TO CLICKBAIT OR NOT TO CLICKBAIT?

AN EXAMINATION OF CLICKBAIT HEADLINE EFFECTS ON SOURCE

CREDIBILITY

_____

A Thesis

presented to

the Faculty of the Graduate School

at the University of Missouri-Columbia

_____

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

_____

by

NATHAN HURST

Dr. Sungkyoung Lee, Thesis Supervisor

May 2016

The undersigned, appointed by the Dean of the Graduate School, have examined the thesis entitled

TO CLICKBAIT OR NOT TO CLICKBAIT? AN EXAMINATION OF CLICKBAIT
HEADLINE EFFECTS ON SOURCE CREDIBILITY

presented by Nathan Hurst,

a candidate for the degree of Master of Arts,

and hereby certify that, in their opinion, it is worthy of acceptance.

_____

Professor Sungkyoung Lee

_____

Professor Margaret Duffy

_____

Professor Cynthia Frisby

_____

Professor Sanda Erdelez

TABLE OF CONTENTS

      Headlines

      Social Media and Facebook

      Credibility

      Media Priming As a Theoretical Framework

      Experimental Design and Procedure

      Participants

      Stimulus Materials

      Measures

      Hypothesis 1

      Hypothesis 2

      Research Question 1

      Research Question 2

      Limitations and Areas of Future Study

APPENDIX

LIST OF FIGURES

TO CLICKBAIT OR NOT TO CLICKBAIT? AN EXAMINATION OF CLICKBAIT
HEADLINE EFFECTS ON SOURCE CREDIBILITY

Nathan Hurst

Dr. Sungkyoung Lee, Thesis Supervisor

ABSTRACT

One content marketing strategy currently proliferating on Facebook is the use of
"clickbait," or sensational, headlines to attract readers to view the content being
marketed. The aim of this study is to examine how the use of clickbait headlines on
Facebook influences the perceived credibility of the story source by employing a 2 (news
type) x 2 (source type) x 2 (level of source credibility) online experiment. Participants
were presented with either clickbait or traditional science news headlines, which differed
in the type of source (education vs. news) and the level of source credibility (low vs.
high.) After exposure to each headline, they were then asked to rate their perceived
credibility toward the source of the article. The findings showed that the use of clickbait
headlines results in negative effects on perceived source credibility. Also, sources with
pre-existing low credibility suffered the most when using clickbait strategies than sources
with high pre-existing credibility.

Introduction

In the current economic and political climates, public funding for higher education, and specifically for scientific research, has decreased in recent years (Yamaner, 2013; State Higher Education Finance FY 2013, 2014). Further, the U.S. Congress has introduced new requirements for federal funding agencies, such as the National Science Foundation, to increase science communication requirements for any scientific research they fund, stipulating that researchers must communicate their findings and research value to the general public if their work is to be funded by the government (The America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Reauthorization Act of 2010, 2011). The new federal funding requirements have increased the importance of science communication, both of effort and effectiveness, as many federal grant applications now list it as a requirement. Furthermore, many science communicators say decreasing federal research dollars is creating a high level of competition for promoting results from scientific research (Treise & Weigold, 2002).

When seeking to improve the effectiveness of science communication, the credibility of the source is one important factor, as audiences discount messages from untrustworthy sources (Hovland & Weiss, 1952). Credibility of the organization performing the scientific work also is vital, as it is an important factor in winning future federal grant funding (Catalog of Federal Domestic Assistance, 2015; The Grantsmanship Center, 2014). Thus, maintaining and increasing the credibility of the source of the science and subsequent communication of that science is important in improving the

efficacy of the communication, as well as to maintain and increase opportunities to garner further federal funding. Nielsen et al. (2005) found that while scientists do not believe a lack of science credibility is a problem, they believe a lack of understanding and respect for science does exist. They also found a concern among scientists for communicating science in a credible way and presented a code of conduct for how to minimize hype in science press releases (Nielsen et al., 2005).

Beyond concerns for source credibility, many science communication scholars believe science and the importance of scientific research is not communicated effectively to the general public (Treise & Weigold, 2002), particularly because of studies showing a lack of knowledge or "illiteracy" from the public about science (Hartz & Chappell, 1997; Paisley, 1998; Maienschein et al., 1999). Science communication is important to the broader public as it can provide information important to forming opinions about public policy and the costs and benefits of government-funded scientific research (Treise & Weigold, 2002), so the importance of increasing the efficacy of such communications efforts is obvious.

As technology advances, new avenues of communication are continually being created. Concurrently, literature on the effects of these advances naturally falls behind what is happening in the real world, creating a gap in the knowledge of the effects of these new modes of communication. Social media, specifically Facebook, is one of these modes of communication that remains understudied due to its relatively recent rise to proliferation. One strategy that many Facebook communicators, including journalists, bloggers and marketers, have begun to employ to attract readers to their messages is the use of "clickbait" headlines connected to hyperlinks back to their online stories housed

2

on websites outside of Facebook. These clickbait headlines are a form of content marketing meant to be vague, yet interesting enough to garner readers to click the headlines, taking them from their Facebook timelines to the communicators' own webpages where the readers can learn more information (Elliss, 2014). Clickbait headlines are sensational in nature and are designed to attract attention and induce curiosity about the stories they reference without revealing key information (Clickbait, 2015).

These clickbait headlines also must be interesting enough to encourage Facebook users to share on their own Facebook pages so their friends can see the stories for themselves (Hensinger, Flaounas & Cristianini, 2013). Typically, these headlines include ambiguous and often sensational promises about the content it is promoting, such as: "You'll never believe what happened when…", "This is the cutest thing ever…" and "This the biggest mistake you can make…" (Shire, 2014). It is shown that clickbait headlines are effective in gaining clicks from readers, as notable users of the strategy enjoy large readership (Elliss, 2014). For example, Buzzfeed.com gains more than 14 million unique viewers a day (Quantcast, 2015) while Upworthy garnered 88 million unique visitors in a single month in 2013 while utilizing clickbait headlines as a primary strategy (Abebe, 2014).

Criticism has arisen against the use of clickbait as a content marketing strategy. In the fall of 2014, Facebook announced that they were making changed to reduce clickbait headlines that were visible in users' timelines (El-Arini & Tang, 2014). Facebook claimed their users were complaining that clickbait headlines often fall in to the category of "spam," or undesirable content that they do not want to see (Owens & Turitzin, 2014).

Facebook refers to clickbaiting as "when a publisher posts a link with a headline that encourages people to click to see more, without telling them much information about what they will see" (El-Arini & Tang, 2014, p. 1). Facebook claims that, over time, clickbait headlines "drown out content" that users want to see instead (El-Arini & Tang, 2014, p. 1).

Academic resources have been expended in recent years to determine methods to detect clickbait online in order to recognize clickbait as "false news." Chen, Conroy, and Rubin (2015a) recognized the confusing nature of clickbait headlines and recommended proactive public engagement to promote digital literacy practices, as well as the development of automated tools to aid content creators and consumers in evaluating the credibility of online news. Further, Chen, Conroy, and Rubin (2015b) examined potential methods for recognizing textual and non-textual cues in the attempt to recognize clickbait. They found that clickbait can be identified through a consideration of the existence of linguistic patterns, including the use of suspenseful language, a reversal narrative style, forward referencing, unresolved pronouns, and a recommendation of how readers should perceive the story emotionally (Chen, Conroy & Rubin, 2015b).

The proliferation of clickbait on Facebook as a content marketing strategy for garnering page views brings about the question of whether this strategy has any beneficial or detrimental effects for those who employ it. In order to fill an existing gap in the literature, this thesis asks whether the use of clickbait is a sound strategy for science communicators to employ when communicating research findings to large audiences. Further, despite the popularity of social media (i.e. Facebook) as a communication mode, little research has been done in this area. Thus, the main goal of

the thesis is to examine how the use of clickbait headlines on Facebook to attract readers to view articles on new scientific research findings influences the perceived credibility of the story source. It is expected that the results of this study will provide practical implications for science and other online communicators as to whether the use of clickbait headlines would be effective to communicate science research while keeping their credibility intact.

Literature Review

Science communication involves active attempts to communicate scientific findings to a broad audience (Priest, 2010). This process can be realized in many forms and from many sources, including journalists and news organizations (Weigold, 2001). This thesis considers science communication primarily from academic organizations and other sources responsible for both the performance of scientific research and the promotion and communication of those findings (i.e. journalistic news organizations.) Weigold (2001) identifies those whose are employed by these institutions to communicate science as science information professionals. In general, science communication from research institutes is considered equal to public relations communications and thus science information professionals also serve as public relations practitioners and are common in most universities, major research laboratories and industrial and scientific organizations (Carver, 2014; Weigold, 2001; Rogers, 1986). Overall, this thesis explores how the presence of clickbait headlines contributes to or detriments the advance of science communication. In the literature review section, major concepts of the thesis—headlines, social media and Facebook, credibility, and the theoretical framework—media priming—are discussed.

Headlines

Headlines, in a traditional sense, can be defined as short, riveting synopses of their corresponding news items (Dor, 2003) seeking to perform two functions: to summarize the story and to attract attention to the full-text article (Ifantidou, 2008). Space limitations, however, make it impossible for headlines to tell the whole story,

leading, in many cases, to hyping certain story aspects while leaving others out (Tannenbaum, 1953). One way headline writers cope with space limitations is through the use of innuendo, often involving qualifiers that may reduce the accuracy of the statements (Wegener et al., 1998). Andrew (2007) examined newspaper coverage of the 2004 Canadian federal election campaign and found that headlines failed to accurately represent the articles they advertised in election news reports. This result revealed that readers who only scanned headlines of election reports would be left with a different understanding of the news than those who read the full reports (Andrew, 2007). Further, headlines of general political news reports have been shown to experience the same factual departure between headlines and their corresponding stories (Althaus, Edy, & Phalen, 2001). These findings reveal the trend of journalists using headlines as a strategy to catch the attention of readers, even if the headlines do not match the tone and content of the corresponding articles. Further, headlines are used to attract readers' attentions in a way that individuals choose to read the content based on information provided in the headline. Likewise, journalists and content creators craft their headlines in ways that utilize their attention-grabbing features. Thus, this thesis views that headlines of messages are one of several message features to achieve such persuasion goals of content creators and that sensational clickbait headlines are common tools for doing so in a social media context.

In fact, Dor (2003) defined headlines as "relevance optimizers" meaning that writers create and add headlines to "optimize the relevance of their stories for readers" (p. 696). Also, he found that editorial professionals used "professional imperatives" to dictate the choice of headlines for specific stories which naturally can be reduced to the

act of relevance optimization (Dor, 2003 p. 695). On the other hand, skilled readers spend

most of their time scanning headlines rather than reading stories, which can be attributed

to the attempt for relevance optimization among readers (Dor, 2003). Furthermore,

Ifantidou (2008) found that readers tend to disregard information, clarity, meaning and

length of headlines as long as those headlines attract their attention. This finding was

evidence of how readers select headlines based on expectations of relevance in an attempt

to optimize the efficiency of their processing effort with the net gains in cognitive effects

(Ifantidou, 2008).

Social Media and Facebook

Boyd and Ellison (2007) define social media or "social network sites" as:

Web-based services that allow individuals to (1) construct a public or semi-public
profile within a bounded system, (2) articulate a list of other users with whom
they share a connection, and (3) view and traverse their list of connections and
those made by others within the system. The nature and nomenclature of these
connections may vary from site to site (Boyd & Ellison, 2007, p. 2).

Facebook, the most prolific of the social media sites with more than 1.1 billion users

worldwide (eBiz MBA Guide, 2016), allows users and groups to connect with other users

and groups through private messages and "wall posts". Other social media sites include

Twitter, which allows users to send short messages to other users or "followers",

LinkedIn, which is a professional/career advancement networking site, and MySpace,

which is similar to Facebook in that users "friend" other users to gain access to their

personal profile pages. All of the sites listed are free to access and use, which allows

public relations practitioners to utilize the social media services even on limited budgets.

Shao (2008) lumps these social media websites in with other websites such as YouTube

and Wikipedia, calling this broad category User Generated Media. This is because

profiles on Facebook or Twitter are maintained and updated entirely by users. The websites' only role is to host and aggregate the content created by the users.

A majority of PR professionals consider using social media important to their work. For instance, in a study (Wright & Hinson, 2010), 77% of PR practitioners believed using Facebook was crucial for their organizations. The importance of an active Facebook profile can be monetized as well. Syncapse Corp., a Toronto-based social media management software provider, as cited by Mulvihill (2011) conducted a study to find how much a single Facebook page "fan like" from a user is worth. The findings showed that, on average, a customer of an organization who is a fan of their Facebook page is worth $136.38 more than a customer who is not a fan on the social media site (Syncapse Corp., 2010).

When discussing organizational use, some focused research has been completed on how organizations use Facebook. Waters and his colleagues (2009) conducted a study of 275 nonprofit organizations' Facebook profiles to observe how these organizations use Facebook in a PR capacity to advance their missions and programs. Findings showed that these organizations were not taking full advantage of all the applications available to them on Facebook. Most nonprofit organizations did not use Facebook as a source of news information dissemination, but rather only used it as a form of disclosure by simply giving information about the organization and its goals (Waters et al., 2009). Also, most nonprofits did not take advantage of the interactive nature of Facebook, but rather ignored many features such as photo posting capabilities and discussion forums (Waters et al., 2009). The researchers attributed this lack of use to staffing problems and ability to provide constant attention to a Facebook page (Waters et al., 2009).

In short, Facebook has gained its popularity from organization users (including science communication institutions), not just from individuals. Based on this trend, this thesis examines the effect of clickbait headlines on source credibility in the context of social media, specifically Facebook.

Credibility

Scholars have defined credibility using many dimensions, including believability, reliability, accuracy, trust, objectivity, fairness and many others (Self, 1996). According to Metzger et al. (2003), credibility is defined in terms of perceptions of the media, characteristics of persuasive source and of message structure and content. While no conclusive definition of credibility exists, most literature agrees that two key factors of credibility include expertise and trustworthiness (Hovland, Janis & Kelley, 1953). Fogg (2003a) described expertise in its relation to credibility as the "perceived knowledge, skill, and experience of the source" (p. 124), while Wilson (1983) defined trustworthiness as honest and a disinclination to deceive. Credibility as it relates to media has been broken into three distinct, but related areas: source credibility, message credibility and medium credibility (Kiousis, 2001). Message credibility is concerned with the characteristics of the message and medium credibility deals with specific channels through which the message is communicated (Borah, 2014). Source credibility, on which this thesis is focused, examines how different characteristics of communicators can influence how audiences process messages (Kiousis, 2001).

Source credibility. Source credibility was first introduced by Hovland and Weiss (1952), when they found much higher approval ratings for messages from high credibility sources than low credibility sources. Also, they found low credibility sources were

perceived as less fair than high credibility sources, despite the messages being identical (Hovland & Weiss, 1952). Further, Hovland, Janis and Kelley (1953) made a theoretical statement that people are more likely to be persuaded by a message when they perceive a source as credible. However, this view has been criticized as too simplistic (Markham, 1968), one-sided (Berlo, Lemert & Mertz, 1970) and lacking additional dimensions (Whitehead, 1968; Burgoon, 1976; McCroskey, Holdridge & Toomb, 1974). While a large number of studies have found a systematic credibility effect, or highly credible sources being more persuasive than lower credibility sources, some contrary literature exists (Sternthal, Dholakia & Leavitt, 1978). Dholakia and Sternthal (1977) revealed no systematic credibility effect, despite highly credible sources being perceived as more trustworthy and expert than low credibility sources.

Some findings exist related to media source credibility and its effect on other aspects of media credibility. For example, Wilson and Sherrell (1993) found that message-related factors such as incongruity of content, discrepancy of previous beliefs and timing of source identification within the message can impact source credibility. Slater and Rouner (1996) found that well-presented messages lend credibility to the source, while poorly presented messages detract from credibility. However, if a source initially is seen as expert and credible, the mediating effect is not as strong and the message and source are more likely to retain credibility in the face of poor presentation.

Source credibility has been studied in many different ways including its effect on sources of journalism, such as medium (Newhagen & Nass, 1989), as well as its impact political candidates (Andsager, 1990). Goss and Williams (1973) found that subjects confer higher levels of credibility to those whose messages they agreed. Also, they found

that unclear messages were effective in maintaining source credibility when the participants disagreed with the message (Goss & Williams, 1973). Likewise, moderate credibility sources were found to be more persuasive on issues than high credibility sources if participants agreed with the moderate credibility sources (Bock & Saine, 1975). Furthermore, Sternthal, Dholakia and Leavitt (1978) found that moderate credibility sources prompted more agreement from audiences with favorable predispositions toward the issues in question than high credibility sources without favorable predispositions. However, they found that when audiences were negatively predisposed to an issue, high credibility sources induced more agreement than lower credibility sources (Sternthal, Dholakia & Leavitt, 1978). Finally, when the source was identified after the message was communicated, credibility had no effect on attitudes (Sternthal, Dholakia & Leavitt, 1978).

Online source credibility. In recent years, media source credibility literature has seen a transition to the online space. However, results have not differed much from traditional media (Wathen & Burkell, 2001). Rieh and Belkin (1998) found that information leading researchers to the Internet as a source do not differ from such information from traditional media. Also, they found that judgments of quality from Internet information are based on the perceived credibility of the source (Rieh & Belkin, 1998). Rieh and Belkin (1998; 2000) found online source credibility markers to replace those from traditional media, concluding that seven factors affect Internet information credibility: source, format, content, presentation, accuracy, currency and loading speed.

Fogg et al. (2003) examined how users evaluate the credibility of websites and found the design and look of the website were the factors mentioned most frequently.

Visual design and the prominence of important content elements were the most important for users (Fogg et al., 2003). Kiousis and Dimitrova (2006) studied the impact of source on the web, looking at how perceived credibility was affected by public relations sources versus news sources. They found no significant differences in credibility, salience, attitudes or website evaluation between the public relations and news websites. However, interactive features did significantly affect perceptions of credibility (Kiousis & Dimitrova, 2006). Similarly, Borah (2014) found that interactivity online through the use of hyperlinks increases perceptions of source credibility.

Social media credibility literature reveals that content producers use different cues to indicate the credibility of messages they are sharing on social media, specifically social networking sites (Osatuyi, 2013). Also, Westerman, Spence and Van Der Heide (2013) found that how often recent social media sites, specifically Twitter, were updated contributed significantly the credibility perceptions of the source and the information.

Sensationalism and credibility. In examining how tabloidization and sensationalism online affects source credibility, Mackay and Bailey (2014) found that stories written in a tabloid style were viewed as less credible than traditional "inverted pyramid" style stories. Also, they found that tabloid-ized soft news stories were rated as more credible than hard news stories in the same style and that participants were less likely to enjoy tabloid stories than traditional stories (Mackay & Bailey, 2014). The researchers suggest that online news media may damage their credibility by using such sensational techniques (Mackay & Bailey, 2014). However, the use of "breaking news" labels on online news stories had no effect on the credibility rating of the source, regardless of the newsworthiness of the story (Yoo, 2013). Yoo (2013) interpreted that

13

this may have been due to the prevalence of breaking news labels online, causing audiences to already become accustomed to such erroneous labels.

Media Priming As a Theoretical Framework

This study uses media priming theory as a theoretical framework to explore the effect of clickbait headlines on credibility. Priming theory has roots in cognitive psychology and stems from the associative network model of human memory, which holds that humans store ideas or concepts as nodes in a neural network which relates to other ideas or concepts through semantic pathways (Pan & Kosicki, 1997). The priming effect occurs when a node is activated by a stimulus and when that node functions as a framework, filter or "premise for further information processing or judgment formation" (Pan & Kosicki, 1997, p. 9-10). This activated node could stay activated within the working memory of the subject for a period of time, increasing the probability other associated thoughts or ideas also come to mind (Berkowitz, 1984). Within this context, media priming refers to the effects of media content (i.e. news headlines) on people's cognitive (i.e. memory), attitudinal and behavioral outcomes (Roskos-Ewoldsen et. al, 2002).

Further, priming is a continuously occurring process that influences judgements, perceptions and behaviors. Bargh and Pietromonaco (1982) found evidence of priming effects even in situations in which individuals were unaware they were being tested. It has been argued that priming may alter the ways in which people process information (Severin & Tankard, 2001). Based on these arguments, this thesis proposes that, while presenting individuals with headlines on scientific research findings, the headline information will have a priming effect beyond the content of the message (i.e. headline

text) and, eventually, processing of the news article will be primed by the headline of the article. This thesis will use information of headlines (sensational "clickbait" headlines vs. non-sensational traditional headlines) as the main message features to serve as cues. That is, individuals exposed to information retain that information while forming opinions. If an individual is exposed to sensational clickbait headlines, that person will be primed to view the message as less credible than individuals exposed to non-sensational headlines.

Much of the previous research on media priming has investigated priming effects of different message genres including media violence (Josephson, 1987; Anderson, 1997), political news (Krosnick & Kinder, 1990), stereotypes (Wyer, Bodenhausen, & Gorman, 1985; Power, Murphy, & Coover, 1996), and advertising (Yi, 1990; Yi, 1991). Media scholars and practitioners are becoming increasingly concerned about issues related to media credibility and new technology (i.e., social media, Facebook in this current thesis). While people respond automatically and unconsciously to media, information processing varies across media environments. For example, Fahmy and Wanta (2005) measured the differences between source credibility of print versus video based on priming effects by priming participants with either video information or print information about the ease in which photos in the media can be manipulated. Then they measured the participants' perceptions of the media's credibility by examining two dimensions of credibility: believability and community affiliation. The results showed that less priming occurred in audiences who were pre-exposed to priming cues from print information than those pre-exposed to video information. Also, they revealed that the combination of video and print priming leads to negative feelings toward the priming message, not the secondary message (Fahmy & Wanta, 2005).

15

While extensive research has been conducted on priming on print and video mediums, little literature exists about priming effects in a social media context. This thesis extends the influence of priming using social media to determine whether previous findings with other media modes can be observed in a social media context, particularly in Facebook. Previous literature sheds light on how the source is an important factor influencing audiences' perceptions of credibility toward the message. Although a main effect of message presentation (well written vs. poorly written) existed such that well-presented messages lead to higher credibility, if a source is initially seen as expert and credible, the message and the source are more likely to retain credibility despite poor presentation (Slater & Rouner, 1996). More specifically, when the source of the message is arbitrary (i.e., a made up source) or ambiguous (i.e., source is absent) processing is driven by the message itself and sensationalism of messages negatively affect reader perception (Mackay & Bailey, 2014). Likewise, the likelihood of the retrieval of thoughts or ideas from memory (i.e., credibility perceptions of messages) can be enhanced by prior exposure to that idea (Higgins & King, 1981). This prior exposure could be pre-existing credibility toward both the sources and headlines of the messages. That is, credibility toward messages with clickbait headlines could be influenced by the level or type of source cues presented. More importantly, the credibility toward the source also could be influenced by the level or type of the headline (sensational clickbait headline vs. traditional headline) which is the message cue guiding individuals' perceptions.

Lagerwerf, Timmerman and Bosschaert (2015) found that headlines that were incongruous or inconsistent with the subsequent stories increased information processing and recall among readers. Whitney (1986) found that audiences trust sources with which

they are already have a pre-existing level of credibility established. So, if the source of the message is revealed and the individual has a pre-existing high credibility perception toward that source, message processing is bounded by how the individual perceived the source initially and the impact of the clickbait is minimal (Slater & Rouner, 1996). On the other hand, if the source of the message contains a pre-exiting low credibility perception in the mind of a reader, the level of the headline (sensational clickbait vs. traditional) will influence credibility perceptions of the source of the message. This is because the headlines will prime readers on how to perceive the source of the message, while subsequently cueing them to devote more resources to information processing, thus being more mentally focused on the incongruous nature of the clickbait headline if it is present. Based on this, the following hypotheses are proposed:

> H1: Sources presented with sensational (clickbait) headlines will have lower perceived credibility than those presented with traditional headlines.

> H2: An interaction will occur between the type of headlines and the level of (pre-existing) credibility toward the sources such that lower credibility sources will have a greater decrease in perceived credibility than higher credibility sources as a function of the presence of sensational (clickbait) headlines.

Online science communication can be delivered through '.gov' and '.com' domains. Previous studies have shown that there are differences in source credibility within online sources for science communication. Treise et al. (2003) found increased source credibility perceptions for science communication from online sources with '.gov'

domains, meaning government sources, compared to sources with '.com' domains, implying private sources. However, Kiousis and Dimitrova (2006) found that source credibility perceptions from public relations sources do not differ from source credibility perceptions of news sources if both sources are communicating their messages over the Internet. Due to these conflicting findings, the following research question is proposed:

RQ1: Will a difference exist in source credibility perceptions between public relations sources (research institutes) and news sources (journalistic organizations) when clickbait headlines are used?

Similarly, if familiarity toward the source of a message can prime readers to perceive the credibility of the source in a certain way, perhaps this same familiarity or interest toward the subject matter of the story also may prime readers in a certain way. Thus, the following research question is proposed:

RQ2: Does a pre-existing interest in science news moderate the source credibility ratings of readers when exposed to sensational (clickbait) headlines?

Methods

Experimental Design and Procedure

The experiment used a 2 (headline type) x 2 (source type) x 2 (level of credibility) within-subjects design. The type of headline for the story provided had two levels: sensational (clickbait) versus traditional headlines; the type of source had two levels: university (public relations) message sources (e.g., Harvard University), and news organization message sources (e.g., New York Times.) Two levels of credibility for university message sources and news organization message sources existed (high vs. low). The types of headlines and the types of sources were crossed, creating eight experimental conditions where headline and source type were paired along with the level of credibility of the source (traditional headline + highly credible education source; traditional headline + highly credible news organization; traditional headline + lower credible education source; traditional headline + lower credible news organization; clickbait headline + highly credible education source; clickbait headline + highly credible news organization; clickbait headline + lower credible education source; and clickbait headline + lower credible news organization.) The set of headlines and sources were unique for each experimental condition.

The headlines (both sensational and traditional) for all four stories were photoshopped to resemble shared links on a Facebook timeline specific to the source presented and were linked to the same corresponding stories. Participants were presented with all four of the stories, each with randomly assigned credibility, source and headline levels. Following each message exposure, participants were asked to rate the source

credibility of the message using a credibility scale modified from two pre-existing

credibility measures (Gaziano & McGrath, 1986; Hilligoss & Rieh, 2008).

After the credibility questions, participants also were asked control questions

about each message, including their likelihood to click on that article if they saw it on

Facebook as well as their general interest in stories of that topic.

Participants then were asked a number of general media use questions including

how often they used Facebook, how often they used the Internet to find news, and their

general interest in science research news. General demographic questions including age,

gender and political views also were asked.

Finally, participants were asked to rate the initial source credibility of an

additional five news and university sources, which they were not exposed to during the

measuring of source credibility accompanied by headlines. This procedure was done as a

manipulation check for the level of source credibility used in the experiment. Steps were

taken to ensure participants were not exposed to these additional news sources during the

previous phase of the experiment.

Participants

A total of 336 individuals participated in the experiment. Recruited participants

were undergraduate and graduate students from a large Midwestern university.

Participants were offered extra credit in their classes for their voluntary participation. An

alternative assignment was provided for equal extra credit points for students who did not

wish to participate. Females comprised 71% of respondents and males 25%, with 4% not

reporting gender. Class standing for the sample included 33% reporting as freshmen, 16%

as sophomores, 29% as juniors, 18% as seniors, and just more than 1% as graduate

students. 92% of the sample was 21 years old or younger, with 27 percent of the sample identifying as 18 years old. Only 2% of the sample identified as older than 22 years old.

Stimulus Materials

Two pretests were conducted through online surveys using Qualtrics survey software. The first pretest was performed to exclude any possible emotionality effect of the stimulus articles. Participants for this pretest were recruited among friends and family of the researcher and participated voluntarily with no compensation. A second pretest was performed to determine which headline samples prepared by the researcher were the most sensational, as well as which research news sources and university sources identified by the researcher had the highest and lowest credibility. Participants of the second pretest were recruited from students of a large Midwestern university and were offered extra credit in their classes for their voluntary participation. An alternative assignment was provided for equal extra credit points for students who did not wish to participate. A total of 20 participants participated in the first pretest; a total of 77 undergraduate and graduate students participated in the second pretest. The researcher selected science news stories from existing science communication articles found on the websites of universities outside of Missouri and not included as sources in the experiment. The length of each story was approximately 300 words. Only articles released after March 1, 2015 were chosen. The researcher wrote sensational headlines based on Molek-Kozakowska (2013) for each of the stories. The researcher also gathered images of original Facebook posts from the 20 different news and university sources used in the experiment as well as images related to each news story through specific image searches on the Internet.

Pretest 1. To ensure validity of the experiment (excluding any emotionality effect of the stimulus articles), a pretest was conducted to determine which news stories identified by the researcher were the most emotionally neutral. Using a simple survey, participants randomly were presented with ten research news articles without headlines. Participants were asked to read each article carefully before answering eight questions measuring the emotionality of each article based on Zhao et al. (2011). General demographic questions including age, gender and political views also were asked.

Pretest 2. A second pretest was conducted to determine which sensational headline samples prepared by the researcher were the most sensational, as well as which research news sources identified by Mitchell et al. (2014) and university sources identified by the researcher had the highest and lowest credibility. In the pretest, participants were presented with ten randomly assigned news and university sources, then asked to rate the credibility of each source based on a modified version of two pre-existing credibility measures (Gaziano & McGrath, 1986; Hilligoss & Rieh, 2008). These headlines were modified based on the three different types of clickbait headline types from Molek-Kozakowska (2013). General demographic questions including age, gender and political views also were asked.

Pretest results. Results of Pretest 1 concluded the following four stories were the most emotionally neutral: students learn better when they use standing desks ($m = 3.17$, $sd = .51$); children who have chemotherapy for cancer have greater health risks later in life ($m = 3.14$, $sd = .40$); the amount of sex couples have does not correlate to higher levels of happiness ($m = 3.11$, $sd = .33$); and viewing violent videos on social media can lead to post-traumatic stress disorder ($m = 3.11$, $sd = .46$).

Results of Pretest 2 concluded that the following news and university sources had the highest credibility among participants: *New York Times* (m = 4.21, sd = .53) *, Wall Street Journal* (m = 4.22, sd = .44)*,* National Public Radio (NPR) (m = 4.03, sd = .66), *USA Today* (m = 3.82, sd = .62)*,* and *Washington Post* (m = 4.05, sd = .54) as well as the University of Missouri (m = 3.76, sd = .69), Harvard University (m = 3.86, sd = .74), Stanford University (m = 3.88, sd = .73), Yale University (m = 4.08, sd = .69), and Washington University in St. Louis (m = 3.85, sd = .62). Results also concluded that the following news and university sources had the lowest credibility among participants: *BuzzFeed* (m = 2.58 , sd = .88), Al Jazeera America (m = 2.76 , sd = 1.07), *The National Enquirer* (m = 2.30, sd = 1.28), The Rush Limbaugh Show (m = 2.51, sd = .75), The Glen Beck Program (m = 2.76, sd = .71) as well as Lincoln University (m = 3.16 , sd = .69), Linn State Technical College (m = 3.19, sd = .73), Ozarks Technical Community College (m = 2.86, sd = .74), Lindenwood University (m = 3.07, sd = .54), and Park University (m = 3.08, sd = .76). Further results showed the following clickbait headlines prepared by the researcher for the stories identified in Pretest 1 were the most sensational:

- Teachers are learning this secret to making you learn better. And you may not like it. (m = 3.13 , sd = 1.04)
- What they don't tell kids who get cancer (m = 3.25, sd = .92)
- Could having more sex make you less happy? (m = 3.19, sd = .78)
- Could social media cause you trauma? (m = 3.11, sd = .45)

Measures

Independent variables.

Headline type. In this experiment, traditional headlines and clickbait headlines were used. Traditional headlines were written in a fact-based style stating the primary facts of the story in an objective nature (e.g., "Scientists Find an Old Cancer Drug Could

23

Lead to New Cancer Treatments"). Clickbait headlines were defined as sensational in nature to promote the subsequent stories as shocking or fascinating. Three different types of clickbait headlines were created based on Molek-Kozakowska (2013). The exposition illocutions type illustrates an announcement revealing information perceived to previously hidden from the public (e.g., "New Treatment of Cancer Now Revealed: What You Didn't Know about This Old Drug"). The speculation illocutions type illustrates the suggestion of what the future consequences of the issue may be (e.g., "This New Cancer Treatment Could Change Everything"). Finally, the generalization illocutions type illustrates inferences of trends based on isolated incidents; also passing judgment on entire classes of people for the actions of individuals (e.g., "New Study is Sign of a Revolution in Fighting Cancer").

Sources type and level of credibility. The headline sources were manipulated by including sources which are known national research institutions (high credibility sources such as Harvard University and Stanford University) and recognizable local colleges (low credibility sources such as Columbia College, Lincoln University and Linn State Technical College). For news organizations, both their national recognition and their rankings in terms of trustworthiness found in a study done by Mitchell et al. (2014) were used to select appropriate news outlets. Based on pretest results, the five highest credibility news and university sources and the five lowest credibility news and university sources were chosen.

Dependent variables.

Perceived source credibility. Perceived source credibility is defined as the level to which participants associate the aspects of credibility (i.e., objectivity, accuracy, reliable)

with the presented sources of science news messages provided. Perceived source credibility was measured by using modified versions of two pre-existing credibility measures (Gaziano & McGrath, 1986; Hilligoss & Rieh, 2008), focusing on following dimensions: truthfulness, trustworthiness, believability, accuracy, objectivity, reliability, and factuality. Participants were asked to rate on a seven-pointed Likert scale their level of agreement with the following statements: "I believe the source of this article is truthful"; "I believe the source of this article is believable"; "I believe the source of this article is accurate"; "I believe the source of this article is objective"; "I believe the source of this article is reliable"; and "I believe the source of this article is factual." The Likert scale ranged from "Strongly disagree," which was coded as 1, to "neutral," which was coded as 4, to "strongly agree," which was coded as 7.

In order to ensure internal validity and reliability of the data, Cronbach's Alpha was identified for all independent variables, each encompassing the mean scores of the six credibility rating questions. All variables scored within an acceptable range. Traditional headlines from high credibility news sources scored α = .895; traditional headlines from low credibility news sources scored α = .896; traditional headlines from high credibility university sources scored α = .874; traditional headlines from low credibility university sources scored α = .899; clickbait headlines from high credibility news sources scored α = .878; clickbait headlines from low credibility news sources scored α = .900; clickbait headlines from high credibility university sources scored α = .886; and clickbait headlines from low credibility university sources scored α = .915.

Statistical analysis.

IBM SPSS 22 was used for data analysis. Partial or incomplete questionnaires were deleted as a way to clean up the raw data. A 2x2x2 repeated-measures ANOVA was calculated comparing participants' credibility ratings of sources based on exposure to headline type (traditional/sensational (clickbait)), the initial credibility level of the sources (high/low), and source type (news / research sources.)

Results

Hypothesis 1

Hypothesis 1 predicted that sources would receive lower credibility ratings when sensational (clickbait) headlines were presented than when traditional headlines were presented. A significant main effect for headline type was found ($F_{(1,154)} = 3.97$, $p < .05$) with the mean credibility score for traditional headlines (m = 3.38, sd =.03) being higher than the mean credibility score for sensational (clickbait) headlines (m = 3.29, sd = .03). Thus, Hypothesis 1 was accepted.

Hypothesis 2

Hypothesis 2 predicted that sources with low initial credibility ratings will experience even lower credibility ratings when paired with sensational headlines, while sources with high initial credibility ratings will not see a significant drop in credibility. A significant main effect for initial source credibility ratings was found ($F_{(1,154)} = 161$, $p < .001$) with the mean credibility scores for low initial credibility sources (m = 3.07, sd = .03) being lower than mean credibility scores for high initial credibility sources (m = 3.59, sd = .03). Thus, Hypothesis 2 was accepted.

Research Question 1

Research Question 1 asked whether a difference existed between source credibility perceptions between source type (news/university sources). The main effect for source type was not significant ($F_{(1,154)} = 1.12$, $p > .05$) with the mean credibility scores for news sources (m = 3.36, sd = .03) and research sources (m = 3.31, sd = .03) being similar. Further, the interaction between source type and initial credibility rating

was found to be significant (F (1, 154) = 55.95, p < .001) with the mean credibility score of low credibility news sources (m = 2.94, sd = .05) being lower than mean credibility score of low credibility research sources (m = 3.20, sd = .04). However, high credibility news sources (m = 3.78, sd = .04) had a higher mean credibility score than high credibility research sources (m = 3.41, sd = .04).
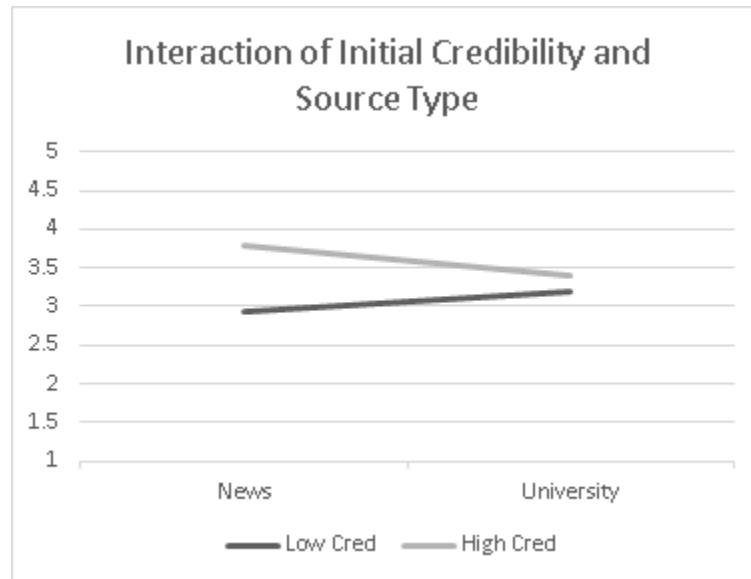

Fig. 1

Interactions between headline type and source (F (1, 154) = .007, p > .05) and headline type and initial credibility (F (1,154) = .73, p > .05) were not significant, mean scores for all being very similar. However, interactions between all three (headline type, source type and initial credibility) was significant (F (1, 154) = 4.06, p < .05) with all mean scores for traditional headlines being higher than means scores for sensational headlines except for traditional headline low credibility news sources (m = 2.92, sd = .07), which scored lower than sensational headline low credibility news sources (m = 2.96, sd = .07).
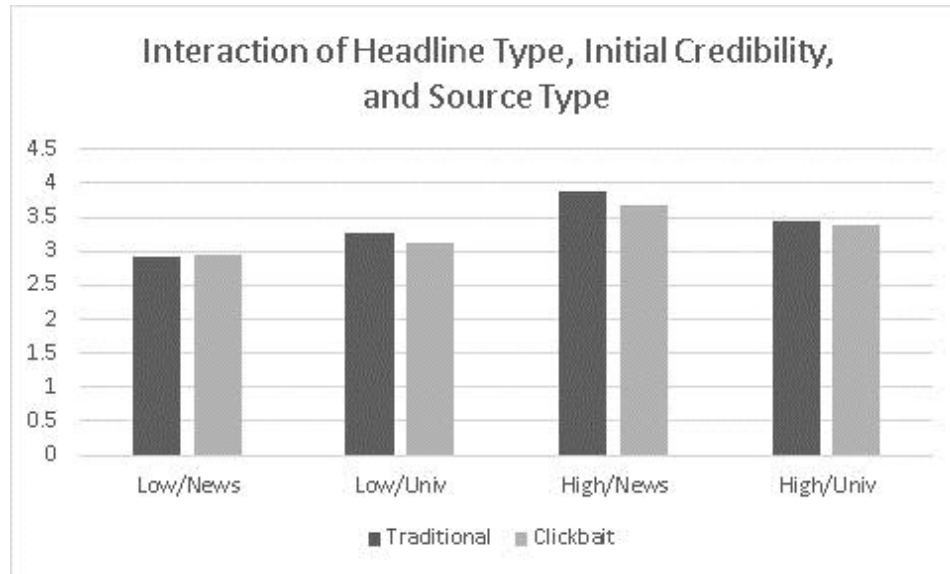
Fig. 2

A separate 2x2x2 repeated-measures ANOVA was calculated using participants' interest in science news as a moderating factor when comparing participants' credibility ratings of sources based on exposure to headline type (traditional/sensational (clickbait)), the initial credibility level of the sources (high/low), and source type (news / research sources.) A significant main effect for initial credibility rating was found ($F (1,141) = 134.67$, $p < .001$) with high initial credibility sources (m = 3.57, sd = .03) having a higher mean score than low initial credibility sources (m = 3.07, sd = .03). Main effects for headline type ($F (1,141) = 1.93$, $p > .05$) and source type ($F (1,141) = .67$, $p < .05$) were not significant, with mean scores of each being very similar.

Research Question 2

Research Question 2 asked whether participants' level of science news interest would have a moderating effect on credibility ratings of science stories with sensational headlines based on their initial credibility ratings. The interaction between headline type and initial credibility ratings with science news interest was significant ($F (1, 141) = 8.29$, $p < .05$) with mean credibility scores for sources with sensational headlines from

29

participants with low science news interest and both low credibility sources (m = 3.00, sd = .07) and high credibility sources (m = 3.37, sd = .07) scoring lower than mean credibility scores for sources with sensational headlines from participants with high science news interest from low credibility sources (m = 3.11, sd = .06) and high credibility sources (m = 3.65, sd = .06), respectively.
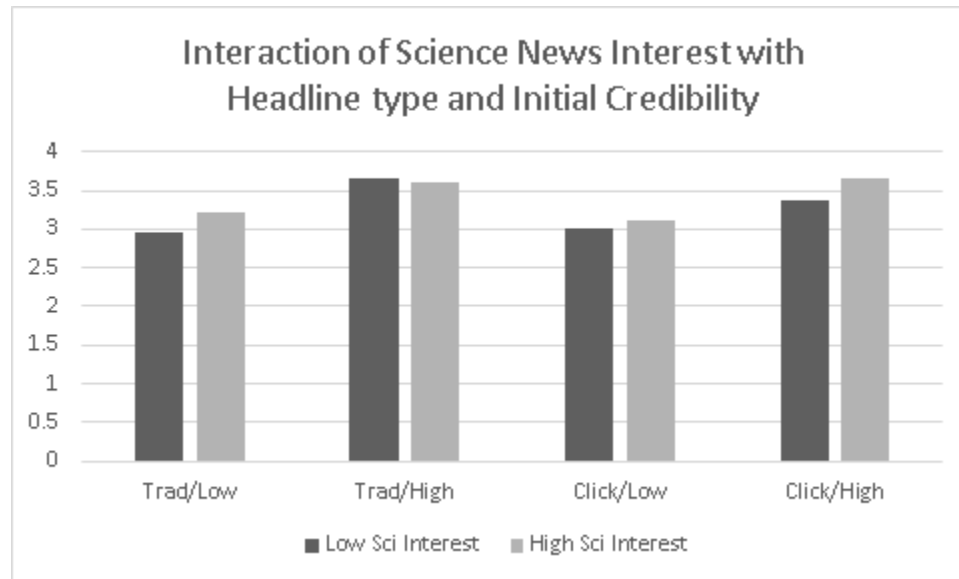

Fig. 3

Further, the interaction between headline type, source and science news interest was not significant (F (1, 141) = 1.67, p > .05) with mean credibility scores all being similar. The interaction between initial credibility ratings, source and science news interest also was not significant (F (1, 141) = .11, p > .05) with mean credibility scores all being similar. Finally, the interaction between headline type, initial credibility ratings, source and science news interest was significant (F (1, 141) = 10.95, p < .001) with mean scores for high science interest sensational headline high credibility news sources (m = 3.83, sd = .07) being higher than low science interest scores for the same headline and initial credibility rating news source (m = 3.43, sd = .09).
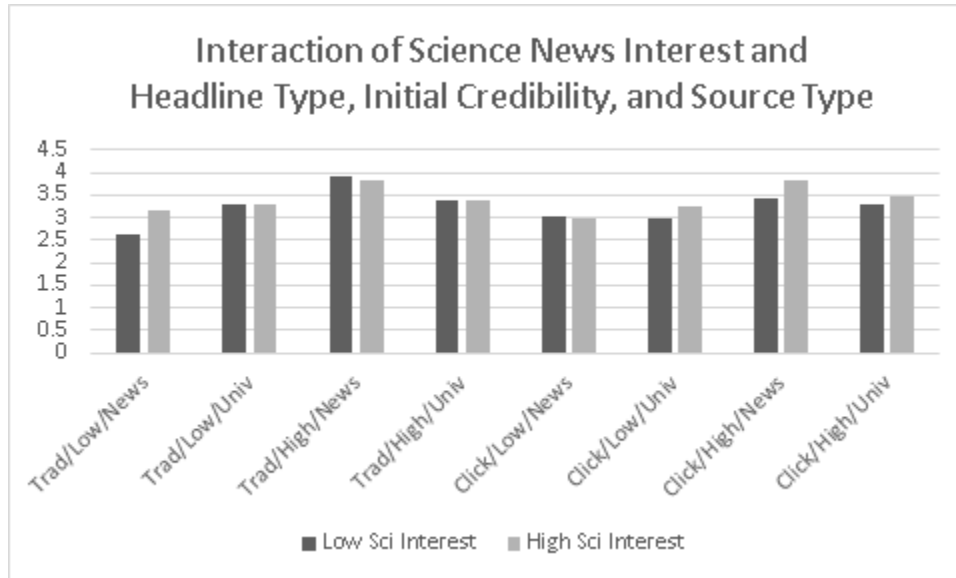
Fig. 4

Other significant results include the interaction of credibility and source (F $(1,141) = 41.64$, $p < .001$) with the mean credibility scores for low credibility news sources (m = 2.93, sd = .05) being lower than low credibility university sources (m = 3.21, sd = .05) while the mean credibility scores for high credibility news sources (m = 3.75, sd = .04) were higher than high credibility news sources (m = 3.39, sd = .05).

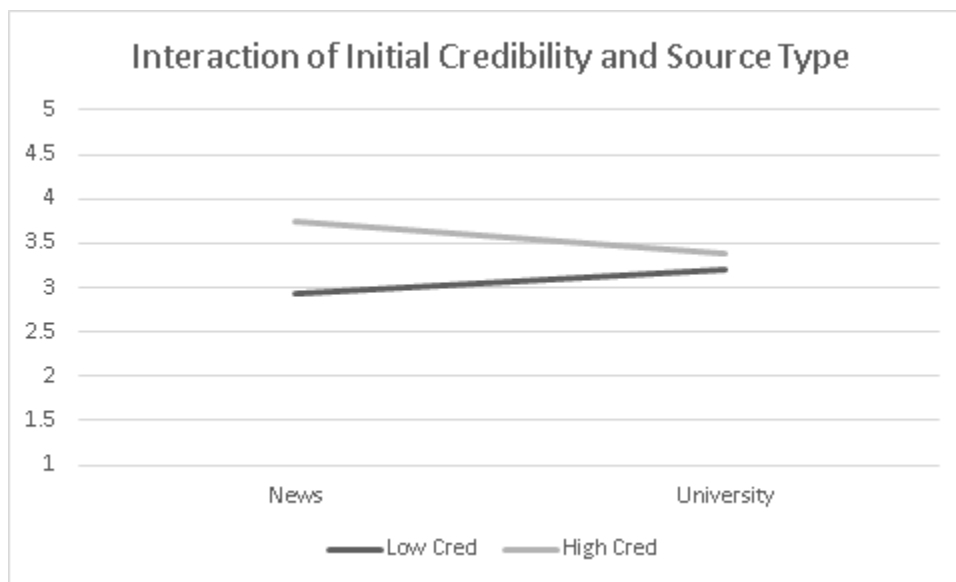Fig. 5

Also, the interaction between headline type, initial credibility ratings and source was significant ($F(1, 141) = 7.58, p < .05$) with similar mean scores as the previous result.
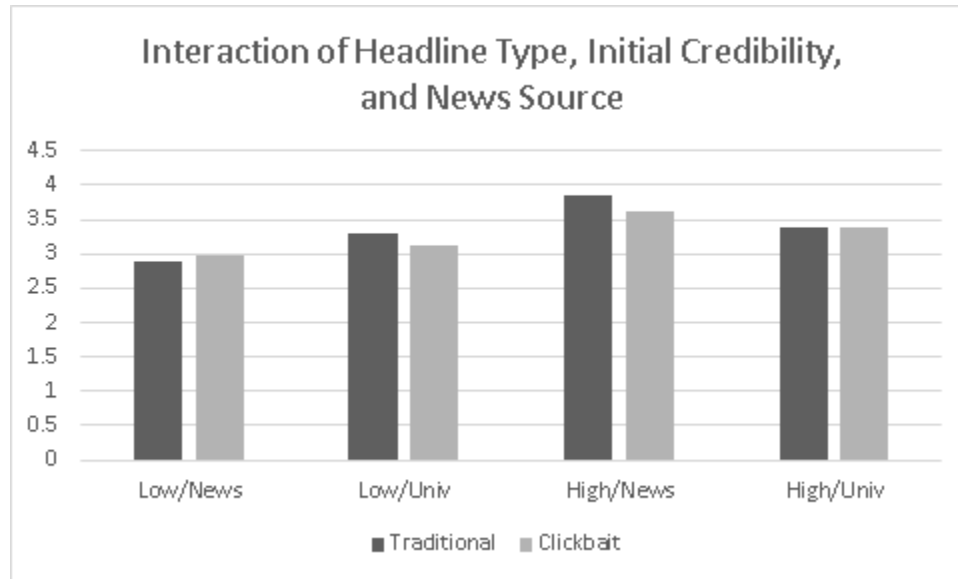

Fig. 6

Additional insignificant results include the interactions of headline type and science news interest ($F(1, 141) = .81, p > .05$), initial credibility scores and science news interest ($F(1, 141) = .61, p > .05$), source and science news interest ($F(1, 141) = .77, p > .05$), headline type and initial credibility rating ($F(1, 141) = 1.06, p > .05$), and headline type and source ($F(1, 141) = .05, p > .05$) with means scores being similar within each interaction.

Discussion

The purpose of this study was to determine how the use of clickbait headlines on Facebook to attract readers to view articles on new scientific research findings affects the perceived credibility of the story source. In line with the prediction (Hypothesis 1), the study results revealed that the presence of clickbait headlines does indeed result in lower perceived credibility of the sources responsible for the headlines. When readers are presented with science news stories on Facebook, the results of this study suggest that they will have more negative opinions of story sources that use clickbait headlines than sources that use traditional headlines. This is most evident in the finding that the same sources received significantly lower credibility ratings when they employed clickbait headlines as opposed to when they employed traditional headlines.

This finding supports that readers, when primed with a sensational headline, expect a sensational story to match the expectations created by the initial priming cue. When those readers are then linked to a subsequent story that is emotionally neutral and relatively unsensational compared to the initial clickbait headline, readers may feel tricked or used when their expectations are not met in reality. These negative emotions can then be directed toward the entity which caused these emotions: the source. Feelings of betrayal or trickery may lead to decreased perceptions of trustworthiness, believability, and accuracy; emotions that relate directly to the credibility level of the source. This suggests that news organizations and other science news sources interested in maintaining or improving their perceived credibility among their audiences may want to avoid the use of clickbait to attract readers on Facebook.

Further, as predicted by Hypothesis 2, sources which already suffered from low initial credibility scores saw a significantly greater negative effect on their credibility ratings after clickbait headline exposure as compared to initially highly credible sources. It appears clear that when presented with science news headlines on Facebook, readers not only are primed by the style of headline (clickbait or traditional) but also are primed by the source itself. Readers, being primed by their pre-conceived credibility rating for the source, are cued to have a negative view toward the source initially. This negative view can then be compounded by feelings of distrust initiated by the presence of a clickbait headline and the subsequent disparate story. While sources with low initial credibility were most negatively affected by the use of clickbait headlines, high credibility sources also experienced a negative credibility effect.

Interestingly, findings of this study showed that readers do not seem to distinguish between news and university sources of science news in terms of whether either source type was viewed as more credible than another. However, low credibility news sources experience a significantly lower credibility rating than low credibility university sources. Concurrently, high credibility news sources experienced significantly higher credibility ratings than high credibility university sources. It appears that readers seem to have a stronger emotional reaction to news sources, either positively or negatively, based on their initial credibility perceptions of each source. On the other hand, readers appear to have a more neutral stance toward university sources, regardless of their initial credibility perceptions. Regardless of these differing emotionality perceptions toward source type, these results suggest that both news and university sources should take precautions when considering the use of clickbait headlines.

The most interesting result of this study was in regards to Research Question 2, which asked if participants' level of science news interest would have an effect on credibility ratings of science news stories with sensational headlines. Results of this interaction were significant, with participants who reported a low level of interest in science news seemed more negatively affected by sensational headlines than participants with a high level of interest in science news.

This result most effectively proves the primary hypothesis of this thesis: that clickbait headlines will negatively affect the credibility of science news sources. Participants who reported a lower level of interest in science news may have felt especially fooled or tricked by sensational clickbait headlines because their pre-existing interest for the subject matter already was low. Being exposed to clickbait headlines appeared to artificially inflate these participants' expectations for stories they may otherwise have not clicked on in the first place. The resulting negative emotional reaction due to the disparate nature of the headline and corresponding story may be the cause associated with the decreased credibility scores for those sources.

On the other hand, participants who reported a higher level of science news interest still expressed displeasure with the use of clickbait through lower credibility ratings than when they were presented with the same stories with traditional headlines. However, their credibility ratings for clickbait-using sources may have been higher than the other group of participants due to their pre-existing general interest in those types of stories. While high-science news interest participants were still upset by the use of clickbait, the resulting emotional reaction may have been muted since they still found some level of interest toward the story they were linked to. This pre-existing interest may

have lessened the perceived disparity between the clickbait headline and the story, thus lessening the overall negative emotional impact.

Despite the negative effects clickbait headlines can have on source credibility, it does not negate the fact that their use does increase the amount of story clicks and readers they garner. Ironically, news sources that depend on clickbait tactics the most, such as BuzzFeed, Upworthy, and other online content aggregators, are the ones who suffer the most from their negative effects. However, it could be argued that those sources care much more about the number of readers, and subsequent income, they garner by using clickbait headlines. Alternatively, higher credibility sources such as the *New York Times, Wall Street Journal* and Harvard University, may value their credibility more than any short-term increase in online exposure. Ultimately, news and university sources must decide for themselves what they value most: their credibility among their constituents, or an increased number of readers, regardless of its overall effect on perceived credibility.

Limitations and Areas of Future Study

The nature of the participant sample limited this study. By using a sample of college students, 92% of whom were between 18-21 years of age and 71% female, the scope of this study can only extend to that demographic. Participants of this study also identified as digitally native, with 88 percent reporting to use the Internet for news "often" or "all the time." Future research may want to expand this sample to include older participants who are not as digitally native as the group surveyed in this study.

A second limitation stemmed from the research design. While steps were taken to create as realistic a Facebook viewing experience as possible, the nature of the survey software prevented a fully immersive Facebook browsing experience. Future research

may want to devote resources to designing an experiment that allows participants to enter fully into a natural Facebook browsing environment.

A suggested further course of study would be to examine the mechanisms by which readers experience the negative emotions when exposed to clickbait headlines that do not live up to their primed expectations. Also, interesting results may be revealed upon further investigation as to why readers' emotionality toward news and university sources differ.

Conclusion

The results of this study strongly suggest that the use of clickbait headlines to attract readers to view science news has a negative impact on the credibility perceptions of the source of the science news. Further, sources with pre-existing low credibility are hurt even more by the effect of clickbait use. Both news and university sources appear to be similarly affected by this phenomenon, so any source of science news should take precautions when considering the use of clickbait headlines. Ultimately, news and university sources must decide for themselves what they value most: their credibility among their constituents, or an increased number of readers, regardless of its overall effect on perceived credibility. Further examination of how this emotional mechanism within readers is carried out once they have been exposed to clickbait headlines may lead to additional insight into how and why people search for news on Facebook.

References

Abdulla, R., Garrison, B., Salwen, M., Driscoll, P., & Casey, D. (2002). The credibility of newspaper, television news, and online news. A paper presented to the Mass Communication and Society Division, Association for Education in Journalism and Mass Communication, Annual Convention, Miami Beach, Fla., August 9, 2002.

Abebe, N. (2014). Watching Team Upworthy Work Is Enough to Make You a Cynic. Or Lose Your Cynicism. Or Both. Or Neither. Retrieved February 25, 2015, from http://nymag.com/daily/intelligencer/2014/03/upworthy-team-explains-its-success.html

Althaus, S., Edy, J., & Phalen, P. (2001). Using substitutes for full-text news stories in content analysis: which text is best? *American Journal of Political Science*, *45*, 707–723.

Andrew, B. (2007). Media-generated Shortcuts: Do Newspaper Headlines Present Another Roadblock for Low-information Rationality? *The Harvard International Journal of Press/Politics*, *12*, 24–43.

Andsager, J. (1990). Perceptions of credibility of male and female syndicated political columnists. *Journalism Quarterly*, *67*, 485–491.

Anderson, C. (1997). Effects of violent movies and trait irritability on hostile feelings and aggressive thoughts. *Aggressive Behavior. 23*, 161–178.

Bargh, J. & Pietromonaco, P. (1982). Automatic information processing and social perception: The influence of trait information presented outside of conscious awareness and impression formation. *Journal of Personality and Social Psychology, 43*(3), 437-449.

Berkowitz, L. (1984). Some effects of thoughts on anti- and prosocial influences of media events: A cognitive-neoassociation analysis. *Psychological Bulletin, 95*, 410-427.

Berlo, D., Lemert, J., & Mertz, R. (1970). Dimensions for evaluating the acceptability of message sources. *Public Opinion Quarterly*, *33*, 563–576.

Bock, D., & Saine, T. (1975). The impact of source credibility, attitude valence, and task sensitization on trait errors in speech evaluation. *Speech Monographs, 37*, 342-358.

Borah, P. (2014). The Hyperlinked World: A Look at How the Interactions of News Frames and Hyperlinks Influence News Credibility and Willingness to Seek Information. *Journal of Computer-Mediated Communication, 19*(2), 576-590.

Boyd, D., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), article 11. Retrieved March 4, 2015 from http://www.danah.org/papers/JCMCIntro.pdf

Burgoon, J. (1976). The ideal source: A reexamination of source credibility measurement. *Central States Speech Journal, 2*, 200–206.

Carver, R. (2014). "Public communication from research institutes: is it science communication or public relations?" *Journal of Science Communication, 13* (3).

Catalog of Federal Domestic Assistance. (2015). Writing Grants. Retrieved March 4, 2015 from https://www.cfda.gov/?static=grants&s=generalinfo&mode=list&tabmode=list

Chen, Y., Conroy, N., & Rubin, V. (2015a). News in an online world: the need for an "automatic crap detector." *ASIST '15 Proceedings of the 78th ASIS&T Annual Meeting: Information Science with Impact: Research in and for the Community.* (81).

Chen, Y., Conroy, N., & Rubin, V. (2015b). Misleading Online Content: Recognizing Clickbait as "False News." *WMDD '15 Proceedings of the 2015 ACM on Workshop on Multimodal Deception Detection.* 15-19.

Clickbait. [Def. 1]. (n.d.). *Oxford Dictionaries*, Retrieved Feb. 2, 2015, from http://www.oxforddictionaries.com/us/definition/american_english/clickbait

Dholakia, R., & Sternthal, B. (1977) Highly credible sources persuasive facilitators or persuasive liabilities. *Journal of Consumer research, 3*, 223-232.

Dor, D. (2003). On newspaper headlines as relevance optimizers. *Journal of Pragmatics, 35*, 695-721.

eBiz MBA Guide. (2016). Top 15 Most Popular Networking Sites | January 2016. Retrieved January 30, 2016 from http://www.ebizmba.com/articles/social-networking-websites.

El-Arini, K., & Tang, J. (2014, August 25). News Feed FYI: Click-baiting. Retrieved Feb. 25, 2015, from http://newsroom.fb.com/news/2014/08/news-feed-fyi-click-baiting/

Elliss, H. (2014). The dirty secrets of clickbait. This post will blow your mind! Retrieved Feb. 25, 2015, from https://econsultancy.com/blog/64399-the-dirty-secrets-of-clickbait-this-post-will-blow-your-mind/

Fahmy, S., & Wanta, W. (2005). Testing Priming Effects: Differences Between Print and Broadcast Messages. *Studies in Media & Information Literacy Education, 5*(2), 1-12.

Flanagin, A. J., & Metzger, M. J. (2000). Perception of internet information credibility. *Journal of Mass Communication Quarterly*, *77*(3), 515-540.

Fogg, B. (2003a) *Persuasive Technology: Using Computers to Change What We Think and Do*. San Francisco: Morgan Kaufmann.

Fogg, B. et al. (2003). How Do Users Evaluate the Credibility of Web Sites? A Study with Over 2,500 Participants. *Proceedings of the 2003 Conference on Designing for User Experiences* (pp. 1-15). New York: ACM.

Gaziano, C. & McGrath, K. (1986). Measuring the Concept of Credibility. *Journalism Quarterly, 63*, 451-462.

Goss, B., & Williams, L. (1973). The Effects of Equivocation on Perceived Source Credibility. *Central States Speech Journal, 24*(3), 162-167.

Hartz, J., & Chappell, R. (1997). Worlds apart: How the distance between science and journalism threatens America's future. Nashville, TN: First Amendment Center. Retrieved Feb. 26, 2015 from http://www.firstamendmentcenter.org/madison/wp-content/uploads/2011/03/worldsapart.pdf

Hensinger, E., Flaounas, I., & Cristianini, N. (2013). Modelling and Explaining Online News Preferences. *Advances in Intelligent Systems and Computing, 204*, 65-77.

Higgins, E., & King, G. (1981). Accessibility of Social Constructs: Information Processing Consequences of Individual and Contextual Variability." In Cantor, N. & Kihlstrom, J. (Eds.), *Personality, Cognition, and Social Interaction* (pp. 69-122). Hillsdale, NJ: Erlbaum.

Hilligoss, B., & Rieh, S. (2008) Developing a unifying framework of credibility assessment: Construct, heuristics, and interaction in context. *Information Processing & Management, 44*(4) 1467-1484.

Hovland, C., & Weiss, W. (1952). The Influence of Source Credibility on Communication Effectiveness. *Public Opinion Quarterly*, *15*(4), 635-650.

Hovland, C. Janis, I., & Kelley, H. (1953). *Communication and Persuasion*. New Haven: Yale University Press.

Ifantidou, E. (2008). Newspapers headlines and relevance: Ad hoc concepts in ad hoc contexts. *Journal of Pragmatics, 41*, 699-720.

Josephson, Wendy. (1987). Television violence and children's aggression: Testing the priming, social script, and disinhibition predictions. *Journal of Personality and Social Psychology, 53*(5), 882-890.

Kiousis, S. (2001). Public Trust or Mistrust? Perceptions of Media Credibility in the Information Age. *Mass Communication & Society, 4*(4), 381-403.

Kiousis, S., & Dimitrova, D. (2006). Differential impact of Web site content: Exploring the influence of source (public relations versus news), modality, and participation on college students' perceptions. *Public Relations Review, 32*(2), 177-179.

Krosnick, J., & Kinder, D. (1990). Altering the Foundations of Support for the President Through Priming. *The American Political Science Review, 84*(2), 497-512.

Lagerwerf, L., Timmerman, C., & Bosschaert, A. (2015) Incongruity in News Headings. *Journalism Practice.* Retrieved online Feb. 6, 2016 from http://www.tandfonline.com/doi/abs/10.1080/17512786.2015.1063446

Mackay, J. & Bailey, E. (2014). Sacrificing Credibility for Sleaze: Mainstream Media's Use of Tabloidization. In Lupiccini, R. (Ed.), *Evolving Issues Surrounding Technoethics and Society in the Digital Age* (pp. 97-112). Hershey, PA: Information Science Reference.

Maienschein, J. et al. (1999). Commentary: To the future—Arguments for scientific literacy. *Science Communication. 21*, 5-87.

Markham, D. (1968). The dimensions of source credibility of television newscasters. *Journal of Communication*, *18*, 57–64.

Metzger, M., Flanagin, A., Eyal, K., Lemus, D., & McCann, R. (2003). Credibility for the 21st century: Integrating perspectives on source, message, and media credibility in the contemporary media environment (pp. 293–335). P.J. Kalbfleisch (Ed.) *Communication yearbook*, Vol. 27. Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Meyer, P. (1988). Defining and Measuring Credibility of Newspapers: Developing an Index. *Journalism & Mass Communication Quarterly, 65*(3), 567-574.

McCroskey, J., Holdridge, W., & Toomb, J. (1974). An instrument for measuring the source credibility of basic speech communication instructors. *Speech Teacher*, *23*(1), 26–33.

Mitchell, A., Gottfried, J., Kiley, J., & Matsa, K.E. (2014) Political Polarization & Media Habits. Pew Research Center for Journalism & Media. Retrieved April 3, 2015 from http://www.journalism.org/2014/10/21/about-the-study-2/

Molek-Kozakowska, K. (2013). Towards a pragma-linguistic framework for the study of sensationalism in news headlines. *Discourse & Communication, 7*(2), 173-197.

Newhagen, J., & Nass, C. (1989). Differential criteria for evaluating credibility of newspapers and TV news. *Journalism Quarterly*, *65*, 567–574, 588.

Nielsen, L., Jorgensen, N., Jantzen, K., & Bjerg, S. (2005). Credibility of Science Communication: An Exploratory Study of Press Releases in Anatomy. Unpublished report, Roskilde University, Basic Studies in Natural Science House 13.2, Group 12, 3rd Semester.

Osatuyi, B. (2013). Information sharing on social media sites. *Computers in Human Behavior, 29*(6), 2622-2631.

Owens, E., & Turitzin, C. (2014). News Feed FYI: Cleaning Up News Feed Spam. Retrieved Feb. 25, 2015, from http://newsroom.fb.com/news/2014/04/news-feed-fyi-cleaning-up-news-feed-spam/

Paisley, W. (1998). Scientific literacy and the competition for public attention and understanding. *Science Communication*, *20*, 70-80.

Pan, Z., & Kosicki, G.M. (1997). Priming and Media Impact on the Evaluations of the President's Performance. *Communications Research, 24*(1) 3-30.

Pew Research Center for The People and the Press. (2010). Ideological news sources: Who watches and why: Americans spending more time following the news. Retrieved March 4, 2015 from http://www.people-press.org/files/legacy-pdf/652.pdf

Pew Research Internet Project. (2014). Social Networking Fact Sheet. Retrieved Jan. 7, 2015 from http://www.pewinternet.org/fact-sheets/social-networking-fact-sheet/

Power, J. G., Murphy, S., & Coover, G. (1996). Priming Prejudice How Stereotypes and Counter-Stereotypes Influence Attribution of Responsibility and Credibility among Ingroups and Outgroups. *Human Communication Research, 23*(1) 36-58.

Priest, S. (2010) Coming of age in the academy? The status of our emerging field. *Journal of Communications, 9*(03) C06.

Quantcast Direct Audience Measurement Report for Buzzfeed.com. Retrieved Feb. 25, 2015 from https://www.quantcast.com/buzzfeed.com?country=GLOBAL

Rieh, S., & Belkin, N. (1998). Understanding judgment information of information quality and cognitive authority in the World Wide Web. In Preson, C. (Ed.), *Proceedings of the 61st ASIS Annual Meeting* (pp. 279-289). Silver Spring, MD: American Society for Information Science.

Rieh, S., & Belkin, N. (2000). Interaction on the Web: Scholars' judgment of information quality and cognitive authority. In Kraft, D. (Ed.), *Proceedings of the 63rd ASIS Annual Meeting* (pp. *25–33*)*.* Silver Spring, MD*:* American Society for Information Science.

Rogers, C. (1986). The practitioner in the middle. *Scientists and journalists: reporting science as news*, edited by Friedman, S., Dunwoody, S., & Rogers, C., 42-54. New York: Free Press

Roskos-Ewoldsen, D., Roskos-Ewoldsen, B., & Dillman-Carpentier, F. (2002). Media Priming: A Synthesis. In Bryant, J., Zillman, D., & Oliver M. (Eds.), *Media Effects: Advances in Theory and Research*. Mawah, New Jersey: Lawrence Erlbaum, Associates.

Self, C. (1996). Credibility. Salwen, M., & Stacks. D. Eds.) *An Integrated Approach to Communication Theory and Research*, (pp. 421–441)*.* Mahwah, NJ: Lawrence Erlbaum Associates.

Severin, W. & Tankard, J. (2001). *Communication Theories: Origins, Methods, and Uses in the Mass Media.* New York: Longman Publications.

Shao, G. (2008). Understanding the appeal of user-generated media: A uses and gratification perspective. *Internet Research*, *19*(1), 07-25.

Shire, E. (2014, July 14). Saving Us From Ourselves: The Anti-Clickbait Movement. Retrieved Feb. 25, 2015, from http://www.thedailybeast.com/articles/2014/07/14/saving-us-from-ourselves-the-anti-clickbait-movement.html

Slater, M., & Rouner, D. (1996). How message evaluation and source attributes may influence credibility assessment and belief change. *Journalism Quarterly*, *73*, 974–991.

State Higher Education Finance FY 2013. (2014). State Higher Education Executive Officers Association. Retrieved Feb. 25, 2015. Retrieved from http://www.sheeo.org/sites/default/files/publications/SHEF_FY13_04292014.pdf

Sternthal, B., Dholakia, R., & Leavitt, C. (1978). The Persuasive Effect of Source Credibility: Tests of Cognitive Response. *Journal of Consumer Research, 4*, 252-260.

Syncapse Corp. (2010). The Value of a Facebook fan: An empirical review. Retrieved March 4, 2015 from http://www.brandchannel.com/images/papers/504_061810_wp_syncapse_facebook.pdf

Tannenbaum, P. (1953). "The Effect of Headlines on the Interpretation of News Stories." *Journalism Quarterly*, *30*, 189–197.

The America Creating Opportunities to Meaningfully Promote Excellence in technology, Education, and Science Reauthorization Act of 2010, 118 U.S.C. §§ 2879-4049 (2011).

The Grantmanship Center (2014). Getting the Grant 101. Retrieved March 4, 2015 from https://www.tgci.com/articles/getting-grant-101

Treise, D., Wasl-Childers, K., Weigold, M., & Friedman, M. (2003). Cultivating the science internet audience. *Science Communication, 24*(3), 309-332.

Treise, D., & Weigold, M. (2002). Advancing Science Communication: A Survey of Science Communicators. *Science Communication, 23*(3), 310-322.

Waters, R., Burnett, E., Lamm, A., & Lucas, J. (2009). Engaging stakeholders through social networking: How nonprofit organizations are using Facebook. *Public Relations Review*, *35*(2), 102-106.

Wathen, C., & Burkell, J. (2001). Believe it or not: Factors influencing credibility on the Web. *Journal of the Association for Information Science and Technology, 53*(2), 134-144.

Weigold, M. (2001). Communicating Science: A Review of the Literature. *Science Communication, 23* (2), 164-193.

Wegener, D., Petty, R. & Dunn, M. (1998). The metacognition of bias correction: Naïve theories of bias and the flexible correction model. In Yzerbyt, V., Lories, G. & Dardenne, B. (Eds.) *Metacognition: Cognitive and social dimensions* (pp. 202-227). Mahwah, NJ: Erlbaum.

Westerman, D., Spence, P., & Van Der Heide, B. (2013). Social Media as Information Source: Recency of Updates and Credibility of Information. *Journal of Computer-Mediated Communication, 19*(2), 171-183.

Whitehead, J. (1968). Factors of source credibility. *Quarterly Journal of Speech*, *54*, 59–63.

Whitney, D. (1986). The media and the people: Surroundings from two communities. New York: Columbia University, Gannett Center for Media Studies.

Wilson, P. (1983). *Second-hand Knowledge: An Inquiry into Cognitive Authority*. Westport, CT: Greenwood Press.

Wilson, E*., &* Sherrell, D. (1993)*.* Source effects in communication and persuasion research: A meta-analysis of effect size*. Journal of the Academy of Marketing Science, 21,* 101–112*.*

Wright, D., & Hinson, M. (2010). How new communications media are being used in public relations: A longitudinal analysis. *Public Relations Journal*, *4*(3), 1–27.

Wyer, R. Jr., & Bodenhausen, G. (1985). Event memory: The effects of processing objectives and time delay on memory for social action sequences. *Journal of Personality and Social Psychology*, *49*, 301-316.

Yadamsuren, B., & Erdelez, S. (2011). Online news reading behavior: From being soaked in media to stumbling upon news. Presented at the American Society for Information Science & Technology Annual Meeting 2011, October 9-13, 2011, New Orleans, LA.

Yamaner, M. (2013). Federal Funding for Research Drops by 9% in FY 2011. National Science Foundation National Center for Science and Engineering Statistics Info Brief. Retrieved Feb. 25, 2015 from http://www.nsf.gov/statistics/infbrief/nsf13336/nsf13336.pdf

Yi, Y. (1990). Cognitive and Affective Priming Effects of the Context for Print Advertisements. *Journal of Advertising*, *19*(2), 40-48.

Yi, Y. (1991). The Influence of Contextual Priming on Advertising Effects. *Advances in Consumer Research*, *18*, 417-425.

Yoo, J. (2013). Real significance of online breaking news: Examining the credibility of online breaking news. Unpublished thesis, The University of Texas, Austin. Retrieved March 3, 2015 from http://repositories.lib.utexas.edu/handle/2152/23571

Zhao, X. et al. (2011) A Measure of Perceived Argument Strength: Reliability and Validity. *Communications Methods and Measures,* 5(1) 48-75.

Appendix

Examples of Facebook Headlines

1. Low credibility news with a traditional headline.

2. Low credibility news with a clickbait headline.

3. High credibility news with a traditional headline.

4. High credibility news with a clickbait headline.

5. Low credibility university with a traditional headline.

6. Low credibility university with a clickbait headline.

7. High credibility university with a traditional headline.

8. High credibility university with a clickbait headline.