements during the 1992 presidential primaries. News programs would play a campaign advertisement in the background. When a misleading or untrue statement was expressed the ad would stop and the screen covered with words like "false" or "true but" as a way to reframe the message. The researchers found that audience members who viewed the ad watch assessed the political advertisement it debunked as less important and less fair than those who did not see the ad watch. So framing the visual message of a political advertisement in a positive or negative way can alter the public's attitude.

In an experiment, Culbertson (1974) found that for sensational and less sensational articles, adding positive photographs to a written story increased the audience ratings of positivity. So photographs also have the ability to sway perceptions about

valence of a story, lending to viewer feelings about an issues pros or cons. These findings ran counter to Kisielius and Sternthal's (1984) study, which found pictures added to words in an advertisement resulted in fewer positive feelings about the brand than if the ad was just text, which may have been an artifact of the time in which the study was conducted.

Just as positive photos increase feelings of positivity, negative images elicit negative perceptions. One study looked at coverage of United States military presence in the Iraq War (Pfau et al., 2006). The researchers found that readers who viewed a negative photograph with a caption reacted with more negative perceptions about the issue than those who read text only, or viewed a photo with the full story. However, those who read the text with no photo were more likely to have a positive emotional reaction. Research has been fairly consistent in showing that photographic tone influences positivity or negativity with regard to the issue it depicts.

Images have been found to affect audiences in a variety of ways, such as influencing memory, attitudes, opinions, perceptions, and emotions. The strength of photographs lies in eliciting emotion, and this occurs on a physiological level. While little research has been done regarding picture effects on agenda setting, the strength of visual effects on other cognitive and affective outcomes lends support to the possibility that images also may influence attribute salience, and thus have agenda-setting effects. An image's tone is likely to impact how viewers feel about its content. The positive or negative valence of the photo may sway public opinions via affective agenda setting.

Given the abundance of literature suggesting second-level agenda-setting effects of written stories, but minimal research regarding the agenda-setting effects of visual images, the first experiment tests the agenda-setting effects of news stories and news photos individually. Therefore, the first two hypotheses look at how the agenda of

affective attributes of news stories and news photos will influence the public's agenda of affective attributes defining the issues in the stories or photos, such that:

H1a: Participants who see positively toned news *stories* will have significantly more positive opinions and attitudes about the issues they cover than those who see negatively toned news stories.

H1b: Participants who see negatively toned news *stories* will have significantly more negative opinions and attitudes about the issues they cover than those who see positively toned news stories.

H1c: Participants who see positively toned news *photos* will have significantly more positive opinions and attitudes about the issues they cover than those who see negatively toned news photos.

H1d: Participants who see negatively toned news *photos* will have significantly more negative opinions and attitudes about the issues they cover than those who see positively toned news photos.

## Chapter Four: Need for Orientation

In addition to understanding the second-level effects of news stories and photos, this research also seeks to explore a possible underlying psychological factor of second-level agenda setting, the need for orientation (NFO.)

Need for orientation is a key component that affects the media's first-level agenda-setting abilities (McCombs & Weaver, 1973; Weaver, 1977). It is defined as “a psychological concept, which means that it describes individual differences in the desire for orienting cues and background information” (McCombs, 2004, p. 54). It is based on two elements – personal relevance of information about a topic and the degree of uncertainty one has about it (McCombs & Weaver, 1973; Weaver, 1977). However, relevance is a stronger predictor of NFO than uncertainty (Y. Kim, 2014). If an issue is of little relevance, then NFO about it will be low, regardless of uncertainty (McCombs, 2004). The higher one's NFO, the more likely he or she is to turn to the media for information, which results in stronger first-level agenda-setting effects (McCombs & Weaver, 1973; Wanta, 1997; Weaver, 1977).

Matthes (2006) suggests separating out measures of NFO about specific issues and introduced a model in which NFO consists of three dimensions: “NFO towards issues, NFO towards facts and NFO towards journalistic evaluations” (p. 11). Chernov, Valenzuela, and McCombs (2011) found correlations between Matthes' three-dimensional scale and the traditional NFO measures, and determined both are reliable in predicting first-level agenda setting.

However, there has not been a full-scale test of Matthes' three sets of scales. Matthes (2008) measured only affective attribute agenda setting, and Chernov et al. (2011) measured only first-level agenda setting effects. They found that "the traditional NFO scale performs better than the new NFO scale when predicting first level agenda-setting effects. However, when only the first sub-dimension of the new NFO scale is used (i.e., NFO towards issues), both the traditional and new scales perform about equally" (p. 152) The predictive power of the other two Matthes sub-scales remains unknown.

#### **NEED FOR ORIENTATION AND SECOND-LEVEL AGENDA SETTING**

While there has been a lot of scholarly attention paid to NFO and first-level agenda setting, far fewer studies have addressed its relationship with second-level agenda setting. The processes of first- and second-level agenda setting are similar. Therefore, a psychological concept that is integral in explaining the agenda setting of issue salience also may be a factor behind affective agenda setting. Matthes (2008) was the first to test it. He found that NFO did not increase media's influence on the audience's perceived salience of attributes. The author concluded that NFO guides the public in what issues are important, but not how to think about those issues.

Chernov and his colleagues (2011) disagree with Matthes' conclusion that NFO is not a predictor of second-level agenda setting. They assert that the research is too limited to reach that conclusion and propose further studies in this area. This study seeks to delve into that question again with regard to the influence of NFO on second-level agenda setting of news stories and photos. In so doing, this is the first study to test NFO for visuals.

Kim (2014) conducted an experiment to test the interaction between NFO and tone of political advertisements. He concluded that the interaction was significant only for obtrusive issues – those that directly impact people’s lives. Those with high NFO were less affected by the tone of the advertisement (positive or negative) than those with low NFO. Attitudinal strength was affected by tone. Positive ads elicited stronger attitudes for those with high NFO, whereas negative ads produced stronger attitudes for those with low NFO. Kim called for more research in this area, specifically regarding the moderating role of message tone and visual messages on NFO and second-level agenda setting. This study fills that gap.

The relationship between NFO and first-level agenda setting has been well established, however, its influence on second-level agenda setting is less understood. Therefore, this research will test NFO as a moderating variable on second-level agenda-setting effects, as proposed by the next two hypotheses. The effect of agenda of affective attributes of media messages (positive or negative tone) on the public agenda is directly related to NFO, such that:

H2a: High need for orientation will result in stronger second-level agenda-setting effects of news *stories* than low need for orientation

H2b: High need for orientation will result in stronger second-level agenda-setting effects of news *photos* than low need for orientation.



## **Chapter Five: The Synergy of Words and Images**

The first part of this study considers the agenda-setting properties of news stories and news photos independent of each other, testing their effects with an experiment. According to eye-tracking data, 75 percent of newspaper readers look at photos and only 25 percent read stories (Garcia & Stark, 1991). So even when published together some readers may only attend to the photographs. Therefore, this study seeks to establish the agenda-setting capability of still photojournalistic images without the influence of written stories, and confirm the second-level agenda setting effects of stories.

However, news photographs are rarely published without text of some sort. Even “stand alone” photographs that run without a story or images in online photo galleries generally have a cutline to provide context or help explain the image. Rodriguez and Dimitrova (2011) state, “Viewers mostly make sense of images with the help of contextual or other cues” (p. 52). Ritchin (2009) concurs that a caption, an accompanying article or other form of context is necessary to enable viewers to understand the intended meaning of a documentary photograph. Therefore, the second part, a follow-up experiment, explores the way news stories and photographs interact when presented as a unit. Because images and text are often published together, especially in this era of multimedia presentation of news, it is important to test the dynamic that exists between them, which this research seeks to do.

## **VISUAL-VERBAL CONGRUENCY**

Images and words presented together improve recall and learning (Levie & Lentz, 1982; Levin & Berry, 1980; Peeck, 1974). It is by attracting attention, adding drama to a story and stirring emotions of the viewers that images increase learning and memory (Heuer & Reisberg, 1990). The key for improving memory however, is the combination of news images and stories that provide congruous information (Brosius, 1993; Brosius et al., 1996; Graber, 1990; Wanta & Roark, 1994). This dynamic has been found to be particularly effective when the pictures offer new and dramatic information to the viewer as it relates to the story (Graber, 1996). Visuals also have been found to help reduce error in memory when added to verbal messages (Graber, 1990). This effect of the synergy of pictures and words in enhancing learning also has been found across cultures (Jahoda et al., 1976).

## **PICTURE SUPERIORITY**

However, when pictures offer information not congruent with the text, they actually hinder memory (Harp & Mayer, 1997). Although audiences tend to pay more attention to verbal information when images are present, visual themes proved to be more memorable (Graber, 1990) and more credible (Kelly & Nace, 1994). Attesting to the picture superiority effect, if conflicting but equally compelling information is presented both in words and images, audiences tend to remember the visual information more (Peeck, 1974) Because pictures take precedence over text and utilize more processing capacity (R. A. Smith, 1992; Taylor & Thompson, 1982) the implication is that they have greater influence in conveying meaning than the accompanying words (R. A. Smith, 1992).

In a similar manner, news photographs also have the capacity to distort memory for an accompanying article. In a study, participants who read a news story about a hurricane and viewed photographs of the aftermath of a hurricane, as opposed to a photo of the same area taken before the hurricane, were about 3.5 times more likely to falsely think they remembered reading about severe injuries caused by the storm in the story (Garry, Strange, Bernstein, & Kinzett, 2007). The picture superiority effect for recall has been well established. Research suggests pictures may trump words with regard to attitudes and perceptions, as well.

In advertising, visuals have been found to affect attitudes more than text. When information presented visually and verbally in advertisements was incongruent, the claims made by the picture overrode those made in the text (R. A. Smith, 1991). Content and format of print advertisements also can influence consumer evaluations of the ads. Edell and Staelin (1983) found that people were less likely to evaluate an ad and had worse recall when the picture and text were incongruent, but found little difference when the ad was text only or had related images and text.

News photographs produced similar effects. Including an emotional image that was not central to the story drew attention to itself, distracting the audience from the point of the written story (Brosius, 1993; Mundorf, Drew, Zillmann, & Weaver, 1990).

Wanta and Roark (1994) had similar findings with regard to political images drawing attention to themselves at the expense of the surrounding news stories. News photos that did not complement the stories detracted from the information processed from the stories. This occurred when news photos and stories were presented in the context of the front page of a newspaper. The researchers concluded that tone, genre and excitement level of an image convey meaning and influence public perceptions about issues.

Another study regarding news stories and images reported different findings. Mendelson and Thorson (2003) presented a story about Hillary Clinton as either a wife or a professional, pairing it with a photograph of her in one of those two roles or with no photograph. The story/photo combinations presented Clinton in congruent or incongruent roles. Story topic influenced how much people remembered about the story, but the inclusion of a photograph did not. Further, congruency or incongruency of the story and photograph had no overall impact on recall of information. The authors conclude, “It appears typical news photos of political actors serve as attention-getting devices, making stories more accessible or available, but are not used as an important information aid” (Mendelson & Thorson, 2003, p. 146)

Although picture superiority has been well documented with regard to learning and recall, evidence of photographic dominance in other areas is less established. This research investigates how news stories and photographs with the same tone or different tones affect audiences’ opinions and feelings about the issues they cover. If congruently toned visual-verbal messages have the capacity to increase memory, do they also amplify affective agenda-setting effects? When text and photos are of dissimilar tone, which is the stronger agenda setter? In light of picture superiority over text in recall, attitudes and perceptions, this research will test whether picture superiority has an effect on second-level agenda setting.

Unlike the studies cited that vary the tone of the photograph as positive or negative, while keeping the text consistent, or manipulate whether an image is included with the text or not, this study seeks to understand the dynamic that works between them when their tones are congruent or incongruent. However, the unequal strengths of negative versus positive stimuli also must be explored.

## **NEGATIVITY BIAS**

Negativity bias is a phenomenon in which negative stimuli affect people in much stronger ways than positive stimuli. In a nutshell, bad is stronger than good. Highly arousing positive and negative emotions are processed differently (Lang, Dhillon, & Dong, 1995). While seemingly two endpoints on the same continuum, positive and negative emotions actually are distinct from each other (Diener & Emmons, 1985; Watson, Clark, & Tellegen, 1988).

They are processed differently by various systems in our bodies and are activated separately in our brains (Ito, Cacioppo, & Lang, 1998). Negative emotions are activated more automatically than positive emotions (Cacioppo, Berntson, Klein, & Poehlmann, 1997) and are more robust, as well (Cacioppo, Berntson, Larsen, Poehlmann, & Ito, 2000). In a review, Baumeister, Bratslavsky, Finkenauer and Vohs (2001) cite numerous studies that show reactions to negative events are often stronger than they are to equally salient and powerful positive events.

Cognitive arousal levels vary, as well. According to Taylor (1991), “[N]egative events appear to elicit more physiological, affective, cognitive, and behavioral activity and prompt more cognitive analysis than neutral or positive events” (p. 67). In a recent brain study that looked at arousal levels, Liu, Jin, Wang, & Hu (2010) found that a negativity bias exists for both emotional words and photos.

Negative emotions also create stronger responses in the autonomic nervous system. In a meta analysis, Cacioppo, et al., (2000) found negative emotions induced greater activation of “diastolic blood pressure, blood volume, cardiac output, ... pulse transit time, and heart rate.” (p. 183). This indicates that response to a negative event activates our nervous system in a more dynamic way than positive stimuli. One possible

reason for this is evolutionary fight-or-flight reaction to danger. Humans are hard-wired to respond quickly and strongly to a potentially harmful situation (Fiske, 1980).

A study that approaches emotionally arousing messages using the Limited Capacity Model was undertaken by Lang, Dhillon, & Dong (1995). It is based on the theory that individuals have a limited capacity of resources to process information and have partial control over how to allocate those resources – that is how hard they decide to work at processing a given message. The authors found that valence (positivity or negativity) of a message and the strength of emotional arousal evoked influenced the amount of cognitive capacity television viewers' allocated to interpreting the communication. Highly arousing positive messages elicited the greatest capacity allocation, whereas highly arousing, negative messages led to the least capacity allotted (Lang et al., 1995).

However, Peeters and Czapinski (1990) found that negative stimuli are perceived as more complex, elicit greater cognitive effort to process and generate more complex cognitive representations than positive stimuli. Perhaps the difference lies in the positivity offset, as we tend to want to focus on more positive aspects, and steer clear from negativity as much as possible.

The principle of antagonistic effects suggests that opposite evaluations and behavior stem from positive and negative stimuli (Cacioppo & Berntson, 1994; Ito et al., 1998). Negative events attract greater attention and do it more quickly than positive ones (Carretié, Mercado, Tapia, & Hinojosa, 2001; N. K. Smith, Cacioppo, Larsen, & Chartrand, 2003). The potency of negative over positive response also has been found to influence judgments (Ito et al., 1998), attitudes, and the formation of impressions (Cacioppo & Berntson, 1994; Skowronski & Carlston, 1989).

With several exceptions, the literature generally agrees that negative information is typically given more weight than positive information (Taylor, 1991). In an experiment that used looking time as an indicator of attention on pictures, Fiske (1980) found greater attention and emphasis are given to negative visual cues, as well as extreme or unusual visual cues. The author proposes that as cognitive misers, people must be selective in their attention to social situations, allotting a greater amount of attention to more informative cues. Because they are less common, negative cues are perceived as more informative, and therefore more important.

One study found just one negative statement amongst five positive statements about a person was enough to create a negative impression of them (Richey, Koenigs, Richey, & Fortin, 1975). When up to four more negative statements were presented with the five positive statements, the negative impression became only slightly worse. The first negative statement was enough to taint any positive opinions. So equivalent amounts positive and negative information do not balance each other out.

So people are more likely to pay attention to, place more influence on, and react more fervently to negative events or stimuli than positive ones. As such, negative experiences are more likely to sway attitudes. This phenomenon is particularly true when cognitive elaboration is low. When an individual is not able or motivated to critically think about incoming information, they may be inclined to base their attitudes and judgments on the positivity or negativity of cues, which may be conscious or unconscious (Petty & Cacioppo, 1986). Negative information is more likely to induce high elaboration, as well (Peeters & Czapinski, 1990). If greater weight is given to the negative, then that would indicate cognitive processing of the information.

However, Stevens (2012) proposed an alternate reason for greater attentiveness to negative advertisements. He suggests that negative advertisements tend to offer more

information than their positive counterparts, so the information effect, not tone, is what accounts for the negativity bias.

### **THE POLLYANNA PRINCIPLE**

Negative does not always win out over positive, however. People actually are more efficient and accurate when processing pleasant information than negative information (Matlin & Strang, 1978). Called the “Pollyanna principle,” (Matlin & Strang, 1978) this theory builds upon the “Pollyanna hypothesis,” which was proposed by Jerry Boucher and Charles Osgood (1969). They assert that, “there is a universal human tendency to use evaluatively positive ... words more frequently, diversely and facilely than evaluatively negative ... words” (Boucher & Osgood, 1969, p. 1).

There is extensive support for the phenomenon of positive superseding negative. Matlin and Strang (1978) examined more than 1000 references in compiling a literature review of the Pollyanna principle. The overarching conclusion is that humans are predisposed to make positive inferences over negative ones. So neutral situations often are assessed as positive. Positive information can have the same or even stronger effects in influencing perceptions of people, as well (Weinstein & Crowdus, 1968).

Support for the Pollyanna principle can be found in mass media audience studies. When presented with an unresolved news issue, audiences seeking closure tended to infer a positive outcome rather than a negative one (Metzger, 2000).

However, positive and negative news affects the genders differently. Men are more associated with a negativity bias – comprehending, remembering, and being more aroused by negative news. Women, on the other hand, were more likely to avoid negative news. They process positive news more efficiently and report higher arousal levels from



it (Grabe & Kamhawi, 2006). A more recent study found no difference between men and women in their preference for positive or negative news, but did find that age played a role. Younger audience members were more likely to prefer negative news content than middle age or older audience members (Kleemans, Vettehen, Beentjes, & Eisinga, 2012).

While negativity bias is an established phenomenon, so is the Pollyanna principle. Thus far, communication research has not been able to provide a clear-cut answer as to which prevails or why. So how do they fit together?

### **POSITIVE-NEGATIVE ASYMMETRY**

On the surface, the Pollyanna principle may appear to contradict the negativity bias, but as Peeters (1971, 1991) points out, this is only if one considers both in a simplistic and straightforward manner. He offers a more complex look at the interaction between the two, suggesting that they instead are components of a broader concept the positive-negative asymmetry (PNA) function that is based on a basic evolutionary need for survival.

The positivity bias, as Peeters calls it, is an approach mechanism – the tendency to approach a novel object or situation as potentially beneficial. An example might be the act of scanning a field of vegetation seeking out potential food sources. The negativity bias is an avoidance strategy to prevent harm if, through further investigation the novel object or situation is deemed dangerous or unsafe. Continuing the example, if a plant initially thought to be food was then determined to be poisonous, the avoidance mechanism would protect us from eating it. So objects that are evaluated as positive are seen as approachable, while those evaluated as negative should be avoided (Peeters & Czapinski, 1990).

Yegiyan and Lang (2010) used this idea to explain the differences in how positive and negative photographs are encoded. Their findings suggest there is a tendency to take in the peripheral details of calm to moderate negative images, and to process the central point of moderate to highly negative photos. So moderately arousing negative photos are remembered the best, since both the central point and peripheral details are encoded. However, for positive photos the central point is best encoded when they are calm, whereas the peripheral details are more likely to be encoded when they are highly arousing. Their reasoning is that scanning the peripheral details of a calm, positive scene is the approach mechanism at work, and focusing on the main point of a strongly negative scene would engage the avoidance strategy. If images are processed differently depending on the valence and intensity there might be differences in their agenda-setting ability, as well. The second experiment explores how negativity bias and the Pollyanna principle interplay with each other and with picture superiority when photos and text are paired.

Given the complexity of reactions to positive and negative stimuli and expanding on the research that suggests congruent visual-verbal messages produce better learning and recall than incongruent messages, the following hypotheses suggest their second-level agenda setting influences will be stronger, as well. The agenda of affective attributes of congruently toned visual-verbal messages (stories with photos) will influence the public's agenda of affective attributes defining the issues in them, such that:

H3a: Participants who see congruently toned positive visual-verbal messages (positive story/positive photo) will have significantly more positive opinions and attitudes about the issues they cover than those who see congruently toned negative visual-verbal messages (negative story/negative photo).

H3b: Participants who see congruently toned negative visual-verbal messages (negative story/negative photo) will have significantly more negative opinions and attitudes about the issues they cover than those who see congruently toned positive visual-verbal messages (positive story/positive photo).

H3c: Participants who see congruently toned positive visual-verbal messages (positive story/positive photo) will have significantly more positive opinions and attitudes about the issues covered than those who see incongruently toned visual-verbal messages (positive story/negative photo or negative story/positive photo.)

H3d: Participants who see congruently toned negative visual-verbal messages (negative story/negative photo) will have significantly more negative opinions and attitudes about the issues covered than those who see incongruently toned visual-verbal messages (positive story/negative photo or negative story/positive photo.)

Because little research has been done to compare visual against verbal second-level agenda-setting effects, the following research question is posed:

RQ1: When news stories and photographs are incongruently toned (positive story/negative photo or negative story/positive photo) do news stories or news photographs have stronger second-level agenda-setting effects?

## **Chapter Six: Elaboration Likelihood Model**

### **BACKGROUND OF THE ELABORATION LIKELIHOOD MODEL**

Since its introduction in the 1980s, Richard Petty and John Cacioppo's Elaboration Likelihood Model (ELM) is one of the most often cited and seemingly most popular theories of persuasion in the cognitive and social psychology literature (Lien, 2001). Drawing from earlier persuasion theories, the authors outline a theoretical model of persuasive attitude change (Petty, Briñol, & Priester, 2009).

The ELM posits two "routes to persuasion" (Petty & Cacioppo, 1986, p. vi). One, the central route, is the result of careful thought and rational processing of information. Through the other, the peripheral route, attitude change takes place by making inferences based on cues. Either route can provoke the same amount of attitude change. However, because the central route is rooted in cognitive processing and greater scrutiny it is presumed to lead to a more enduring result. Once the attitude change has been made it is less likely to be changed by counterarguments and is more predictive of actions and behavior than the attitude changed by peripheral route persuasion.

The theory is based on the idea that people want to hold correct attitudes. These attitudes can be based on emotion, thoughts or behavior, and they can affect processing of emotions and thoughts. The amount of effort or elaboration an individual is willing to expend to hold a correct attitude will vary by the situation and person. An individual's motivation and ability are the keys to determining whether the central or peripheral route will be used to process information. People are "cognitive misers," meaning they don't

want to expend more energy than necessary to process information, preferring to conserve cognitive effort when possible (Fiske & Taylor, 1984; Taylor, 1980). However, the greater importance one places on holding the correct attitude, the more motivated he or she will be to actively evaluate the incoming information, indicating high elaboration.

Motivation also is related to an individual's need for cognition (NFC). Considered a personality trait, those with high NFC enjoy engaging in deep thinking, whereas those with low NFC do not (Cacioppo & Petty, 1982). It is a distinction between those who are intrinsically motivated to seek out and engage in effortful cognitive processing from those who tend to avoid it (Cacioppo, Petty, Feinstein, & Jarvis, 1996). Need for cognition affects elaboration (Peltier & Schibrowsky, 1994). Those with high NFC are thought to elaborate more, utilizing the central processing route as theorized in ELM, while those with low NFC process information via the peripheral route (Petty & Cacioppo, 1986). People with low NFC generally prefer to rely on heuristics (Chaiken, 1987), unless the topic holds personal relevance or the source of information is questionable (Axsom, Yates, & Chaiken, 1987). This suggests that those with low NFC may have the ability to engage in effortful thinking if they are sufficiently motivated (Axsom et al., 1987).

The ability to process the information is the second determining factor in whether one uses the central or peripheral route to process information according to the ELM. When unable to analyze information thoroughly because of a message's complexity or lack of time, for example, people are more likely to rely on cues in making a judgment. An inability to comprehend the information encourages people to find a mental shortcut, such as perceptions of source credibility or message quality, that will help them make a decision about the message. This results in lower elaboration because they have relied on

impressions of an external factor (the cue) rather considering than the merit of the information when judging the message.

Petty and Cacioppo (1986) define elaboration as “the extent to which a person carefully thinks about issue-relevant information. In a persuasion context, elaboration refers to the extent to which a person scrutinizes the issue-relevant arguments contained in the persuasive communication” (p. 7). It is conceptualized as a continuum from none to exhaustive consideration of every detail, which results in complete assimilation of that information into one’s existing schemas, or mental frameworks (Petty & Cacioppo, 1986).

When motivation and ability to elaborate on information is low, peripheral cues are more important in persuasion. To process via the central route requires both motivation and ability. If ability is high, but motivation is low, processing won’t occur centrally. If motivation is high but ability is low, the person will *want* to think about it, but might not be able to, so they will do their best to process it. However, they may be forced to rely on peripheral cues, such as expertise or likeability of the source (Petty & Cacioppo, 1986).

Attitude change through central route processing requires effortful consideration of information that is relevant to the issue and is integrated into the resulting opinion. However, attitude change that occurs via the peripheral route is a result of an affective response to an external cue (Petty & Cacioppo, 1986). This suggests a possible connection between it and second-level agenda setting, also an affective response to cues presented by the mass media.

## **AGENDA SETTING AND THE ELABORATION LIKELIHOOD MODEL**

The foundation of agenda-setting theory is not psychology (Maher, 2001). However, several strains of research point to a connection between the cognitive processes behind agenda setting and those theorized in ELM.

Shanto Iyengar (1990, 1991) applied cognitive psychology in theorizing an accessibility bias model for priming, which is related to agenda setting. The model suggests what is most accessible in long-term memory is most easily retrieved, so it is more influential when making a judgment. For example information that is presented most recently or most frequently in the media will come to mind the easiest when asked what is the most important issue facing the country. Kim, Scheufele & Shanahan (2002) refer to this as an accessibility-based model, indicating these effects are almost an automatic response.

Price and Tewksbury (1997) hypothesized that not all constructs are used to process information. Certain ones are enacted based on their relevance to a particular situation. This idea supports a purposeful, rather than automatic, agenda-setting process.

Concurring findings by Miller and Krosnick (2000) found higher media trust and more political knowledge lead to stronger agenda-setting effects. The authors conclude that “agenda setting may be a more thoughtful, deliberate process than previously thought” (p. 312). These findings run counter to the idea that agenda setting is a mindless process, as suggested by the accessibility-based model. However, to a lesser extent, agenda-setting effects occurred for participants with lower media trust and less political knowledge in Miller and Krosnick’s (2000) study, as well. Overall, these findings support the idea that agenda setting may occur in different ways.

Price and Tewksbury (1997) surmise that one type of agenda setting may occur much like the peripheral route of cognitive processing ELM. When motivation and ability

to process information are low, a more automatic form of stimulus evaluation occurs using temporarily activated constructs that are situationally relevant. Takeshita (2006) refers to the dual agenda-setting modes as “a deliberate ‘genuine’ agenda setting involving active inference and an automatic ‘pseudo’ agenda setting explained by the accessibility bias” (p. 279). He calls for further research into the overlap between cognitive processing as hypothesized by ELM and dual types of agenda setting.

Takeshita (2006) hypothesizes a typology of media effects on campaign audiences. This typology is delineated by those who have high or low involvement with a campaign and fixed or flexible attitudes toward it. Type I audiences have high involvement and fixed attitudes, which he states will make them more resistant to media effects and seek information to reinforce their beliefs. However, Type II audiences – those with high involvement but without fixed attitudes – are almost identical to those with high NFO. This type of audience member will be the most susceptible to agenda-setting effects.

He then applies the same typology of campaign audiences to second-level agenda setting. Attribute agenda setting will have strongest effects on Type II audiences, as well. Because they have a high need for information but remain undecided in their attitudes, Takashita reasons, they are more likely to attend to salience cues from the media. Contingent on their level of trust in the media, these cues, such as story tone, influence their evaluations of the campaign.

Those with low involvement, Types III and IV, are assumed to hold malleable and short-lived attitudes toward a certain object. Therefore, their evaluations of the object will be more influenced by the tone of a message presented in the media. However, their attitude change is temporary. Thus, Takeshita suggests that attitudinal agenda setting for those with low involvement may occur in much the same way as attitude change via cues



in the peripheral route of the ELM. However, these studies have focused on political campaigns, which may produce different results than other types of issues, such as will be tested in this experiment. Takeshita asserts there is a need for more research in this area. This study seeks to further investigate this idea.

A research strain that links the elaboration likelihood model and agenda setting is in its early stages. Bulkow, Urban and Schweiger (2013) were the first to explicitly measure the dual process theory on agenda-setting effects. Dual process theory is a psychological theory that purports information is processed automatically and unconsciously based on peripheral cues or in a more controlled, conscious manner (Evans, 2003, 2011). The elaboration likelihood model is a type of dual process theory (Scudder, 2010).

Bulkow and her colleagues ran a series of experiments testing how placement and frequency of articles affects the strength of agenda setting on readers who are highly involved and less involved with a particular issue. The authors conclude, “there are different agenda-setting effects depending on the way issue-relevant information is processed. The central learning process in agenda-setting seems to be more likely to happen to people with a high level of issue involvement, whereas peripheral learning in agenda-setting will more likely occur if the level of issue involvement is low” (p. 52)

Chernov and his colleagues (2011) highlight a gap in the literature comparing the psychological processes of NFO with that of the ELM, because of their similar operationalizations. This study seeks to further analyze the links between processes behind agenda setting and cognitive processes of persuasion, as theorized by ELM by determining the relationship between NFO and elaboration.

## **NEED FOR ORIENTATION AND ELABORATION**

While Matthes (2008) did not find NFO as integral for determining second-level agenda setting, it may be linked to the motivation to elaborate on information, under the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1986). Matthes (2006) found a significant relationship between need for orientation and need for cognition – a desire to engage in cognitive activity. The higher ones' need for cognition and personal relevance of an issue, the higher ones' NFO about that issue. So, a positive correlation exists between need for cognition and NFO.

A relationship also has been established between need for cognition (NFC) and elaboration. High NFC is assumed to encourage more effortful information gathering (Cacioppo et al., 1996). Those with higher NFC tend to process information via the central route of ELM, whereas those with lower NFC often use peripheral cues in attitude formation (Petty et al., 2009). Therefore, if a positive relationship exists between NFC and NFO, and there also is a positive association between NFC and elaboration, then a connection may exist between NFO and elaboration.

An assumption can be made that the higher ones' NFO, the more effort may be put into processing information about that issue, and the more likely he or she would be to process via the central route. Conversely, the lower one's NFO, the less effort will be expended on processing the information and processing via the peripheral route. Therefore, a fourth hypothesis is proposed:

H4: Participants with high need for orientation will have significantly higher elaboration when processing a news article and photograph than those with low need for orientation.

## VISUALS AND ELABORATION

Superior memory for visuals regardless of content suggests images become embedded in people's minds and create more linkages in the brain, which enhances active processing of the information later (Domke et al., 2002; Lodge & Stroh, 1993). This increased cognitive network also would suggest greater elaboration (Kisielius & Sternthal, 1984; Nisbett & Ross, 1980). According to the theory of affective intelligence, emotions increase, rather than decrease rational thinking (Marcus, Neuman, & MacKuen, 2000). Because images are adept at arousing emotions they may also increase logical thought (Zelizer, 2010), which leads to greater elaboration under the ELM (Petty & Cacioppo, 1986). While this seems counterintuitive, research has shown that images do elicit greater elaboration (Coleman, 2006).

Relevance, a predictor of NFO, also is a key factor in predicting elaboration. Pictures that offer relevant information to an advertisement serve to increase people's cognitive processing of the important information (Childers & Houston, 1984; Unnava & Burnkrant, 1991). This influences the attitudes of those with high elaboration likelihood (Miniard, Bhatla, Lord, Dickson, & Unnava, 1991; Scott, 1994).

Coleman (2006) found similar results with news photos. Her study regarding photojournalistic images' effect on ethical reasoning showed that photographs induce greater elaboration. People who viewed journalistic photographs that illustrated the accompanying news stories spent significantly more time thinking about the articles than those who only read the articles, which suggested higher levels of elaboration. Time is one of the indicators of elaboration (Petty & Cacioppo, 1986).

Fiske (1980), who studied attention and weight given to positive and negative cues, also used length of time participants looked at images as her measure. She touted the benefits of using images as stimuli stating, "Photographs are more suited to such a

direct measure, since they provide visually complex cues to which one may attend differentially” (p. 893).

One study testing persuasive communication found a different result. Under high-involvement, even relevant images were found to be distracting to people, invoking irrelevant thoughts. The inclusion of these visuals worked against the persuasive message (Peracchio & Meyers-Levy, 1997).

Irrelevant images tend to work in a similar manner (Peracchio & Meyers-Levy, 1997). They act as peripheral cues, eliciting imagery (MacInnis & Price, 1987), emotional responses (Stuart, Shimp, & Engle, 1987), or judgments about the appropriateness of the images themselves (Miniard et al., 1991). This indicates irrelevant pictures when accompanying text may serve as distracters from the intended message.

Images, whether relevant or irrelevant serve as cues when viewers are less motivated or able to process the information. Those with low involvement tend to like ads with more pictures better, but it doesn't influence their attitudes about the products (Singh, Lessig, Kim, Gupta, & Hocutt, 2000).

Taylor (1991) suggests “people scrutinize inconsistent feedback more closely than consistent feedback” (p. 74). For example, if someone thinks he or she is doing a good job, but is given negative feedback by a boss, the individual will think more carefully and question the motives about that feedback, than if it coincides with his or her own self-perception. While this theory is in reference to interpersonal feedback, if it also applies to inconsistent tone of messages, then the assumption is that people will exert greater cognitive energy processing an inconsistently toned story and photograph (i.e. positive-negative or the reverse). They will expend less cognitive energy processing a consistently toned pairing of story and article (i.e. positive-positive.) Therefore a fifth hypothesis is proposed:

H5: Participants viewing an inconsistently toned visual-verbal message will have significantly greater elaboration than those viewing a consistently toned visual-verbal message.

To test these hypotheses and answer this question, this study looked at the second-level agenda-setting effects of text and photos alone, as well as the interaction between the two. It was comprised of two experiments that manipulated the tone of news articles and photojournalistic images to determine how their tone affects the public's perception of issues. In addition to contributing to the theoretical literature, it is important for the news industry, as well. In an evolving news environment that focuses on multimedia, words and images are increasingly paired to present news in a more holistic manner. Therefore, understanding the way positive and negative photos and text interact to affect public perceptions and attitudes is critical to assess the psychological impact of journalistic choices.

Using an experimental design, this research tested the main effects and interaction between the tone of visual and verbal information in determining the attribute salience of issues. Need for orientation of issues also was examined to determine whether it is correlated to the amount of elaboration audiences exert when processing news articles and visuals. Lastly, this study sought to determine whether inconsistent visual-verbal tone is predictive of higher elaboration with regard to news stories and photographs.

## **Chapter Seven: Methods**

This research study consists of two experiments. The first explores second-level agenda setting and need for orientation with regard to news stories and news photos separately. The second builds upon the first, testing the second-level agenda-setting effects, NFO and elaboration when news stories and photos are presented together. Both experiments used identical stimuli, questionnaires, and procedure. Participants were recruited in the same way for both experiments.

### **STIMULI**

#### **Stories**

Eight news articles of approximately 350 words each were written by the researcher. Each focused on one of four different issues with either a positive or negative slant. To reduce the possibility of individual salience or prior knowledge about a specific topic influencing the effects from the manipulations as found by Zillmann, Gibson, Sundar & Perkins, (1996), the subjects of the articles were about fictitious issues written as actual news stories. The stories were written in a narrative form, accentuating dramatic events, included anecdotes and centered on interesting people. This style is akin to the way journalists write their stories for heightened reader interest (Price & Tewksbury, 1997). Topics were created so they could be framed either positively or negatively. Four story topics were employed as a repetition factor to ensure that any effects were not due to one issue. The first issue (Homeless) was about a pending law that allows police

officers to pick up homeless people from the streets and drop them off at shelters, which provide them with food, a place to sleep, and mandatory drug and alcohol rehabilitation, but limits their rights. In the positive version, the food and shelter benefits were emphasized; in the negative version, the limitation of their rights was emphasized. A second issue, (Pool) addressed a new highly popular pool and recreation center that was built. It offers an abundance of activities for the community (positive), but has increased accidents and traffic problems for those who live nearby (negative). The third issue, (Cleanup) was a community group that gathers to fix up homes of the elderly and poor in their lower-income neighborhood. This will beautify the area, decrease crime, increase community spirit, and increase property values (positive). However, those who own the homes may ultimately have to move, as a result of no longer being able to afford the property taxes (negative). The fourth issue (Africa) was about a non-profit group that offers technology that increases food production for people in Africa thereby reducing poverty and famine (positive). However, this method might be linked to increased illness among the people, and also comes at the expense of their cultural farming traditions (negative).

Each issue was weighted two ways (positive and negative in tone). The positive version included only affirmative arguments, quotes, and positive assessments of the issue. The negative version included only negative arguments, quotes and assessments of the issue. A manipulation check, which will be described later, was performed to ensure the positivity and negativity of the stimuli was assessed as such by audiences.

The opening paragraph from the positive version of the neighborhood cleanup story demonstrates how the positive tone was operationalized:

Meghan Olson, member of the Fairfield Neighborhood Association, wipes the sweat from her brow as she admires the efforts of the volunteer workers. “This is

our community,” Olson said, “and we are rolling up our sleeves to make it a better place to live for everyone.” The organization has been working for the past four years making improvements to properties in this low-income neighborhood.

Whereas the negative version of the neighborhood cleanup story began with:

Mary Donnell takes a break from packing her belongings in boxes. Looking around her modest home, she tears up. “I can’t believe it. Just as my neighborhood gets nicer, I’m losing my home,” she said. Because of volunteer clean-up efforts, the Fairfield area has seen vast improvements over the past four years. This resulted in a substantial increase in property taxes, forcing Donnell and others out of their homes.

(See Appendix A for full stories.)

## **Photographs**

Eight photojournalistic images depicting either a positive or negative aspect of the same four issues (Homeless, Pool, Cleanup, and Africa) were used as visual stimuli. They were chosen based on their arousal level as positive or negative. However, they also were bounded by the generally accepted standard of taste that guides what would run in a U.S. newspaper, so extremely negative or gory photographs were not used.

The positive homeless photo showed a group of homeless men gathered around tables smiling and eating, while the negative photo depicted two homeless men being followed by a police officer as they walked down the street. The pool issue was positively depicted by a father and his three daughters happily playing on a tire swing in a community pool. The negative pool photo showed emergency personnel attending to a child who was hit by a car while walking to the pool. The positive community cleanup image portrayed several people doing yard work and picking up trash outside a house. The negative photo is of a sad-looking woman standing inside her home that has been packed up in preparation for a move. The positive image of the African technology issue is children in traditional garb smiling as they eat a meal. The negative photo is of a young African girl screaming as she is checked over by a doctor. Both positive and negative



photographs were cropped to approximately the same shape and size. Brief cutlines were included to identify the photo content as related to the article. As a general rule, photojournalistic images always have cutlines. While adding words to the photo in the form of a cutline increases the ambiguity of the effects being due to only the visual information, a fictitious cutline that was written by the researcher was included to create a realistic context for viewing the photos. (See Appendix B for photos.)

### **Manipulation check**

Prior to running the experiments, a manipulation check was performed on 42 participants, recruited using MTurk, to ensure that the stories and photos were perceived as positive or negative (tone) and were considered journalistic in nature (news). An index was created from the sum of three items that measured tone, each scored on a 7-point scale. The three questions were: “This story/photo is: Negative ... Positive,” “This issue is presented: Unfavorably ... Favorably,” and “The tone of this story/photo is: Pessimistic ...Optimistic.” Both positive and negative versions of all four stories and photos had high Cronbach’s *alphas* for tone, indicating the measures were reliable. (See Table 1)

A journalistic quality index was comprised of summing the scores to three questions, which asked participants to rate the following statements on a 7-point scale, ranging from strongly disagree to strongly agree. “This story/photo could run in the newspaper.” “This story/photo could run on a news website.” “This story/photo is in a journalistic style.” High Cronbach’s *alphas* were calculated for both positive and negative versions of all of the stories, which indicate reliability of the measures. The internal reliability for tone of the photographs was high, as well. (See Table 1) The only

photograph with a Cronbach's *alpha* slightly lower than the normally acceptable .70 was the positive Homeless photo. Because that image ran on a newspaper website, the *Budapest Times*, it was considered photojournalism and was included in the study.

A one-tailed independent-samples t-test was run to compare means of the positive and negative versions of the stories and photographs on each issue. Strong significance was found in all cases, indicating the positive versions were considered to be significantly more positive than the negative versions (See Table 2).

## **PARTICIPANTS**

Participants for both experiments were recruited using Amazon.com's Mechanical Turk (MTurk), an online tool in which participants are paid to perform tasks. They were compensated with 50 cents. Research has shown that sample characteristics from an MTurk participant pool are more representative of the U.S. population than in-person convenience samples (Berinsky, Huber, & Lenz, 2012) and have greater demographic diversity than samples drawn from the Internet or U.S. college campuses (Buhrmester, Kwang, & Gosling, 2011). Experiments using a participant pool from MTurk have similar internal and external validity to those conducted in a laboratory or in the field (Horton, Rand, & Zeckhauser, 2011). The reliability of data drawn using MTurk is equivalent to those from conventional methods of sampling (Buhrmester et al., 2011).

A power analysis using G-Power was conducted to determine the minimum number of participants necessary to detect a medium effect size ( $f = .25$ ), assuming *alpha* = .05, power  $(1 - \beta) = .80$ , and sphericity. For the first experiment, the power analysis recommended a sample size of 48. For the second experiment 180 participants were needed for sufficient power.

Table 1: Cronbach's Alphas for Manipulation Check of Stimuli

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**Tone**

Stimuli	Story Positive	Story Negative	Photo Positive	Photo Negative
Homeless	.88	.88	.71	.90
Pool	.92	.78	.84	.75
Cleanup	.96	.93	.77	.85
Africa	.93	.91	.92	.93

**Journalistic quality**

Stimuli	Story Positive	Story Negative	Photo Positive	Photo Negative
Homeless	.79	.89	.66	.79
Pool	.92	.96	.85	.95
Cleanup	.96	.86	.93	.82
Africa	.93	.86	.82	.77

Table 2: Results from One-tailed Independent Samples T-test for Manipulation Check of Positive and Negative Stimuli

Stimuli	<u>Positive</u>		<u>Negative</u>		t (40)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Homeless Story	17.00	2.09	7.20	2.80	12.92***
Cleanup Story	19.40	2.11	7.86	3.73	12.16***
Africa Story	19.25	2.07	6.95	3.40	13.97***
Pool Story	19.27	1.98	5.95	2.11	21.08***
Homeless Photo	16.25	2.43	8.68	3.23	8.52***
Cleanup Photo	17.95	2.36	7.15	2.87	13.37***
Africa Photo	19.70	1.66	7.50	3.56	14.01***
Pool Photo	18.90	2.25	6.90	2.95	14.46***

## DEPENDENT VARIABLES AND MEASURES

The questionnaire was similar for both experiments. Participants took a pretest with questions regarding their NFO about each of the issues covered in the stories and photographs they are about to receive as stimuli.

### Need for Orientation

Need for orientation about eight issues (homelessness, right to freedom, poverty in developing nations, agricultural technology, building a sense of community, property tax increases, neighborhood recreational facilities, and parking and traffic problems) was measured by the traditional NFO scale (Chernov et al., 2011). The issues included one positive and one negative aspect of each of the four stories and photos. This NFO measure accounts for both relevance and uncertainty.

*Relevance* was measured by the following questions: “On a seven-point scale, please rate the following issues as: No concern to me ... A lot of concern to me; Irrelevant to me ... Relevant to me; and Uninteresting to me ... Interesting to me.” *Uncertainty* was measured by two questions: “On a seven point scale, please answer the following questions: How much do you know about this issue? Nothing ... A lot,” “How confident are you about your knowledge of this issue? Not confident ... confident.”

The Cronbach’s *alphas* for these variables were strong for both experiments, indicating high reliability of the measures. For the first experiment, the Cronbach’s *alphas* for relevance ranged from .78 to .92, and for uncertainty the range spanned .79 to

.89.<sup>1</sup> For the second experiment, the *alphas* for relevance ranged from .84 to .90, and for uncertainty they ranged from .77 to .87.<sup>2</sup>

To create a NFO index, a relevance index and uncertainty index were formed as follows. The scores of the two measures for relevance for each story or photo topic were summed to create a relevance index for each topic. To create the uncertainty index, the answers from the two measures were first reverse-coded so higher scores indicated more uncertainty, and then summed.

The overall NFO measure was created by squaring the relevance indexes and then multiplying them by the uncertainty indexes for each of the conditions (*Min* = 4,032, *Max* = 76,436). The reasoning behind this formula is the concept that low levels of relevance indicate low NFO. When relevance is high, however, amount of uncertainty becomes more important (Chernov et al., 2011). The NFO scores for each topic were then summed and participants were then placed into either a high NFO or low NFO group, based on whether their score was above or below the median. Need for orientation was used as a moderating variable in the first experiment, and as an independent variable in the second experiment.

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<sup>1</sup>For Experiment 1, the Cronbach's *alphas* for relevance were: homelessness:  $\alpha = .83$ ; right to freedom:  $\alpha = .78$ ; poverty in developing nations:  $\alpha = .87$ ; agricultural technology:  $\alpha = .81$ ; building a sense of community:  $\alpha = .92$ ; property tax increases:  $\alpha = .89$ ; neighborhood recreational facilities:  $\alpha = .86$ ; and parking and traffic problems:  $\alpha = .89$ . The Cronbach's *alphas* for uncertainty were: homelessness:  $\alpha = .87$ ; right to freedom:  $\alpha = .87$ ; poverty in developing nations:  $\alpha = .79$ ; agricultural technology:  $\alpha = .80$ ; building a sense of community:  $\alpha = .85$ ; property tax increases:  $\alpha = .88$ ; neighborhood recreational facilities:  $\alpha = .86$ ; and parking and traffic problems:  $\alpha = .89$ .

<sup>2</sup> For Experiment 2, the Cronbach's *alphas* for relevance were: poverty in developing nations:  $\alpha = .90$ ; agricultural technology:  $\alpha = .87$ ; building a sense of community:  $\alpha = .90$ ; property tax increases:  $\alpha = .87$ ; neighborhood recreational facilities:  $\alpha = .88$ ; and parking and traffic problems:  $\alpha = .84$ . The Cronbach's *alphas* for uncertainty were: poverty in developing nations:  $\alpha = .83$ ; agricultural technology:  $\alpha = .85$ ; building a sense of community:  $\alpha = .83$ ; property tax increases:  $\alpha = .81$ ; neighborhood recreational facilities:  $\alpha = .77$ ; and parking and traffic problems:  $\alpha = .87$ .

After reading each story and viewing the photos online, participants were asked to complete an online questionnaire to determine second-level agenda-setting effects and collect demographic information of age, race and gender.

### **Second-Level Agenda Setting**

The dependent variable *second-level agenda setting* was measured for each version of story and photo with three separate measures. The first measure, *perceived tone*, which was created by the researcher, asked the following questions: “On a scale of 1 (negative) to 7 (positive), please choose the response that best fits your reaction to the issue in this story: ‘This story is...,’ ‘This issue is ...,’ ‘The journalist who worked on this story felt ... about this issue,’ ‘The outcome of this issue will be ....’”

This index was designed to identify how participants perceived of the positivity or negativity of the stimuli, an indication of second-level agenda-setting effects. Because this was a new and untested measure, two other traditional measures of second-level agenda setting also were employed to replicate the findings.

Cronbach’s *alphas* were high for all conditions in both experiments, indicating strong reliability of the perceived tone measure. (Experiment 1: Story Positive:  $\alpha = .91$ ; Story Negative:  $\alpha = .81$ ; Photo Positive:  $\alpha = .79$ ; Photo Negative:  $\alpha = .87$ ; Experiment 2: Story Positive/Photo Positive:  $\alpha = .84$ ; Story Positive/Photo Negative:  $\alpha = .89$ ; Story Negative/Photo Positive:  $\alpha = .80$ ; Story Negative/Photo Negative:  $\alpha = .82$ ).

*Perceived affective salience* was measured by replicating the scales used by Kiousis, Bantimaroudis, and Ban (1999). Three seven-point semantic differential scales anchored by “strongly disagree” to “strongly agree” asked participants to rate the issue as: “appealing,” “exciting,” and “boring.” The measure for “boring” was reverse-coded,

but was later discarded due to poor internal reliability. Cronbach's *alphas* were high for the remaining two items (Experiment 1: Story Positive:  $\alpha = .95$ ; Story Negative:  $\alpha = .85$ ; Photo Positive:  $\alpha = .95$ ; Photo Negative:  $\alpha = .88$ ; Experiment 2: Story Positive/Photo Positive:  $\alpha = .81$ ; Story Positive/Photo Negative:  $\alpha = .85$ ; Story Negative/Photo Positive:  $\alpha = .87$ ; Story Negative/Photo Negative:  $\alpha = .87$ ).

*Extemporaneous description*, the traditional open-ended measure of second-level agenda setting, also was employed by posing the question, "Suppose a friend came to see you and didn't know anything about this issue. How would you describe this issue to your friend?" (McCombs et al., 1997). The responses were recoded into quantitative variables by attributing one point for every positive statement and subtracting a point for every negative statement. The scores for each condition were then summed (López-Escobar, McCombs, & Tolsá, 2007).



## Chapter Eight: Experiment 1 – The Agenda-Setting Ability of News Stories and Photographs

### PROCEDURE

The first experiment was a one-factor within-subjects design, with four levels (Story Positive, Story Negative, Photo Positive, Photo Negative.) Each participant read one positive story, one negative story and viewed both a positive and negative photo. Each was about one of the four different issues described above (homeless, Africa, cleanup, and pool). The factors were controlled for by placing all possible combinations of positive and negative stories and photos into groups, for a total of 24 combinations. The stories and photos within each group were presented in a computer-generated random order to eliminate any order effects. A computer program then randomly assigned participants to one of the 24 groups. A pretest and questionnaire were administered and indexes were created as described in the previous chapter.

An overall NFO index was calculated, and participants were divided into high ( $n = 24$ ) and low NFO groups ( $n = 25$ ) on the median score ( $M = 36,475.84$ ,  $Mdn = 36,776.00$ ,  $SD = 15,327.47$ ).

To measure second-level agenda setting, three indexes were created. A perceived tone index was the first measure (Story Positive:  $M = 24.02$ ,  $SD = 4.79$ ; Story Negative:  $M = 10.76$ ,  $SD = 4.89$ ; Photo Positive:  $M = 23.76$ ,  $SD = 3.68$ ; Photo Negative:  $M = 12.16$ ,  $SD = 5.85$ ). A perceived affective salience index was the second measure (Story Positive:  $M = 10.27$ ,  $SD = 3.81$ ; Story Negative:  $M = 6.10$ ,  $SD = 3.47$ ; Photo Positive:  $M = 8.57$ ,  $SD = 4.18$ ; Photo Negative:  $M = 5.67$ ,  $SD = 3.74$ ).

The third measure for second-level agenda setting was extemporaneous description (Story Positive:  $M= 1.33$ ,  $SD = 1.27$ ; Story Negative:  $M= -1.37$ ,  $SD = 1.44$ ; Photo Positive:  $M= 1.63$ ,  $SD = 1.67$ ; Photo Negative:  $M= -.89$ ,  $SD = 1.53$ ).

## **RESULTS**

A total of 49 participants took part in the first experiment. Participants ranged in age from 22-75, and consisted of two-thirds (67%) females and one-third (33%) males. Two-thirds (75 %) were White/Caucasian, while 10 percent were Asian, 6 percent were African American, 4 percent were Hispanic, and 4 percent were mixed race or other. About half (51%) were college graduates, and a third (31%) had some college. Equal percentages (8%) were either high school graduates or held graduate degrees, and 2 percent had other educational levels. Although these percentages do not match that of the general population they were randomly assigned to groups. Since this is an experiment, the results are not generalizable to the greater population.

To test H1a, positively toned news stories will result in significantly more positive opinions about issues than negatively toned stories, H1b, negatively toned news stories will result in significantly more negative opinions about issues than positively toned stories, H1c, positively toned news photos will result in significantly more positive opinions about issues than negatively toned photos, and H1d, negatively toned news photos will result in significantly more negative opinions about issues than positively toned photos, a repeated-measures multivariate analysis of variance (MANOVA) was calculated. Three dependent variables measuring second-level agenda setting were entered into the model. These three measures were employed as a way to replicate the findings.

A MANOVA is used to when testing multiple dependent variables on an independent variable. It reduces the possibility of inflating Type I error that may occur due to multiple tests on potentially correlated dependent variables (J. P. Stevens, 2007). Prior to conducting the MANOVA, a bivariate correlation was run to detect any multicollinearity among the dependent variables. It revealed only small to moderate correlations.

Significant differences in agenda-setting effects were found in the overall model between positive and negative news stories for all three measures of second-level agenda setting (Wilks'  $\lambda = .138$ ,  $F(9, 35) = 24.20$ ,  $p < .001$ ,  $\eta^2 = .86$ ). Follow-up univariate tests revealed strong significance for each of the three dependent variables. Pairwise comparisons with the Bonferroni adjustment were examined.

H1a, that positive stories will result in more positive opinions and attitudes than negative stories, was strongly supported. Positive stories resulted in significantly more positive opinions than negative stories as measured by all three dependent variables – perceived tone, affective salience, and extemporaneous description. All had large effect sizes (Cohen, 1988). The mean scores in Table 3 provided the test for this hypothesis.

H1b, that negative stories will result in more negative opinions and attitudes than positive stories, was strongly supported, as well. As reported in Table 3, all three dependent variables – perceived tone, affective salience, and extemporaneous description – resulted in strongly significant differences. Negative stories produced significantly more negative opinions than positive stories.

H1c, that positive photos will result in more positive opinions and attitudes than negative photos, also was strongly supported by all three measures of second-level agenda setting. As shown in Table 3, those who viewed the positive photographs had significantly more positive opinions than those who viewed negative photographs.

H1d, that viewing negative photos will result in more negative opinions and attitudes than positive photos, also was strongly supported. Table 3 shows people who saw negative photos had significantly more negative opinions than those who viewed positive photos.

H2a posits that a higher need for orientation will result in stronger second-level agenda-setting effects of news stories. To test it and H2b, that a higher need for orientation will result in stronger second-level agenda setting effects of news photos, a mixed model MANOVA was run. The within-subjects factors were the four conditions (positive story, negative story, positive photo, negative photo) and the between-subjects factor was an overall NFO index that was split into high and low groups. Three dependent variables measuring second-level agenda setting were entered into a MANOVA.

H2a, that higher need for orientation will result in stronger second-level agenda-setting effects of news stories, was not supported. The overall model showed no significant main effects for the moderating variable of NFO (Wilks'  $\lambda = .960$ ,  $F(3, 40) = .562$ ,  $p = .643$ ). Need for orientation had no effect on second-level agenda-setting effects of media messages. Main effects were found for the within-subjects factor of format and tone (Wilks'  $\lambda = .138$ ,  $F(9, 34) = 23.51$ ,  $p < .001$ ,  $\eta^2 = .862$ ).

The interaction between NFO and format/tone was not significant in the overall model (Wilks'  $\lambda = .760$ ,  $F(9, 34) = 1.19$ ,  $p = .331$ ,  $\eta^2 = .240$ ) Need for orientation did not have a significant moderating effect on second-level agenda-setting effects of news stories.

Likewise, H2b, that higher need for orientation will result in stronger second-level agenda-setting effects of news photos, also was not supported. Varying levels of NFO

had no significant moderating effect on second-level agenda-setting effects of news photos (Wilks'  $\lambda = .760$ ,  $F(9, 34) = 1.19$ ,  $p = .331$ ).

Table 3: Results from MANOVA of Second-Level Agenda Setting of Positive and Negative News Stories and News Photos

Measure	F (3, 129)	<u>Positive Story</u> <u>Negative Story</u>		<u>Positive Photo</u> <u>Negative Photo</u>		$\eta^2$
		<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	
Perceived tone	105.39	23.96 (.74) <sup>a</sup>	10.84 (.74) <sup>a</sup>	23.89 (.56) <sup>b</sup>	12.6 (.91) <sup>b</sup>	.710
Affective salience	19.54	10.16 (.59) <sup>c</sup>	6.25 (.53) <sup>c</sup>	8.91 (.60) <sup>d</sup>	5.80 (.57) <sup>d</sup>	.312
Extemporaneous Description	41.91	1.30 (.20) <sup>e</sup>	-1.36 (.22) <sup>e</sup>	1.57 (.26) <sup>f</sup>	-.91 (.23) <sup>f</sup>	.494

<sup>a</sup> = p < .001, <sup>b</sup> = p < .001, <sup>c</sup> = p < .001, <sup>d</sup> = p < .001, <sup>e</sup> = p < .001, <sup>f</sup> = p < .001

## **Chapter Nine: Experiment 2 – The Interaction of News Stories and Photographs on Second-Level Agenda Setting**

A second study was conducted as a follow-up to the first experiment. While the first experiment looked at second-level agenda-setting effects of stories and photos separately, the second experiment investigated how story and photo tone interact to produce second-level agenda-setting effects, and how this interaction affects elaboration. It also tested how need for orientation and elaboration are related.

### **PROCEDURE**

The stimuli were identical to that of the first experiment, however only three issues (Africa, Cleanup, and Pool) were included in this study to reduce the possibility of participant fatigue. The homeless stories and photos were eliminated because the perceived differences between the positive and negative versions were consistently less than for the other issues. Stories were paired with one photograph about the same issue.

Using a single photograph stems from Bain and Weaver (1979), who found readers perceived a layout with a single, large photograph to be more appealing than one that incorporates many images, hence the widespread favoring of a dominant image by page designers. Layout was kept consistent as the photo was placed in an identical position with regard to the accompanying article to maintain consistency in presentation format.

The stimuli were viewed online. Computer randomization determined the order the articles were viewed to reduce the possibility of an order effect confounding the results.

A between-subjects design with one factor (photo-story combination) with four levels (positive story/positive photo, positive story/negative photo, negative story/positive photo, negative story/negative photo) was employed. Using a between-subjects design offers message repetition to the participants, thereby strengthening the findings from the first experiment in which each participant viewed each condition only once.

Participants were randomly assigned by computer to a group in which they viewed three issues in the same condition (positive story/positive photo, positive story/negative photo, negative story/positive photo, negative story/negative photo.) Prior to viewing the stimuli they took a pre-test similar to that in the first experiment to determine NFO about the three issues. After viewing each stimulus, they responded to the same questions as in the first experiment that measured the dependent variable of second-level agenda setting and collected demographic information. However, the wording of the questions was slightly changed from specifically referencing “story” or “photo” to a more generic reference to an “issue” or “article.” Also, any directions or questions that included the word “read,” were reworded to say, “look at.” These changes were made to minimize biasing participants toward either the photo or the story. Additional questions measuring elaboration also were asked. These included a thought-listing procedure and three questions to form an elaboration index.

*Need for orientation* was measured the same way as in the first experiment. (Africa:  $M= 9711.83$ ,  $SD = 6283.21$ ; Cleanup:  $M= 10829.57$ ,  $SD = 6098.56$ ; Pool:  $M= 9357.22$ ,  $SD = 5813.68$ ). This measure was used to test the hypothesis that a higher NFO will result in higher elaboration.



*Second-level Agenda Setting:* As with the first experiment, three measures were used to assess the dependent variable, second-level agenda setting. The first was perceived tone (Story Positive/Photo Positive:  $M= 74.31$ ,  $SD = 6.95$ ; Story Positive/Photo Negative:  $M= 58.55$ ,  $SD = 12.17$ ; Story Negative/Photo Positive:  $M= 32.85$ ,  $SD = 8.62$ ; Story Negative/Photo Negative:  $M= 27.92$ ,  $SD = 8.08$ ).

The second measure for second-level agenda setting was perceived affective salience (Story Positive/Photo Positive:  $M= 32.06$ ,  $SD = 6.22$ ; Story Positive/Photo Negative:  $M= 24.72$ ,  $SD = 7.51$ ; Story Negative/Photo Positive:  $M= 18.72$ ,  $SD = 7.43$ ; Story Negative/Photo Negative:  $M= 18.22$ ,  $SD = 7.39$ ). The third measure was extemporaneous description (Story Positive/Photo Positive:  $M= 5.79$ ,  $SD = 3.43$ ; Story Positive/Photo Negative:  $M= 1.43$ ,  $SD = 3.88$ ; Story Negative/Photo Positive:  $M= -3.70$ ,  $SD = 3.65$ ; Story Negative/Photo Negative:  $M= -4.28$ ,  $SD = 2.89$ ).

## **Elaboration**

To measure the dependent variable *elaboration*, participants were asked to list all thoughts that come to mind immediately following their viewing of each stimuli (Cacioppo & Petty, 1981). The thought-listing technique is a self-reporting procedure that reveals cognitive processes, such as elaboration of information. It “is based on the assumption that the psychological significance of an individual’s thoughts and feelings, as well as the underlying cognitive processes, can be examined by content analyzing the individual’s reported thoughts, ideas, images and feelings” (Cacioppo, von Hippel, & Ernst, 1997, p. 929).

Cacioppo and Petty (1981) found that personal relevance to the stimulus influenced the correlations between cognitive response and attitude. When relevance was

high, there was a high correlation, and when relevance was low, a low correlation resulted. So if the importance is low, they found people elaborated very little. This question was completed first because this type of measure is sensitive to order placement within the research protocol (Petty, Cacioppo, & Schumann, 1983). To quantify the amount of elaboration from the thought-listing procedure, the open-ended responses were coded. Message relevant thoughts were counted (Cacioppo & Petty, 1981).

In an effort to replicate the results, participants also were asked the following closed-ended questions to ascertain elaboration: “On a scale of 1 to 7 with 1 being strongly disagree and 7 being strongly agree, please rate the following statements: “I was very motivated to think about the merits of this story,” I gave a lot of thought to the information in this story,” “I devoted a lot of effort to thinking about these issues” (Cacioppo, Petty, & Morris, 1983; Petty, Harkins, & Williams, 1980). Internal reliability was high across all conditions (Story Positive/Photo Positive:  $\alpha = .91$ ; Story Positive/Photo Negative:  $\alpha = .90$ ; Story Negative/Photo Positive:  $\alpha = .88$ ; Story Negative/Photo Negative:  $\alpha = .96$ ). An elaboration index was created using an additive scale (Story Positive/Photo Positive:  $M= 6.71$ ,  $SD = 3.11$ ; Story Positive/Photo Negative:  $M= 7.98$ ,  $SD = 3.81$ ; Story Negative/Photo Positive:  $M= 7.91$ ,  $SD = 3.83$ ; Story Negative/Photo Negative:  $M= 7.68$ ,  $SD = 4.71$ ). The second was a three-question elaboration index. (Story Positive/Photo Positive:  $M= 52.21$ ,  $SD = 8.09$ ; Story Positive/Photo Negative:  $M= 49.17$ ,  $SD = 7.98$ ; Story Negative/Photo Positive:  $M= 48.78$ ,  $SD = 9.31$ ; Story Negative/Photo Negative:  $M= 48.64$ ,  $SD = 12.31$ ).

## RESULTS

A total of 197 participants viewed three story and photo combinations. Each story on a particular issue was paired with one photo about the same issue. One group viewed all positive stories with positive photos (n= 48). A second group viewed all negative stories with negative photos (n= 50). The third group viewed positive stories with negative photos (n= 53). The fourth group viewed negative stories with positive photos (n= 46). Participants were recruited using Amazon.com's MTurk, an online resource in which people opt in and are compensated for taking studies.

Participants ranged in age from 18 to 73, and consisted of 57 percent females and 43 percent males. Almost all (87%) were White/Caucasian, while 5 percent were African American, 3 percent were Hispanic, 2 percent were Asian and 4 percent were mixed race or other. About a third (31%) held a bachelor's degree, while 27 percent had some college background, and 20 percent held graduate degrees. High school graduates constituted 12 percent, and 7 percent had some graduate school.

A between-subjects multivariate analysis of variance (MANOVA) was calculated to examine the effect of story-photo tone combinations (Positive Story/Positive Photo, Positive Story/Negative Photo, Negative Story/Positive Photo, Negative Story/Negative Photo) on the three dependent variables measuring second-level agenda setting and two measures of elaboration.

Results from the MANOVA were used to answer H3a, H3b, H3c, H3d, and RQ1. H3a hypothesized that positively toned visual-verbal messages will result in significantly more positive opinions and attitudes about issues than negatively toned visual-verbal messages. H3b predicted the reverse, that negatively toned visual verbal messages will elicit more negative opinions and attitudes about issues than positively toned visual-verbal messages. H3c stated that positively toned visual-verbal messages will elicit

significantly more positive opinions and attitudes about their issues than visual-verbal messages that are incongruently toned. H3d hypothesized that negatively toned visual-verbal messages will result in significantly more negative opinions and attitudes about issues than incongruently toned visual-verbal messages. The MANOVA also was used to answer RQ1, which asked about differences in second-level agenda-setting effects between news stories and news photos.

Using Wilks' lambda, a highly significant effect was found when the dependent variables of second-level agenda setting were considered together (Wilks'  $\lambda = .167$ ,  $F(15, 522.15) = 31.76$ ,  $p < .001$ ,  $\eta^2 = .45$ ). When follow-up univariate tests were examined, they revealed strong significance for all three measures of second-level agenda setting. Both measures for elaboration were found to be nonsignificant. Pairwise comparisons using the Bonferroni adjustment were examined to answer the following hypotheses using three dependent variables to measure second-level agenda setting: perceived tone, perceived affective salience, and extemporaneous description.

H3a, that positively toned visual-verbal messages will result in significantly more positive opinions and attitudes about the issues they cover than negatively toned visual-verbal messages, was strongly supported. Positive stories paired with positive photos were significantly more likely to elicit positive opinions about the issues they contained than negative stories paired with negative photos. As shown in Table 4, significant differences were found as measured by all three dependent variables. Effect sizes were large for all three measures.

H3b, that negatively toned visual-verbal messages will result in more negative opinions and attitudes than positively toned visual-verbal messages, also was strongly supported using all three measures of second-level agenda setting. Table 4 shows the results that those who viewed negative stories paired with negative photos held

significantly more negative opinions about the issues they covered than those who viewed positive stories paired with positive photos.

H3c, that positively toned visual-verbal messages will result in significantly more positive opinions and attitudes about the issues they cover than result from incongruently toned visual-verbal messages, also was strongly supported. As Table 4 shows, significantly more positive opinions were produced by positive stories with positive photos than from either positive stories with negative photos or negative stories with positive photos. These results occurred using all three measures of second-level agenda setting.

H3d, that negatively toned visual-verbal messages will result in significantly more negative opinions and attitudes about the issues they cover than result from incongruently-toned visual-verbal messages, received partial support from this study. Negative stories with negative photos elicited more negative opinions about the issues covered than positive stories with negative photos. However, when negative stories with negative photos were tested against negative stories with positive photos, no significant differences were found, as shown in Table 4.

RQ1 asked whether news stories or news photographs have stronger second-level agenda-setting effects, when incongruently toned. Findings reveal that news stories consistently have stronger second-level agenda-setting effects than news photos. Positive stories paired with negative photos were significantly more likely to produce positive opinions than negative stories with positive photos. Conversely, negative stories paired with positive photos were more likely to elicit negative affect. This held true for all three dependent variables used to measure second-level agenda setting, as shown in Table 4.

Table 4: Results from MANOVA of Second-Level Agenda Setting of Congruently and Incongruently Toned News Stories and Photos

Measure	F (3,193)	Positive Story/ Positive Photo	Positive Story/ Negative Photo	Negative Story/ Positive Photo	Negative Story/ Negative Photo	$\eta^2$
		<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	<i>M (SE)</i>	
Perceived tone	271.97	74.31 (1.34) <sup>a</sup>	58.55 (1.27) <sup>ab</sup>	32.85 (1.36) <sup>abc</sup>	27.92 (1.31) <sup>abc</sup>	.809
Affective salience	39.24	32.06 (1.03) <sup>d</sup>	24.72 (.98) <sup>de</sup>	18.72 (1.06) <sup>def</sup>	18.22 (1.01) <sup>def</sup>	.379
Extemporaneous Description	89.49	5.79 (.50) <sup>g</sup>	1.43 (.48) <sup>gh</sup>	-3.70 (.51) <sup>ghi</sup>	-4.28 (.49) <sup>ghi</sup>	.582

<sup>a</sup> =  $p < .001$ , <sup>b</sup> =  $p < .001$ , <sup>c</sup> =  $p = .059$

<sup>d</sup> =  $p < .001$ , <sup>e</sup> =  $p < .001$ , <sup>f</sup> =  $p = 1.00$

<sup>g</sup> =  $p < .001$ , <sup>h</sup> =  $p < .001$ , <sup>i</sup> =  $p = 1.00$

To test H4, that those with high need for orientation will have significantly higher elaboration when processing a news article and photograph than those with low need for orientation, a MANOVA was run using a measure of high or low NFO as the independent variable. This was created by calculating an overall NFO index as described earlier, and then dividing scores into high ( $n = 98$ ) and low groups ( $n = 98$ ) on the median score ( $Min = 4244$ ,  $Max = 133700$ ,  $M = 29898.62$ ,  $Mdn = 28289.50$ ,  $SD = 14947.18$ ). Two measures of elaboration – an elaboration index and thought-listing measure – were used as dependent variables.

H4 was supported. Using Wilks' lambda, the overall model was significant (Wilks'  $\lambda = .960$ ,  $F(2, 193) = 4.0$ ,  $p = .019$ ,  $\eta^2 = .040$ ). Those with high need for orientation ( $M = 51.15$ ,  $SE = .96$ ) had higher elaboration than those with low need for orientation ( $M = 48.33$ ,  $SE = .96$ ), when the elaboration index was used as a dependent variable ( $F(1, 194) = 4.31$ ,  $p = .039$ ,  $\eta^2 = .022$ ). This was a small effect size, explaining 2 percent of the variance. The same results occurred for the thought-listing measure ( $F(1, 194) = 5.96$ ,  $p = .016$ ,  $\eta^2 = .030$ ). This variable accounted for 3 percent of the variance, a small effect size. Again, those with high need for orientation ( $M = 8.28$ ,  $SE = .39$ ) had higher elaboration than those with low need for orientation ( $M = 6.93$ ,  $SE = .39$ ).

To test H5, that participants viewing an inconsistently toned visual-verbal message will have significantly greater elaboration than those viewing a consistently toned visual-verbal message, a MANOVA was used to find differences between the independent variable of story-photo tone combinations using two dependent variables to measure elaboration. Two measures were used to replicate the findings.

H5 was not supported. When the two measures for elaboration were entered into a MANOVA with the second-level agenda-setting dependent variables, the overall model was significant (Wilks'  $\lambda = .167$ ,  $F(15, 522.15) = 31.76$ ,  $p < .001$ ,  $\eta^2 = .45$ ). However,

univariate tests showed that congruent versus incongruent tone resulted in no significant differences on elaboration. This was found using an elaboration index ( $F(3, 193) = 1.50, p = .217$ ) as well as the thought-listing measure ( $F(3, 193) = 1.10, p = .349$ ). So, the amount of elaboration was not affected by the congruency of visual-verbal tone.



## **Chapter Ten: Discussion**

This examination of the impact of visuals and text on second-level agenda setting revealed that news photographs as well as news stories have an influence on the public perception of issues. While agenda setting has been widely explored regarding what we read in the news, this is one of the first studies to test the second-level agenda-setting ability of news photographs. Moreover, this research is groundbreaking in testing the interaction that photojournalism and news stories have on each other with regard to second-level agenda setting and elaboration. In addition to expanding the burgeoning research area of visual agenda setting, this study also has implications for those outside academia. As our society increasingly is engulfed in visuals this research is particularly relevant to the public, who is influenced by the media, as well as the journalists who make decisions that shape the news.

The first experiment tested second-level agenda-setting effects of news stories and photographs separately. This relationship was tested using three separate dependent variables – perceived tone, perceived affective salience, and extemporaneous thoughts about the issue. Although perceived tone was a previously untested measure, its results mirrored the other two more established second-level agenda-setting measures in the first and second experiment, attesting to its reliability. However, since this was the first time this measure was used, further testing is recommended.

Results from H1 revealed significant differences between the attitudes and opinions toward issues of those who read positive or negative news stories. All three measures revealed strong significance, each reinforcing the findings of the others.

Reading positive news stories precipitated more positive reactions to the issues in the stories, whereas reading negative stories led to negative opinions. These findings concur with a long line of second-level agenda-setting research indicating public perception and attitudes about objects are influenced by the tone the media uses to portray them (Golan et al., 2007; McCombs et al., 1997; Rill & Davis, 2008; Wanta et al., 2004).

Responses from the open-ended questions, in which participants listed their thoughts immediately after reading the stories further supports these findings. After reading the negative story about the homeless being relocated to shelters regardless of their will, one participant wrote, “I do not agree with the program. These homeless people are adults and have a right to choose what kind of life they lead. They should not be forced to be in a shelter with all kinds of rules and restrictions.”<sup>3</sup> However, when another person read the positive version of the homeless story, which emphasized the benefits of the program, a different viewpoint was expressed. This person wrote, “Great program. Seems as if there is nothing really to lose, as long as it continues to help. They seem to have the right ideas in place for this program, and the homeless really seem to benefit from it, not just use it.” The impact of news articles on the public’s affective agenda came as no surprise as they reinforced the findings from a well-worn path of second-level agenda-setting research (McCombs, 2004).

The next hypothesis, H1b, delved into little-explored territory to determine the second-level agenda-setting ability of news photographs. Although one study found television visuals influence public opinion on an affective level (Coleman & Banning, 2006) and another provided evidence of second-level agenda-setting effects for news photos with a story (Arpan et al., 2006), no other studies were found that tested a causal

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<sup>3</sup> Some of the open-ended statements have been edited for spelling, punctuation, and capitalization.

relationship between news photographs with a caption and second-level agenda setting. Similar to the findings for the first hypothesis, strong significance was found for all three dependent variables of perceived tone, perceived affective salience, and extemporaneous thoughts about the issue.

Photojournalistic images have the ability to set the public's affective agenda. Viewing positive photos elicited positive opinions about their content, whereas negative opinions dominated after viewing negative photographs. This is consistent with previous research that found positive images elicit positive perceptions (Culbertson, 1974) and negative images precipitate negative affect (Pfau et al., 2006). This study extends these findings to encompass affective agenda-setting effects.

Excerpts from the open-ended questions substantiated the quantitative findings. For example, after viewing the positive photo depicting smiling children in Africa eating a meal, one person wrote, "I'm happy to see these children have enough to eat." However, when another person saw the negative photo from the cleanup story, depicting a woman being forced to sell her house and move due to rising property taxes, that participant's thoughts were, "I feel very bad for this lady. My heart goes out to her. I am wondering where she will go."

The valence of the photos tended to sway viewers' thoughts and interpretations of the issue. Most did not elaborate beyond the content depicted in the photograph and caption. This follows the principle of antagonistic effects, which purports that viewing positive stimuli results in positive evaluations and behavior, whereas negative stimuli prompts negative evaluations and behavior (Cacioppo & Berntson, 1994; Ito et al., 1998). People simply absorbed the information as presented and integrated it with their opinions instead of thinking about possible implications or wrestling with the pros and cons of the issue.

The second set of hypotheses with regard to the relationship between NFO and second-level agenda setting resulted in no significant findings. Need for orientation did not have a moderating effect on the affective agenda-setting ability of news stories or photographs. While there is an established relationship between NFO and first-level agenda setting (McCombs & Weaver, 1973; Weaver, 1977), this research found that was not the case for affective agenda setting. These findings support Matthes' (2005) assertion that NFO is a predictor of first-level agenda setting, but not second-level.

An explanation for this may be that NFO is related to relevance and uncertainty, which motivates individuals to seek information through the media, thereby strengthening first-level agenda-setting effects. However, relevance and uncertainty may not be as important to individuals using media cues, such as tone, to determine how to feel about an issue.

The results from the first experiment provide evidence that news stories and news photographs have second-level agenda-setting abilities independent of each other. Although evidence of affective agenda setting has been well established for stories, this research is the first to document effects for news photographs. The second experiment built upon these findings, delving into the way news stories and photographs interact to influence the audience on an affective level.

As predicted in H3a, this study found the combination of positive stories and positive photos produced more positive opinions and feelings than negative stories paired with negative photos. Conversely, as H3b hypothesized congruently toned negative visual-verbal messages resulted in more negative attitudes than congruently toned positive visual-verbal messages. Together these findings suggest that stories and photographs of the same tone, either positive or negative, work together to influence the public's affective agenda. This expands on previous agenda-setting studies that have

found the tone of words (McCombs, 2004; McCombs et al., 1997) and images (Arpan et al., 2006; Coleman & Banning, 2006) produce second-level agenda-setting effects. So it is not surprising that pairing stories and photographs of the same valence sets audiences' affective agenda, as well.

Positive visual-verbal messages also produced stronger positive attitudes than incongruently toned text and photos, as predicted in H3c. This held true when positive stories and photos were compared against positive stories with negative photos as well as negative stories with positive photos. Just as congruency of visual-verbal information aids in learning and memory (Brosius, 1993; Brosius et al., 1996; Graber, 1990; Wanta & Roark, 1994), repetition of information and tone amplifies the second-level agenda-setting effects. When positive messages were repeated over both mediums they worked together to promote stronger positive feelings than when either the image or the story or both were negative.

However, when congruently toned negative visual-verbal messages were compared to incongruently toned messages, as tested by H3d, the effect was not as clear-cut. While the negative story and negative photo combination produced more negative affect than the positive story and negative photo, the same was not true when compared to the negative story-positive photo combination. Pairing a negatively toned story with either a positive or negative photo made no difference in peoples' opinions about the issues. They still felt negative about them.

These surprising results contradict many studies that find picture effects to be superior to that of words. One possible explanation is in this study's design. Instead of asking participants to read several articles in the context of a newspaper, they were directed to a particular story and photograph. One of the primary strengths of photos is their ability to attract and direct attention. When presented among a variety of elements

on a newspaper page, the photograph's strength is utilized. In presenting one story and one photograph at a time, this study's design may have diluted the attention-getting attribute of the photos it tested, thereby diminishing their agenda-setting ability. A replication of this experiment that presents the stimuli in the context of other stories, such as on a newspaper page or news website, is recommended to determine whether the attention-getting attribute of images is related to their agenda-setting ability.

While picture superiority has been well documented with recall and learning (Levie & Lentz, 1982), not all studies have found images superior to text. Mendelson and Thorson (2003) found news photographs increased interest in and directed attention to stories, but concluded they were not used as a source of information. If viewers do not glean information from pictures as they do words, then their attitudes and opinions might be less affected by photographs, as well.

Also, since there are so few visual agenda-setting studies the picture superiority effect of still news images has not been sufficiently tested. One of the few visual agenda-setting studies found pictures to have second-level agenda-setting effects only when the stories were of high personal interest (Arpan et al., 2006). Perhaps the fictitious stories used in this experiment were not of high personal interest to the participants, and therefore the photographs produced weaker effects than the words.

The dissimilar patterns that resulted from comparing incongruently toned visual-verbal messages to congruent positive or congruent negative visual-verbal messages also was puzzling. Positive stories and photos precipitated significantly more positive feelings than positive stories with negative photos and negative stories with positive photos. Negative stories and photos produced more negative affect than positive stories with negative photos. However, negative stories and photos did not create significantly more

negative attitudes than negative stories with positive photos. The positive photo was not a strong enough agenda setter to sway audience opinions counter to the negative story.

Zillmann and his colleagues (1999) found only negative images affected issue perception immediately after viewing emotional photographs, such as the ones used in this study. Positive emotional photos had no immediate effects. These findings may offer insight into why the positive story with negative photo induced more negative affect than a positive story with positive photo, but a negative story with positive photograph was not significantly different than a negative story with negative photograph. If a negative photograph induces an immediate effect, it will sway audience opinion in that direction. However, if a positive photograph does not have an immediate impact on perceptions, it may not have a strong enough immediate agenda-setting effect to offset a negatively toned story.

Clearly, a complicated relationship exists between tone and format. This complexity alludes to the possibility that a stronger negativity bias results from the written word than from visual images. Negativity bias, the phenomenon that we respond more strongly to negative stimuli than to positive stimuli, affects us on both an emotional and physiological level (Taylor, 1991). Negative information has been found to have a stronger second-level agenda-setting influence than positive information when tested on news stories (Sheafer, 2007; Wanta et al., 2004; Wu & Coleman, 2009), and both words and images can cause a negativity bias (Liu et al., 2010). However, no studies that compare the negativity bias between stories and photos could be found.

Evidence supporting negativity bias has been inconsistent, with studies also finding positivity bias (Matlin & Strang, 1978; Metzger, 2000). However, this study's findings point to a possible conclusion that reading negative stories, regardless of whether the photo is negative or positive, makes audiences feel negative about the issue

they cover. The effects of positively toned photos were not robust enough to counter the negativity bias that results from reading news stories. As Richey and her colleagues (1975) found, even five positive statements were not strong enough to neutralize one negative statement. It is likely then that one positive photograph is not strong enough to counter a negatively toned story, full of negative statements about an issue. The interplay between the stronger agenda-setting effects and greater negativity bias of written news stories over photos creates a dynamic that is highly influential.

Therefore, journalists should be aware of the powerful impact of negatively toned news stories on their audiences. The effect of a negative story on public opinion is a potent influence, which must be kept in check. Even when mediated by a positive photo, a negative story can instill negative opinions about issues. While it is unrealistic and bad journalistic practice to only print good news, publishing only overwhelmingly negative issues and incidents because that is what is considered ‘news’ is a slippery slope. Presenting both positive and negative information within news articles is important in maintaining a fair stance on issues and allowing the audience to draw their own conclusions. Because visual agenda-setting research is still in its infancy and in light of the inconsistent findings with regard to negativity bias and positivity bias, further research in this area is recommended.

The research question further compared the affective agenda-setting abilities of news stories and images. It tested the differences between incongruently toned visual-verbal messages to see whether the story or photo had the stronger agenda-setting effects. In this case, the valence of the story was a greater predictor of second-level agenda-setting effects than the valence of the photo. More positive opinions resulted after presenting viewing positive stories with negative photos than when negative stories with



positive photos were presented. This reinforces the findings in H3c – that written stories have stronger second-level agenda setting effects.

Because picture superiority is well established with regard to recall, these findings regarding agenda setting are surprising. However, this study pitted oppositely toned stories against words, while many other studies kept the text the same, varying only the images (Arpan et al., 2006) and used balanced stories (Culbertson, 1974; Zillmann et al., 1999). Perhaps when opposing information and tone are presented visually and verbally, the affective agenda-setting ability of stories is superior to that of photographs. Maybe news images can alter perceptions to a certain extent, when the story is neutral or held consistent, but not sway opinions to completely disagree with what was written.

A better developed verbal literacy than visual literacy also might account for the stronger agenda-setting effects of news stories. We are trained from a young age to learn from what we read, rather than studying photographs to learn information. We only learn from pictures until we can spell, and then are encouraged to read. Over time we become more adept at interpreting text as our visual literacy lags behind (Schwartz, 2007). Further, we are geared toward “reading” the newspaper to find out what is going on, rather than looking at the photos for informational clues. While we are increasingly bombarded with visuals, it is possible we are becoming immune to them.

In addition, audiences pay more attention to verbal information that is accompanied by visuals (Graber, 1990). So the mere inclusion of a photograph with the story may have prompted a closer reading of the story, thereby increasing the verbal agenda-setting effects, rather than that of the visuals. As mentioned earlier, the format of this research study may have undermined the agenda-setting effects of the visuals. Had the stimulus been a target story and photo presented on a page amongst other news items, the strengths of a photograph might have been utilized better, and thus created a stronger

agenda-setting effect. In light of these findings that run counter to findings of picture superiority effects on other dependent variables, further research that tests picture superiority in agenda setting is recommended.

Readers' open-ended responses offer a more in-depth look at what audience members were thinking as they processed the stimuli. When offered congruent information, either as a positive story and positive photo or a negative story with a negative photo, few people thought of other aspects or possible consequences of the issue beyond what was presented. For example, one person who viewed the positively toned story and photo about Africa wrote, "It is positive to see new agriculture advances to help decrease the rate of malnourished and underweight people and children." Another, who saw the negative story and photo about the pool said, "This is a very frustrating situation. This is a waste of local tax dollar[s]. It brings more harm than good."

Far more people commented on both the positive and negative aspects of the issue when presented with incongruent information. One person who read the positive pool story with the negative photo wrote, "The pool complex is great, but apparently nobody bothered to be sure that the area could handle the traffic, or that kids would be safe crossing the road! Morons. Typical behavior, though." So offering incongruent information may actually benefit readers, encouraging them to consider multiple sides of an issue.

While incongruent tone confused some people, others simply synthesized the information to understand the broader situation. It made them deliberate more about the issues, rather than just accepting either a strongly positive or negative point of view. For example, one person who read the negative neighborhood cleanup story with the positive photo, stated, "There is good news and bad news here and it is difficult to decide if I am for or against the changes."

Some participants wrote they noticed the incongruence of information between the story and photo. While people seemed to think more holistically when presented with different sides of the issue in the story and photo, they preferred cohesiveness between the two elements. One person who saw the positive story and negative photo about the neighborhood cleanup said, “The caption on the photograph doesn't really get mentioned in the article at all, in fact it seems like it was written from a different viewpoint. If both are accurate, it would strengthen the piece to include both sides.” People sometimes were frustrated and noticed when the tone of the story and photo did not overlap or when they covered different things. However, they did pay attention to both the story and photo.

One participant who claimed to be a former journalist viewed incongruently toned stories and articles. He had this to say about the positive pool story with the negative photo:

As a former newspaper editor and copy desk chief, the story and headline is a solid explanation of the community benefits of the recreation facility but the photo and photo caption are completely wrong, misleading and inappropriate for the copy text subject matter. The story does not mention anything about any accidents or children/pedestrians getting injured in accidents near the recreation center yet its mentioned in the headline and photo. The story is positive in nature but the photo of an injured child being cared for by emergency personnel is negative and misleading to what the story is really about.

It is revealing that as someone with a journalism background automatically assumed the story was right and the photo and caption are “completely wrong, misleading and inappropriate.” This alludes to a bias against the information presented by photojournalists even within the field of journalism. Although much research supports the old adage, that seeing is believing (Graber, 1990; Kelly & Nace, 1994), the introduction of digital photography and the ability to digitally manipulate photographs has eroded

public trust in photographs (Newton, 2001; Ritchin, 2009). Perceived credibility has been found to be higher for text than for photographs (Yaschur, 2010). This lends weight to another possible explanation for the stronger second-level agenda-setting effects of stories above photos. If perceived credibility is higher for the written word than photographs, then it is more likely to have greater influence on opinions and attitudes.

Public opinion is shaped by news stories and news photos, thereby reinforcing the importance of understanding the second-level agenda-setting effects of both. Ideally, a news article and photo would complement each other, replicating some information to achieve congruency, but contain unique information as well. Both the story and photo should address various sides of the issues they cover. This model would work to create a more informed public who are encouraged to critically think about issues, rather than accepting information on face value.

When tested by the fourth hypothesis, a relationship between NFO and elaboration was found. A few recent studies have begun to draw ties between the two theories. Bulkow and her colleagues (2013) found a relationship between issue involvement and central or peripheral route processing. Matthes (2005) found that NFO was positively correlated with need for cognition – the enjoyment of engaging in cognitive activity. The higher one's NFC and strong personal relevance for an issue the higher ones' NFO is about that issue. High NFC also has been assumed to result in higher elaboration (Cacioppo et al., 1996).

Findings from this experiment provide the link between NFO and elaboration. Those with higher NFO about an issue tended to process the information presented more deeply. The findings were replicated by two separate measures for elaboration. These results stand to reason, as high personal relevance and uncertainty would motivate an individual to think more about an issue than if it were irrelevant or there was little

uncertainty. This has important implications in tying together the theories of agenda setting and the Elaboration Likelihood Model. It unveils a cognitive overlap between the two theories. Because this is a new area of research, more research is suggested to support to these findings.

Finally, H5, which sought a relationship between viewing an incongruently toned visual-verbal message and higher elaboration, was not supported. While viewing congruently toned and incongruently toned photos and stories affected how audiences felt about issues, it did not significantly affect the amount of their deep cognitive processing. Unlike findings from interpersonal studies that revealed incongruent feedback elicited higher elaboration (Taylor, 1991), the same pattern did not hold true for mass communication audiences. This may be due to differences between intrinsic characteristics of interpersonal and mass communication – that is the difference between receiving incongruent information on a personal level, as opposed to viewing an incongruent news story and photograph. It may also have to do with the use of the sample of MTurk participants. Because they consistently participate in studies for income, they are incentivized to finish as quickly as possible, and perhaps did not spend enough time to elaborate.

In this experiment, viewing congruently toned or incongruently toned visual-verbal messages did not alter the extent to which people processed the information deeply or used peripheral cues to gain insight. Melding together tonal dissonance of visual-verbal information did not seem to create a greater cognitive load than when the story and photo were of the same tone. Processing a photo and a story that match in tone seem to simply point audiences in a direction of thought. If they view both positive stimuli, they tended to think positively. Negative stimuli produced negative thoughts. When tone of photos and stories were different, people were more likely to consider both sides of the

issue. However, the amount they reflected on the issue or depth of their processing was not affected. Because second-level agenda-setting effects were found but not influences on elaboration, one can conclude that congruent or incongruent visual-verbal messages influence *how* we think about issues, but not *how much* we think about them.

As with all experiments, this study has limitations in generalizability. Not every photograph or story may set the public's agenda to the same extent. Also, the stories used as stimuli were written with a strongly negative or positive slant to intensify the relationship between their tone and public opinion. The photographs were chosen based on their positivity or negativity for the same reason. These extreme examples were used to detect effects within a controlled experiment. In the real world, journalists are trained to write in an unbiased, fair manner and to report various sides of a story. The findings of this study reinforce the importance of maintaining balance in news stories. Including unequal amounts of positive or negative information or quotes has the ability to sway audience opinions to the more heavily weighted side. This is particularly true when a story has a negative slant.

It is easier to strike a more neutral stance in written stories than it is to take a neutral news photo. By its nature, photojournalism is focused on capturing emotion (Bryant, 1987), and emotion is rarely construed as neutral. It is generally either positive or negative in nature. So photojournalistic images that are attention getting and emotionally arousing are not likely to be neutral. Even if the photojournalist is skilled and lucky enough to capture both sides of an issue in one frame with equal levels of positive and negative emotion, the way he or she framed it may alter the valence. For example, camera angle (Mandell & Shaw, 1973) and shot distance (Kang & Heo, 2006), among other compositional elements may affect how the viewer perceives the photograph's message. One solution is to include multiple photos with a story to illustrate both positive

and negative aspects. It is not a perfect solution, because one photograph would run larger than the other or they might run on different pages, thereby giving one side prominence. However, would help to balance the viewpoints presented.

Therefore, understanding the second-level agenda-setting ability of news photographs is an important burgeoning area in visual research. Not only do most people have little awareness of the influence of images on them but the images themselves are taken with the intent of eliciting affect in their audience (Bryant, 1987).

The news media have increased their emphasis on producing multimedia presentations, which strive to incorporate words and images into a unified product. Because learning from multimedia involves processing both visual and verbal information (Plass et al., 1998), understanding the way the two elements interact to influence the audience is a highly relevant research area. They both produce second-level agenda-setting effects individually. Together, a synergistic effect occurs. When they purport the same tone their influence on public opinion is magnified. The repeated message and tone serve to strengthen the effects. However, when tones are dissimilar, public opinion in this study was shaped more by the story than by the photo, especially if the tone is negative.

Of note, this experiment singled out which stories audience members viewed. Because the strength of images is in their attention-getting capacity and emotionality, perhaps this experiment did not capture their full potential as agenda-setters. A future experiment replicating this one that displays an entire news page or web page with various stories, but manipulates one of the stories and photo as positive or negative, might provide more insight. If participants are not directed to specifically read a particular story but are later asked about it, the attention-getting ability of the photo may

influence whether the story or photo was attended to the extent of their respective agenda-setting abilities. This would create a more “real world” scenario.

Further research is recommended to examine the connection between elaboration and agenda setting. A future study might manipulate the amount of elaboration that occurs when viewing stories and photos, rather than measuring it as a dependent variable. By manipulating the extent to which audience members cognitively process visual or verbal information, a clearer relationship between the elaboration likelihood model and second-level agenda setting might be found.



## Chapter Eleven: Conclusion

This pair of experiments makes several important contributions to both the academic world and the field of journalism. It makes theoretical contributions by expanding second-level agenda setting theory into the visual realm. While news stories repeatedly have been shown to have affective agenda-setting effects, this research finds that still news photographs in isolation from news articles also produce second-level agenda-setting effects.

When tested together, stories and photos with similar tones produced a synergistic effect, strengthening the amount of second-level agenda setting they produced. When both stories and photos were of the same tone (both positive or both negative), it precipitated more extreme attitudes in that direction. So positive stories with photos elicited the most positive feelings and negative stories and photos were most often predictive of extreme negative affect. When valences differed between story and photo, the story seemed to have stronger second-level agenda-setting effects.

This relationship was somewhat muddled by the negative stories eliciting negative opinions regardless of the valence of the photo. Again, this supports the idea that written stories have stronger second-level agenda setting abilities while accounting for the effects of negativity bias.

The findings from this study add to the growing body of agenda-setting research, expanding it to include news photographs and their interaction with news stories. This research highlights the synergistic relationship between congruently toned words and photos in their affective agenda-setting ability, while uncovering how they differ, as well.

While a relationship between NFO and second-level agenda setting was not found, a link between second-level agenda setting theory and the elaboration likelihood model were revealed. By identifying a relationship between NFO and elaboration, this taps into the cognitive processes behind agenda setting, another burgeoning area of theoretical research.

Besides contributing to theory, these findings also are important for news audiences, because they are influenced by the tone of stories and photographs they view in the media. By increasing audience's awareness of the potential effects images and words have, this research encourages more critical thinking about media messages. With the growing emphasis on multimedia, the interaction between the visual and verbal is becoming increasingly relevant to media consumers and producers.

Finally, the findings from this study have direct implications for the field of journalism, affecting reporters who make decisions about what to include or exclude from their stories, photojournalists who decide on the content and framing of photos, and editors and designers who determine layout and juxtaposition of words and images. Understanding the interplay of stories and photos and the influence their tone has on public opinion will help working journalists in their daily decision-making processes. The findings reinforce the objective of journalism in striking a neutral stance of both positivity and negativity in both words and photographs. Maintaining balance by not presenting news from a single viewpoint or with a one-sided tone is imperative to encouraging news audience to consider multiple perspectives of an issue, thus promoting a more informed public.

## **Appendix A: Stimuli Stories**

The eight fictitious stories in this appendix were read by participants as stimuli for both experiments included in this dissertation. They were written by the researcher.

### **HOMELESS STORY POSITIVE: SHELTERS REACH MORE HOMELESS**

Richard Newton, 54, uses a biscuit to sop up gravy from the plate of the chicken dinner he just finished. “It’s nice to have a hot meal on a cold day, like today,” he said. Newton has been homeless since 2007 and is now living in the Middletown Homeless Shelter. He gets up from the table he shares with other homeless men and returns with a slice of cherry pie. “This is much better than the streets,” he said.

Newton and nearly 50 other homeless men are part of the Street to Shelter Program, an initiative in which local police can pick up homeless men from the streets and bring them to the city shelter. Through this program, they receive free housing, meals, and drug and alcohol treatment. They also receive counseling, training to learn job skills and may be offered opportunities for employment.

Melanie Salisburg, the director of the shelter said, “Homelessness is a growing problem in our city. We have to find innovative ways to help. We can’t just put a band-aid on this. We want to create a long-term solution.”

The shelter rules are strict. The men must check-in daily and participate in drug testing on a regular basis. After a week they are allowed to sign themselves out if they wish, but most decide it is a good place for them. “They’re not being arrested. We sometimes have to coerce them to try it out, but most stay,” Salisburg said. The program

retains about 64 percent of the people taken in. They are provided these amenities for up to six months and then offered transitional housing and job placement services.

The pilot program, which is funded from a grant from the National Homeless Initiative Foundation, has been successful in alleviating the homelessness problem. Allen Simpson, a former participant in the program has since landed a full-time job in construction. “I had fallen on hard times, but through this program I was able to pull myself out of homelessness. I owe them a lot.”

## **HOMELESS STORY NEGATIVE: HOMELESS FORCED INTO SHELTERS**

Barry Thompson, 51 meets with Helen Jacobs, a social worker at the Middletown Homeless Shelter. Thompson was brought to the shelter the night before by local police officers. He was part of the crackdown on homeless who loiter under the Fifth St. Bridge. Thompson, a Vietnam veteran is angry about being in the shelter. “You can’t make me stay,” he said, “I know my rights.” Thompson said he would rather live on the streets where he is free to do whatever he wants. Thompson is one of 50 homeless men who are part of the Street to Shelter Program, an initiative in which local police pick up homeless men from the streets and bring them to the city shelter.

Opponents have been speaking out against this initiative since its inception. Kelly Frank, a lawyer with the American Civil Liberties Union, denounces its breach of personal freedom. Frank said, “Since when is it okay for the police to detain someone and deposit them in an institution if they haven’t committed a crime?” Through this initiative, police are authorized to bring homeless men to the shelter, regardless of their will. The shelter rules are strict. The men must check-in daily and participate in drug testing on a regular basis. They are detained there for a week, to detox but then are allowed to sign themselves out, if they wish.

The ACLU and other organizations are planning on bringing a lawsuit against the city on the basis of infringement of their right to freedom. “We can’t just go around and force people get help just because we think it’s for their own good,” said Barbara Willis, an advocate for the homeless.

Albert Gonzalez, 66, who is has been at the shelter for three days agrees. “They took my dog, Roscoe, away too.” According to the shelter’s rules, animals owned by men in the shelter are put into pet foster care and returned to them when they get out.

Gonzales plans on signing himself out at the end of the week. “I’m better off out on my own,” he said.

## **POOL STORY POSITIVE: POOL AND REC CENTER'S POPULARITY SOARS**

Squeals of laughter emanate from the pool at the new Carlton Swim and Recreation Center, as children splash and play in the sparkling pool, keeping the heat at bay on a July afternoon. Parents fill the lounge chairs that line the edge of the pool and the smell of sunscreen wafts through the air. "This is my favorite place in the world. I get to see my friends and swim in the pool," said eight-year-old Sally Kramer as she races off to the diving board.

The aquatic facility includes a main pool, a kid's pool and diving tank. There is also a snack bar and changing area. During the summer, children and adult swim lessons are offered each morning. The pool is also home to a youth swim team that competes with swimmers from other area pools. "This new pool is great for my kids. They have fun and burn off a lot of energy. We come here almost every day," Monica Chandler said. Membership at the pool is inexpensive for those who live in town.

Besides a state-of-the-art pool club the recreation center has other uses. Art classes and music lessons are offered for children year round, and day camps are run throughout the summer. "This is a great way for my kids to appreciate art and music, since that was cut from the school's curriculum a few years ago," Thomas Kane said.

Families who can't afford the tuition are offered discounts or free access to the classes, based on need. Adult classes are also offered. They include cooking, foreign languages and photography. The facility is also home to an active senior citizen center, which hosts trips, game nights, potlucks and other activities.

The highly popular pool and recreation facility was built in 2012. The recreation center, which was built using environmentally friendly materials, won the 2013 Connor

Kerr Civic Structure Award for innovation in green building practices. “I am so glad they built this beautiful facility. It’s a great gathering point for the community. There is something for everyone here.” Chandler said.



## **POOL STORY NEGATIVE: POOL'S POPULARITY CREATES TRAFFIC PROBLEMS**

Parked cars line the streets surrounding the new Carlton Swim and Recreation Center as traffic slowly circles the neighborhood where it is located. It is a hot July afternoon, and tempers are simmering. Agitated drivers honk their horns at each other as everyone searches for a parking spot. This scenario occurs each afternoon, and is particularly bad during the summer months.

The recreation center and pool, which was built in 2012, is widely used, but its popularity has become a detriment to the area. "This new pool club creates a real traffic and parking mess for those of us who live nearby," said Shirley Cavanaugh, who lives down the street from the facility, "Most days I can hardly get out of my driveway because of the traffic." Accidents involving pedestrians have significantly increased in the area, as well.

Residents are angry about the location that was chosen, and the lack of foresight into not building a big enough parking lot to accommodate those who come to the center. "I moved to this neighborhood 18 years ago because it was nice and quiet, and now it's mobbed and noisy, and I'm stuck dealing with it," Dan Young said.

The center was built using local tax dollars. Because of the \$3.8 million spent to build the center, the budgets of other locally funded government organizations were cut. Most affected was the city-run animal shelter. They were hoping to use some of the funds to build a larger shelter, but instead that money was earmarked for the recreation center. Elizabeth Manning, director of the Carlton City Animal Shelter, expressed her frustration with the allotment of money. "We're already working to save animals' lives on a shoestring and we were hoping to expand to save more, but our efforts were thwarted."

This year the shelter, which previously had a “no-kill” status, has had to begin euthanizing animals due to lack of space and money. “Not only did they not give us money to expand, they also cut our budget by 28 percent. We are putting out a plea to community members to foster and adopt and asking for donations,” Manning said, “We are desperate.”

## **CLEANUP STORY POSITIVE: IMPROVING THEIR NEIGHBORHOOD ONE HOME AT A TIME**

Meghan Olson, member of the Fairfield Neighborhood Association, wipes the sweat from her brow as she admires the efforts of the volunteer workers. “This is our community,” Olson said, “and we are rolling up our sleeves to make it a better place to live for everyone.” The organization has been working for the past four years making improvements to properties in this low-income neighborhood. One weekend a month, the group chooses a residence on the block to fix up according to the owner’s needs. This morning, eighteen volunteers have been painting, landscaping and making repairs to David Madison’s home.

Madison, a retired Vietnam veteran, watches from his wheelchair. “I am so grateful for my neighbors lending a helping hand. There’s no way I could do all of this work on my own and I can’t afford to hire someone either.” Madison’s house had fallen into disrepair over the past decade due to his dwindling health. Madison submitted a request to the group to beautify his yard and replace his roof.

Homeowners pay for supplies but volunteers do the labor. This grass-roots effort, which is also subsidized by donations and fundraisers, has been a huge success. Efforts of this group have brought about a major improvement to the neighborhood and fostered a community spirit, which has been instrumental in lowering the crime rate. According to police reports, the crime rate has seen a 12 percent decrease in the last two years. Olson said, “Gang violence on my street has gone way down.” She attributes it to a tighter-knit community, which is largely a result of these ongoing projects. The organization is nearly 100 members strong and people volunteer when they can.

Darlene Hamilton, another member of the volunteer organization said, “Working together on these projects, I’ve gotten to know my neighbors so much better. We look out for each other a lot more now.” Madison concurs, “My house is looking 100 percent better. This whole area is on the upswing. I am proud to call these people who I just met today neighbors and friends.”

## **CLEANUP STORY NEGATIVE: GENTRIFICATION FORCES HOMEOWNERS OUT**

Mary Donnell takes a break from packing her belongings in boxes. Looking around her modest home, she tears up. “I can’t believe it. Just as my neighborhood gets nicer, I’m losing my home,” she said. Because of volunteer clean-up efforts, the Fairfield area has seen vast improvements over the past four years. This resulted in a substantial increase in property taxes, forcing Donnell and others out of their homes.

Donnell, who has lived in her house for eighteen years, must sell it. “I just can’t afford my home anymore. I was barely making ends meet before, but now with the higher taxes I just can’t do it. I don’t know where I’ll go,” she said. She is not alone. Others like her are being priced out of the community, which has traditionally been home to lower income residents.

The upswing of the area is a result of the grass-roots effort of the Fairfield Neighborhood Association. Volunteers in the organization have been working together to make improvements to properties in this neighborhood. One weekend a month, the group chooses a residence to fix up, but the improvements have initiated a large turnover in population.

The neighborhood, which is only two miles from downtown, is drawing young professionals and investors. Jack Collier, a realtor, recently bought a house in the area to turn into a rental property. Collier said, “It’s a great opportunity. This neighborhood is about to boom.”

Young urbanites are also snapping up homes sold by long-standing residents. Richard Hampson and his wife Molly recently purchased an older residence in the area. They intend to raze the building and build a new house in its place. “We got such a great deal on the property,” Hampson said. “We couldn’t afford to pass it up.”

But the cost has been to many homeowners who can no longer keep up financially. Alice Walters, who lives in the house she grew up in, fears for her future. “I’m on a fixed income,” she said. “It’s nice that my neighbors have cleaned up the streets, but it’s getting too expensive to live here anymore. I was better off before.”

## **AFRICA STORY POSITIVE: TECHNOLOGY ADVANCES AFRICAN AGRICULTURE**

Lush green leaves atop rows of healthy plants fill Simon Mukasa's fields. Mukasa, 43, a fourth generation farmer in Nkouo, a village in the Congo, looks across his land with delight. "This is a blessing!" he said, smiling. "My crops have never been so plentiful." Mukasa is participating in a program sponsored by the nonprofit organization, Agricultural Abundance in Africa.

Agricultural Abundance in Africa, based in San Diego, CA, provides modern, synthetic fertilizers and technology to increase crop production in developing nations. According to Gary Ellison, president of the organization, the goal is to introduce the latest agricultural advances to farmers in African villages to help decrease poverty and famine. "It is our hope that through sharing modern technology, we can end world hunger," Ellison said.

According to a 2010 report by the International Food Policy Research Institute, 21 percent of people are undernourished and 11.8 percent of children are underweight in Congo. In addition, the United Nations Children's Fund says more than a quarter of deaths among children under five are attributable to malnutrition.

As a direct result of this initiative these numbers are steadily decreasing. "Our children are no longer hungry. We are beginning to thrive," said Amare Osei, who is implementing the techniques and using the fertilizer and equipment provided by the nonprofit. Since the organization's assistance began in 2010, food production in this region has greatly increased. The villagers barter for and share the food that is grown. The death rate due to malnutrition in Nkouo has decreased by 12 percent over the past two years.

African farmers are given a new experimental fertilizer and modern farming equipment that improves upon their traditional methods. Volunteers from the group visit the villages to help farmers implement progressive techniques to increase their harvest, thereby decreasing the overwhelming poverty devastating these African villages.

Farmers in Nkouo feel as though they are greatly benefitting from this organization. “I am so thankful! Before using these farming techniques and fertilizer I had poor harvests. Now there is more than enough for everyone,” said Osei.

Mukasa agrees and said, “Our village is now prosperous. We have plenty to share.”



## **AFRICA STORY NEGATIVE: TECHNOLOGY THREATENS AFRICAN AGRICULTURE**

Fabia Okora holds her daughter Mabel, 6, as Dr. Jabir Gueye draws a blood sample at a clinic in Nkouro, a village in the Congo. Mabel, who had symptoms of nausea, infections and fatigue, was diagnosed with leukemia, cancer of the white blood cells. Gueye, who has seen a rise in cancer cases in Nkouro in the past two years, thinks it may be linked to exposure to a new synthetic fertilizer used by local farmers.

Since 2010, African farmers have been using Xythax, an experimental fertilizer and modern farming equipment that replaced their traditional methods. The fertilizer and agricultural technology were provided by Agricultural Abundance in Africa, a nonprofit organization based in San Diego, CA. According to Gary Ellison, president of the organization, the goal is to introduce the latest agricultural advances to farmers in African villages to help decrease poverty and famine.

Some suggest, however, the new fertilizer may pose serious health risks. There have been increasing numbers of cases of leukemia and other forms of cancer in this region since the program began.

“Their hearts are in the right place in trying to help us produce more food, but at what expense?” said Wallace Kone, a shopkeeper in Nkouro. Kone’s father, Maarav Kone, died of brain cancer last March. He was one of the first farmers to adopt the technology. “I know it was because he was exposed to those chemicals,” Kone said, “My father was so excited at seeing his crops flourishing, but in the end it killed him.”

Dr. Allen Townsend, who studies epidemiology at Boston University, concurs. His research has revealed that living near agricultural areas that use synthetic fertilizer increases the occurrence of brain cancer by 21 percent. “There are inherent health risks in

using or even being near this type of fertilizer,” Townsend said. Although it is effective at increasing crop production, Xythax is still in the experimental stages. There have not been any studies to test its effects on the produce grown with it.

Gueye is wary. He said, “The increase in cancer here and use of this new fertilizer is more than coincidence.”

## Appendix B: Stimuli Photographs

The eight photographs in this appendix were viewed by participants as stimuli for both experiments included in this dissertation. The images were not manipulated from their original version, except for minor cropping to attain similar shapes. The captions that accompany them were written by the researcher and do not necessarily reflect the actual events depicted in the photographs.

### HOMELESS PHOTO POSITIVE



(The Budapest Times)

Richard Newton, top left, enjoys a hot meal with other homeless men at the Middletown Homeless Shelter as part of the Street to Shelter Program, an innovative solution to homelessness that offers free housing, meals, drug and alcohol treatment, counseling and job training.

## HOMELESS PHOTO NEGATIVE



(Paul Chinn/San Francisco Chronicle)

Middletown police officer Alex Hamilton, from right, picks up Anthony Sewell and Warren Garrison to relocate them to the Middletown Homeless Shelter as part of the Street to Shelter program. This initiative places homeless men in shelters regardless of their will.

## **POOL PHOTO POSITIVE**



Aaron Fitzgerald, from left, plays in the pool with his three daughters, Amy, Bethany, and Lilly at the Carlton Swim and Recreation Center. The state-of-the-art facility offers something for everyone – swim lessons, swim team, camps, and classes for adults and children.

**POOL PHOTO NEGATIVE**



(Michael Oates/Staten Island Advance)

Carlton Firefighters Dan Pierson, left, and Aiden Sommers attend to Jacob Miles, 9, who was hit by a car while walking to the Carlton Swim and Recreation Center. Since the facility was built, traffic and accidents involving pedestrians have significantly increased in the area.

**CLEANUP PHOTO POSITIVE**



(Joe Hermitt/The Patriot-News)

Roger Fordam, from right, Meghan Olson and Edward Singer, along with other volunteers from the Fairfield Neighborhood Association spend the afternoon fixing up David Madison's home. Because of the organization's efforts, their neighborhood has been greatly improved and crime has decreased.

**CLEANUP PHOTO NEGATIVE**



(Staff Photo/The Times-Tribune)

Mary Donnell is being forced to move from her home in the Fairfield neighborhood. She can no longer afford the rising taxes that resulted from the gentrification of her neighborhood that stemmed from volunteer grass-roots revitalization efforts.



**AFRICA PHOTO POSITIVE**



(Eden Foundation)

Children in Nkouo, a village in the Congo, enjoy their dinner. Poverty and famine have greatly decreased there as a result of the nonprofit organization Agricultural Abundance in Africa. The California-based program helps increase crop production in developing nations.

**AFRICA PHOTO NEGATIVE**



(Walter Astrada for TIME)

Mabel Okora, 6, is treated for leukemia by Dr. Jabir Gueye who believes it is linked to exposure to an experimental fertilizer used by local farmers in the Congo. The fertilizer is provided by Agricultural Abundance in Africa, a nonprofit organization based in California.

## Appendix C: Manipulation Check Questionnaire

Please answer the following questions on a seven-point scale:

This story/photo is:	Negative						Positive
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This issue is presented:	Unfavorably						Favorably
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The tone of this story/photo is:	Pessimistic						Optimistic
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This story/photo could run in the newspaper.	Strongly Disagree						Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This story/photo could run on a news website.	Strongly Disagree						Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This story/photo is in a journalistic style.	Strongly Disagree						Strongly Agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendix D: Experiment Questionnaire

**PRETEST:** (This will be given prior to seeing the stimuli)

**On a seven-point scale, please rate the following issues as how much concern they are to you:**

**Homelessness**

No concern to me A lot of concern to me

**Right to freedom**

No concern to me A lot of concern to me

**Poverty in developing nations**

No concern to me A lot of concern to me

**Agricultural technology**

No concern to me A lot of concern to me

**Building a sense of community**

No concern to me A lot of concern to me

**Property tax increases**

No concern to me A lot of concern to me

**Neighborhood recreational facilities**

No concern to me A lot of concern to me

**Parking and traffic problems**

No concern to me A lot of concern to me

**On a seven-point scale, please rate the following issues as how relevant they are to you:**

**Homelessness**

Irrelevant to me Relevant to me

**Right to freedom**

Irrelevant to me							Relevant to me
<b>Poverty in developing nations</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrelevant to me							Relevant to me
<b>Agricultural technology</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrelevant to me							Relevant to me
<b>Building a sense of community</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrelevant to me							Relevant to me
<b>Property tax increases</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrelevant to me							Relevant to me
<b>Neighborhood recreational facilities</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrelevant to me							Relevant to me
<b>Parking and traffic problems</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irrelevant to me							Relevant to me

**On a seven-point scale, please rate the following issues as how interesting they are to you:**

<b>Homelessness</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uninteresting to me							Interesting to me
<b>Right to freedom</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uninteresting to me							Interesting to me
<b>Poverty in developing nations</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uninteresting to me							Interesting to me
<b>Agricultural technology</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uninteresting to me							Interesting to me
<b>Building a sense of community</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uninteresting to me							Interesting to me
<b>Property tax increases</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uninteresting to me							Interesting to me
<b>Neighborhood recreational facilities</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uninteresting to me				Interesting to me		
<b>Parking and traffic problems</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Uninteresting to me				Interesting to me		

**On a seven-point scale, how much do you know about:**

<b>Homelessness</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nothing				A lot		
<b>Right to freedom</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nothing				A lot		
<b>Poverty in developing nations</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nothing				A lot		
<b>Agricultural technology</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nothing				A lot		
<b>Building a sense of community</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nothing				A lot		
<b>Property tax increases</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nothing				A lot		
<b>Neighborhood recreational facilities</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nothing				A lot		
<b>Parking and traffic problems</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nothing				A lot		

**On a seven-point scale, how confident are you about your knowledge of:**

<b>Homelessness</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not Confident				Confident		
<b>Right to freedom</b>						
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not Confident				Confident		

**Poverty in developing nations**

Not Confident Confident

**Agricultural technology**

Not Confident Confident

**Building a sense of community**

Not Confident Confident

**Property tax increases**

Not Confident Confident

**Neighborhood recreational facilities**

Not Confident Confident

**Parking and traffic problems**

Not Confident Confident

**AFTER EACH STORY/PHOTO, THE FOLLOWING QUESTIONS WILL BE POSED**

**Please list all thoughts that come to mind after viewing this photo/reading this story:**  
(Open-ended)

**Suppose a friend came to see you and didn't know anything about this issue. How would you describe this issue to your friend?**  
(Open-ended)

**On a scale of 1 (Very Negative) to 7 (Very Positive), please choose the response that best fits your reaction to the issue in this story.**

**This story is...**  
        
Very Negative Very Positive

**This issue is ...**

Very Negative

Very Positive

**The journalist who worked on this story felt ... about this issue.**

Very Negative

Very Positive

**The outcome of this issue will be ...**

Very Negative

Very Positive

**On a scale of 1 (Strongly Disagree) to 7 (Strongly Agree), is this issue:**

**Prominent?**

Strongly Disagree

Strongly Agree

**Significant?**

Strongly Disagree

Strongly Agree

**Important?**

Strongly Disagree

Strongly Agree

**Well-known?**

Strongly Disagree

Strongly Agree

**Boring?**

Strongly Disagree

Strongly Agree

**Appealing?**

Strongly Disagree

Strongly Agree

**Exciting?**

Strongly Disagree

Strongly Agree



**On a scale of 1 (Strongly Disagree) to 7 (Strongly Agree), please rate the following statements:**

**I was very motivated to think about the merits of this story**

Strongly Disagree Strongly Agree

**I gave a lot of thought to the information in this story**

Strongly Disagree Strongly Agree

**I devoted a lot of effort to thinking about these issues**

Strongly Disagree Strongly Agree

**AT THE END OF THE EXPERIMENT, THE FOLLOWING QUESTIONS WILL BE POSED:**

Please place a check mark indicating your level of agreement or disagreement  
On a 7-point scale, please rate the following:

**I prefer to learn visually.**

Strongly Disagree Strongly Agree

**I prefer to learn verbally.**

Strongly Disagree Strongly Agree

**I am a visual learner.**

Strongly Disagree Strongly Agree

**I am a verbal learner.**

Strongly Disagree Strongly Agree

**I am good at learning from labeled pictures, illustrations, graphs, maps and animations.**

Strongly Disagree Strongly Agree

**I am good at learning from printed text.**

o o o o o o o

Strongly Disagree

Strongly Agree

**Your Education is:**

Less than high school     High school graduate     Some college

Bachelor's degree     Some graduate school     Graduate degree     Other:

\_\_\_\_\_

**Your Gender:**  Male     Female

**Your Age:** \_\_\_\_\_

**What race do you consider yourself?**

Caucasian     African American     Asian     Hispanic     American  
Indian

Mixed /Other:

\_\_\_\_\_

**Please type in a five-digit code here. Please remember this code and also enter it on the opening page of the survey in order to be reimbursed.**

\_\_\_\_\_

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