

**Erosion Of Credibility: A Mixed Methods Evaluation of Twitter News Headlines from The
New York Times, Washington Post, Wall Street Journal, Los Angeles Times, And USA
Today**

by

Melinda M. Skrbini

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

School of Communication and the Arts

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ABSTRACT

To entice and commodify social media news consumers, contemporary news organizations have increasingly relied on data analytics to boost audience engagement. Clicks, likes, and shares are the metrics that now guide the editorial process and shape decisions about content and coverage. As such, news headlines are regularly manipulated to attract the attention of those who quickly scroll through social media networks on computers and smartphones. However, few studies have examined the typologies of news content most likely to be manipulated in social media news headlines or the impact of news headline manipulation on news source credibility. For this research, source credibility theory has been updated for a practical application of today's social media news landscape and used as a lens to examine the phenomenon, its impact on audience engagement, and association with traditional standards of journalism and credibility. A mixed methods content analysis was conducted of news headlines published on Twitter compared to headlines and content published on the websites of five traditional newspapers: the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today. The results indicated that the typologies of news most likely to be manipulated for Twitter publication (opinion, politics, health/medical), were also the least credible. Conversely, typologies of news that were least likely to be manipulated for Twitter publication (international, consumer, disaster), were rated the most credible.

Keywords: news headlines, headline manipulation, misleading headlines, data analytics, journalistic values, social media headlines, audience engagement, news credibility, source credibility theory, Twitter analytics, Twitter headlines

Copyright Page

Dedication

I dedicate this work to my God, my family, all those who have contributed to my education, and to all journalists who strive to uphold the highest standards of credibility in the face of shifting media platforms and the proliferation of social media.

Acknowledgements

I would like to acknowledge the gracious assistance and encouragement of my family, my dissertation committee, and my committee chair, Dr. Carol Hepburn.

Table of Contents

ABSTRACT	3
Dedication	5
Acknowledgements	6
List of Tables	12
List of Figures	13
CHAPTER ONE – INTRODUCTION	14
Overview	14
Background of the Problem	14
Statement of the Problem	17
Purpose of the Study	17
Overview of Research Questions	19
Significance of the Study	20
Selection of Newspapers	21
News in Print, Digital, and Social Media Formats	22
Evolution of the News Headline	23
Assumptions, Limitations, and Delimitations	26
Definition of Terms	27
Summary	28
CHAPTER TWO – LITERATURE REVIEW	30
Overview	30
Situation to Communication Theory	30
Cybernetic Tradition	31

Theoretical Framework	34
Source Credibility Theory.....	35
Background of Source Credibility Theory	36
Exploring Credibility by its Components or Dimensions	36
Social Media and News Credibility.....	40
Modifying Source Credibility Theory for Modern Application.....	41
The 4 Cs of Credibility: Competence, Character, Care, and Commonality.....	42
Components of Credibility.....	44
Related Literature	45
News Headlines	46
News Coverage Shifts to Social Media	47
Social Media Consumption	48
Social Media Engagement	49
Social Media Manipulation	49
Social Media News Audiences	51
Digital Paywalls	51
Social Media Creates Critical Challenges for News	52
Social Media as a Research Site	53
Twitter as a News Platform	54
Summary	56
CHAPTER THREE – METHODOLOGY	57
Overview	57
Purpose of the Research	58

Rationale for Mixed Methods Research Design.....	59
Research Questions	61
Qualitative Phase	64
Research Design	65
Researcher as the Instrument	66
Setting	66
Procedures	67
Typologies	67
Headline to Headline Comparison	69
Headline to Article Comparison	69
Assessment of Credibility	70
Sampling	71
Sample Size	73
Data Collection	75
Integration of Qualitative Data for Quantitative Phase	76
Quantitative Phase	76
Research Design	77
Instrumentation	78
Procedures	79
Data Analysis	80
Summary	81
CHAPTER FOUR – RESULTS	82
Overview	82

Research Questions	82
Qualitative Findings	84
Research Question 1	84
Research Question 2	86
Research Question 4	87
Research Question 6	88
Coding	90
Theme Development	93
Quantitative Results	95
Reliability	96
Results	99
Research Question 3	99
Research Question 5	101
Research Question 7	103
Research Question 8	106
Research Question 9	108
Mixed Methods Results Integration	109
Summary	110
CHAPTER FIVE – CONCLUSION	111
Overview	111
Review of the Study	111
Discussion	113
Discussion of Integrated Results by Research Question	114

Implications	121
Theoretical Implications	121
Practical Implications	122
Limitations	124
Recommendations for Future Research	126
Summary	126
REFERENCES	128
APPENDIX A. Data Collection Chart	155
APPENDIX B. Coding Instructions for “Traditional Newspapers’ Twitter Headlines and Credibility”	156
APPENDIX C. Examples of Typologies	162
APPENDIX D. Examples of Tweets Coded for Multiple Typologies	169
APPENDIX E. Examples of Tweets with Matching Headlines	172
APPENDIX F. Examples of Tweets with Headlines that Do Not Match	173
APPENDIX G. Examples of Headings that Do Not Match the Content of Article	175
APPENDIX H. Examples of Twitter Headlines Demonstrating a Lack of Competence	177
APPENDIX I. Examples of Twitter Headlines Demonstrating Lack of Character	179
APPENDIX J. Examples of Twitter Headlines Demonstrating Care	180
APPENDIX K. Examples of Twitter Headlines Demonstrating Lack of Commonality	182

List of Tables

Table 1. Twitter Headlines by Typology

Table 2. Headline Credibility by Component

Table 3. Percentage of Agreement Between Coders by Typology

Table 4. Percentage of Agreement Between Coders in Headline-to-Headline Comparisons

Table 5. Percentage of Agreement Between Coders by Credibility

Table 6. Consistency of Twitter Headlines Compared to Online/Website Headlines, Ranked by
Most to Least Consistent

Table 7. Consistency of Twitter Headlines Compared to Full Content of Online/Website Articles,
Ranked by Most to Least Consistent

Table 8. Credibility by Typology

Table 9. Typology Credibility by Rank, Most to Least Credible

Table 10. Credibility Score Comparison of Modified to Unmodified Headlines

Table 11. Credibility Score of Headlines Consistent in Representation of Website Articles
Compared to Headlines Inconsistent in Representation of Website Articles

List of Figures

Figure 1. Four Components of Credibility

Figure 2. Headline-to-Headline Comparison

Figure 3. Headline-to-Article Comparison

Figure 4. Headline by Percentage of Credibility Component Demonstrated

CHAPTER ONE – INTRODUCTION

Overview

In recent years, news audiences have expressed a growing distrust of news sources, including traditional newspapers. This phenomenon is occurring as news organizations increasingly rely on social media networks to attract readers and generate advertising revenue through user engagements and exposure (Ng & Zhao, 2020; Blanchett Nehili, 2018; Lee et al., 2014; Lee & Tandoc, 2017). As a result, social media data metrics now drive the editorial process, including decisions about content and presentation. Clickbait techniques, such as headline manipulation, have become common practice among journalists. However, there is a lack of research into social media news headlines and their potential impact on credibility. This mixed methods study filled a gap in the research by examining Twitter news headlines published by five legacy newspapers: the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today. This chapter introduces the topic of Twitter news headlines that are designed to generate user engagement and includes an overview of the study by providing relevant background information, the statement of the problem, its significance, and the research purpose. Research questions are posed, and definitions of relevant terms are also presented.

Background of the Problem

Over the last 30 years, media critics and scholars have pointed to changes within editorial practice and perceived violations of traditional news values and ethics. Mutz and Reeves (2005) found that while uncivil rhetoric, disagreement, and adversarial political coverage may intrigue audiences and boost ratings, it also erodes political trust. Other studies have indicated that the ongoing trend of news coverage has focused on contentious debate and controversial topics ranging from politics (Eberl et al., 2017) to science (Nisbet, 2009) and social movements

(Amenta et al., 2017). This phenomenon has created a culture of media hostility (Kim, 2019) and common claims of bias (Hamborg et al., 2019; Anderson et al., 2014). This trend escalated with the proliferation of social media and has drawn the attention of scholars who have studied news media perceptions over time. Gronke and Cooke (2007) examined hostile attitudes toward the media and found that public confidence in the press has suffered a sharp decline since the early 1970s following the Watergate scandal, which was famously covered by reporters with *The Washington Post*.

Despite changes in public perceptions and media platforms, news organizations have continued to place a high value on credibility. Chan-Olmsted and Cha (2008) found that while television news networks were still promoting an image brand of competence, timeliness, and dynamism, an increased number of audiences reported tuning in to broadcast news more for entertainment than information. They posited that based on preferences and uses, news consumption in America had already shifted from television to the Internet as a primary source of information. This shift is significant because it suggests that the Internet, and especially social media, ushered in a new era of data analytics, which now appears to drive news coverage, often at the risk of forsaking traditional news values and practices that were considered key elements of credibility.

Traditional values and ethics of journalism are well established in the literature and in practice. Urban and Schweiger (2014) conducted a thorough review of the literature to identify criteria that shape the foundation and standards of quality journalism. They found six common themes: diversity of viewpoints, impartiality, relevance, accuracy, comprehensibility, and compliance with ethical standards. Diversity represents the need for journalistic coverage to include a variety of angles and perspectives. Journalists are also expected to be objective, fair,

and unbiased. They should cover the news accurately. Coverage should include events and issues that are important to society and be presented in a manner that is engaging and easy to understand. Finally, ethical standards require journalists to conduct themselves with respect and tolerance toward the public.

While the concept of credibility was not directly included in Urban and Schweiger's (2014) list, it is commonly understood to be the capital of traditional news organizations, including mainstream, legacy newspapers. Credibility is a term that frequently appears in the code of ethics for journalism organizations. As traditional news sources have faced increased competition for readers and viewers, mainly due to the proliferation of cable news, internet, and social media, they have largely maintained that trustworthiness, dynamism, and sincerity are critical to their brands (Kim et al., 2010). These brand personality traits directly correlate to the components of source credibility theory (McCroskey & Teven, 1999; Berlo et al., 1969; Hovland et al., 1953), indicating that news media still place a high value on perceptions of credibility (Nisbet, 2009).

Traditional values and practices of journalism are intended to uphold ethical standards. The normative functions of journalism include holding leaders accountable for their actions, serving communities by providing valuable and essential information, rigorously verifying the accuracy of information, and seeking and presenting a variety of perspectives, voices, and ideas (McChesney, 2013). As such, journalists are bound by a duty to serve the communities they cover. Yet the profit-based business model of modern journalism challenges traditional values. Though journalists value their normative functions, qualitative studies that included in-depth interviews with newspaper journalists found that many fear normative failure, as the current media climate, with the proliferation of social media, prevents them from executing these

functions (Siegelbaum & Thomas, 2016). This conflict must be closely examined if news editors and managers are to better understand whether modern practices meet expectations of traditional news values that promote credibility.

Statement of the Problem

The problem is that public trust in news media is eroding as audiences perceive news sources as inaccurate, misleading, or biased (Tandoc et al., 2021; Raymond & Taylor, 2021; Tandoc, 2019; Waddell, 2018). A 2017 Gallup/Knight survey found that fewer Americans believe news media adequately separate fact from opinion: 32% in 2017, which was down from 58% in 1984 (Jones & Ritter, 2018). The same survey revealed that 45% of respondents saw “a great deal” of political bias in the news. Perhaps even more alarming is that a 2018 Monmouth University poll found that 77% of respondents believed the news media reported fake news at least some of the time, and 42% believed that fake news was intended to further a political agenda (Monmouth University Polling Institute, 2018).

Despite traditional journalistic values have intended to hold journalists to high ethical standards (Thomas, 2019; Urban & Schweiger, 2014; Gaziano & McGrath, 1986), research has shown that journalists frequently manipulate news headlines published on social media to generate higher levels of audience engagement (Blanchett Neheli, 2018; Tandoc, 2015). Moreover, data metrics that measure engagements, such as clicks, comments, likes, and shares, now drive the editorial process (Acar & Polonsky, 2007). What has remained unclear is how these practices, often referred to as “clickbait” (Lee & Tandoc, 2017), support traditional news values and components of credibility.

Purpose of the Study

The purpose of this study was to examine social media news headlines for typologies of news that are most frequently manipulated, and assess the impact of headline manipulation on credibility. Many researchers have studied social media presentations of news, but there has been a lack of studies that have specifically examined news headlines as a critical component of news or the effects of modern practices on credibility (Molyneaux & Coddington, 2020; Costera Meijer & Groot Kormelink, 2015). This current study used a mixed methods approach to analyze news headlines posted to the Twitter accounts for five traditional, legacy newspapers that serve a broad, national readership: the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today. The findings have significant implications for journalists and news editors tasked with the responsibility of luring social media news consumers, boosting audience engagement, and upholding traditional news values. This study also contributes to the literature by providing key insights into the credibility of modern social media news headlines.

This study took into consideration the well-established principles of journalism, and the potentially contradictory modern practice of headline manipulation (i.e. clickbait). It is critical that news editors, journalists, and audiences consider whether they are contributing to the phenomenon of credibility erosion through their efforts to boost short-term revenue gains. This study examined the Twitter profiles of the five news organizations over a duration of 10 non-consecutive days over a period of ten weeks in 2022. The top 25% of Twitter headlines from each news source (639 total headlines) that generated the highest level of audience engagement, based on a sum of likes, shares/retweets, and comments, were carefully considered for further analysis.

This mixed methods study utilized an exploratory sequential design, consisting of two phases of analysis. The first phase of research included a qualitative content analysis of Twitter

news headlines. Coders were asked to categorize Twitter headlines by topics to identify what typologies of news coverage generated the highest levels of user engagement. Myself and another coder assessed whether the Twitter news headlines were similar or dissimilar to the headlines published on the newspapers' websites, and whether the Twitter headlines objectively portrayed the content and context of the full website article. Coders were then asked to explore the relatedness of Twitter headlines for the four key components of credibility: competence, character, care, and community. The second phase of research consisted of a quantitative data analysis of the coders' assessments to identify patterns and relationships between typologies of Twitter news headlines, consistency of Twitter headlines to website headlines and content, and consistency with key components of source credibility. The results provided key insights and should have significant implications for journalists and news editors tasked with the responsibility of luring social media news consumers and boosting audience engagement, while also maintaining credibility.

Overview of Research Questions

A total of nine research questions guided the examination and analysis of this complex issue of Twitter news headline credibility. The questions can be grouped together by phases of analysis. The first question aimed to examine what typologies of news coverage generated the highest levels of Twitter user engagement based on likes, comments, and retweets. The next two questions aimed to examine whether the Twitter news headlines were consistent with the newspapers' online articles or if they had been modified, and what typologies were most consistent. Qualitative research questions were also developed to assess whether Twitter news headlines presented accurate representations of the full content and context of the website articles. Qualitative analysis was also used as a method to answer another research question,

which aimed to determine the overall credibility of Twitter news headlines based on four key components of credibility. Data from the first phase of analysis was then used to answer additional questions based on statistical quantitative analysis. These questions aimed to assess whether Twitter headlines that were most consistent with the headlines and articles published on the newspapers' websites were more credible than those that had been modified. Using synthesized quantitative data, based on qualitative analysis, made it possible to assess Twitter news headline credibility and identify whether typologies of news or modifications had any bearing on credibility. The nine formal research questions are introduced and discussed further in Chapter Three.

Significance of the Study

Social media first surpassed newspapers as a primary source of news in the United States in 2018 (Shearer, 2018). Today, more than 80% of Americans get at least some of their news from digital platforms and about 52% prefer digital media as a news source over print newspapers (Shearer, 2021). This transition from traditional news sources to the Internet and social media has created significant disruptions for legacy, mainstream news organizations, including nationally distributed newspapers such as the New York Times, Washington Post, Wall Street Journal, USA Today, and LA Times. As a result of this shift in news consumption, news organizations have sought to increase revenues and attract new readers on social media networks, such as Facebook and Twitter. When social media users engage with a post by liking, sharing, or commenting on a headline, news organizations capitalize on that engagement.

To boost engagement, journalists and editors have modified some traditional practices. Controversy, political contention, entertainment and soft news, and presentation of opinion as news are some of the typologies that now dominate social media news headlines (Blanchett

Neheli, 2018). For example, Kalsnes and Larsson (2018) conducted a content analysis to determine what type of news content is most popular on Twitter based on distribution or sharing. They found that “softer” news topics are more frequently shared than “harder” news topics. They also found that sensational news and content about celebrities is more likely to be shared or go “viral,” leading to an increase in coverage of the celebrity and entertainment.

Headlines are also manipulated to include key words, often including inflammatory and prosocial language (Ng & Zhao, 2020; Tandoc, 2015). Headlines may also include images carefully selected to draw attention or they may present an unbalanced representation of information (Raymond & Taylor, 2021). These practices may pique interest among social media audiences, but likely come with a cost in terms of credibility. To ensure the preservation and integrity of the press, often considered a pillar of American freedom, it is imperative that news managers and editors consider the impact of modern practices on perceptions of credibility.

Selection of Newspapers

According to the Pew Research Center (2021), the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today are among the most recognizable and bestselling traditional newspapers in the United States. They are also consistently ranked as the most followed U.S. newspapers on Twitter (Journalism World, 2021; Cision Media Research, 2018). Therefore, these publications were selected for this mixed methods study based on their distribution and digital reach on Twitter. As of March 2022, the New York Times (@nytimes) has 52 million followers on Twitter. The Washington Post (@washingtonpost) has a Twitter following of 18.8 million. The Wall Street Journal (@WSJ) has approximately 19.5 million followers. The Los Angeles Times (@latimes) has 3.8 million. Lastly, USA Today (@USATODAY) has 4.6 million followers.

Each newspaper has implemented strategies over the past decade to increase its digital reach, thus attracting new followers on social media. For example, when Jeff Bezos took over the Washington Post, he increased the newspaper's digital staff and expanded its digital services, providing free access to content published on its website to anyone who subscribed to other publications under the same ownership (O'Sullivan et al., 2017). The Wall Street Journal has also sought ways to cross-promote its print and digital content. For example, the publisher began printing codes at the end of selected articles to give readers access to additional content, such as a video published online (O'Sullivan et al., 2017). The New York Times is considered one of the most trusted news outlets in the United States (Ji & Zhao, 2021). Moreover, legacy newspapers such as these remain influential in shaping public opinions on a wide range of social and political issues (Ji & Zhao, 2021). All five publications now publish on multiple social media platforms, including Twitter, Facebook, Snapchat, and TikTok.

News in Print, Digital, and Social Media Formats

Reading the daily newspaper was a longtime ritual for traditional news consumers accustomed to reading print newspapers during a morning bus commute or over a cup of coffee. For readers who still prefer their news in print, they tend to enjoy textual form, the routine regularity of a subscription, and the sentiment of nostalgia (Boczkowski et al., 2020). Although the decline in print newspaper readership began before 2000, the proliferation of the Internet and social media since then has led to a rapid decline in daily print newspaper circulation and survival rates (Cho et al., 2016). At this same time, more news consumers are turning to digital platforms, including newspaper websites, many of which are directed to the websites via social media. This trend of declining print readership and growing digital readership shows no signs of slowing. In the United States, weekday print circulation decreased by 19% and Sunday print

circulation decreased by 14% from 2019 to 2020, while digital circulation rose sharply, with weekday consumption up 27% and Sunday up 26% (Pew Research Center, 2021).

The transition from print to digital formats has reshaped the entire news media industry (Nelson, 2018), from advertising to the growing consumption of national news over local news coverage (Cho et al., 2016). From 2019 to 2020, advertising revenue fell by 29% and newspaper newsroom staffs shrunk by about 12% (Pew Research Center, 2021). With less resources, many publishers have opted to cease print publications and focus solely on digital delivery of content. However, while the cost savings may be substantial, publications that make this transition experience reduced prominence and attention from the publics they serve (Thurman & Fletcher, 2018). One way to counteract that impact is to boost user engagement on social media. As media technology has evolved, traditional print newspapers have attempted to adapt. Thus, the presence of print endures in this modern media landscape. However, the newspaper is now conceptualized no longer as an object but as an institution from which news content flows in a multidimensional model of print, digital websites, and social media (O'Sullivan et al., 2017).

Evolution of the News Headline

News headlines have served as a valuable tool for news readers and publishers since the early days of colonial newspapers in America. Traditionally, the purpose of a news headline has been to provide newspaper readers with a summary of the content of an article (Van Dijk, 1988). Over time, news headlines also took on the function of attracting the attention of potential news readers with the aim of selling more newspapers (Van Dijk, 1988). Even in the colonial era, newspaper publishers realized that sensationalistic content helped to drive sales. As a result, less scrupulous publications printed alternative facts, and sometimes, false accounts, which were featured within the headlines (Creech & Roessner, 2019; Pasley, 2002). During the 1800s, less

expensive publications known as the “penny press” further relied on sensational headlines that featured scandals, hoaxes, and exaggerations to increase sales and profits (Creech & Roessner, 2019; Young, 2017; Copeland, 2003).

Creech and Roessner (2019) examined the so-called era of Yellow Journalism (1891-1919), reviewing 98 news reports, columns, letters to the editor, and advertisements published in 17 mid-sized U.S. newspapers that were widely circulated. They found that fake news headlines had become a matter of public concern, prompting the editor of the New York Times, Adolph Ochs, to address the matter and publicly pledge to deliver more dignified journalism. Other journalists also recognized the need to restore faith in their profession (Creech & Roessner, 2019). In more modern times, tabloid newspapers and cable broadcast news channels, which came to rise in the 1980s, have further raised concerns about manipulated news coverage and headlines (Gaziano, 1988). Today’s attention-grabbing techniques (i.e. clickbait) are designed to generate interest and profits for news outlets, leading some critics to question their integrity and usefulness (Janét et al., 2020).

In the current era of social media and engagement metrics, newspapers have found a way to commodify news consumers through digital advertising and exposure. Users scroll through news headlines posted by the news outlets they follow, or they are exposed indirectly to news headlines when those they follow engage with news content (Janét et al., 2020; Tandoc, 2014). With more than 5,000 news articles published online daily, today’s news consumers are overwhelmed by content and often rely solely on news headlines or aggregators, such as Google news, to make choices about what news to read or ignore (Hamborg et al., 2018; Pearson & Kosicki, 2017).

The availability of engagement metrics has led to a modern phenomenon in which news headlines are written or rewritten to include clickbait features (e.g. quotations, exclamations, inflammatory or emotional language), which are designed to boost the rate by which social media users click on the news headline to access the full article on the news outlets' websites (Kuiken et al., 2017; Kim et al., 2016). News outlets alter or manipulate various elements of articles, such as headlines, lead sentences, or images, to entice social media users to read and engage with their content (Welbers & Opgenhaffen 2019). In addition to the headline, lead, and picture, many news organizations now add a status message when they share news articles on Twitter and Facebook. This status message is often subjective, adding an element of interpretation or perspective that goes beyond the factual, objective news concept, and plays a key role in social media users' decision to read or reject the article (Welbers & Opgenhaffen, 2019). On social media platforms, such as Twitter and Facebook, the status message is featured directly beneath the headline and is visible to users scrolling through their feeds of content. Since the status message is consumed along with the classic headline, this study considered the status message to be a critical component of the headline itself.

Besides the features of headlines, the format can also be modified to boost audience attention, such as writing headlines that pose questions or that are forward referencing. These headlines often omit critical details and include signal words such as "you won't believe this" (Blom & Hansen, 2015; Lai & Farbrot, 2014). Janét et al. (2020) compared three common formats of news headlines for articles about environmental news: traditionally formatted headlines, forward-referencing headlines, and question-based headlines. They found that while headline formatting does not influence story selection or engagement, it does influence evaluations of the headlines and stories' credibility, where question-based headlines are

perceived as least credible. Scacco and Muddiman (2020) conducted a similar study to examine the impact of formatting on modern news headlines. They found that summary headlines, which provide a synopsis of the information within an article, are perceived as being of higher quality than headlines designed to arouse curiosity. Their study is significant because it underscored the value of credibility and how clickbait-style headlines undermine credibility.

Assumptions, Limitations, and Delimitations

While this study aimed to examine the modern practice of news headline manipulation on social media by traditional news sources, it was not intended to be a comprehensive or conclusive depiction of any journalistic practice or trend. Instead, it was intended to identify differences between Twitter news headlines that generated high levels of user engagement and coverage published on newspapers' websites. The study also examined whether these Twitter news headlines were consistent with traditional journalistic values and components of source credibility. Several assumptions, limitations, and delimitations must be acknowledged.

This analysis assumed that a substantial amount of Twitter news headlines posted by traditional newspapers would differ from headlines posted to the newspapers' websites, and that the Twitter headlines may not accurately portray the full content of news articles posted online. No assumptions were made about what typologies of news coverage would generate the most user engagements. Likewise, no assumptions were made about whether Twitter news headlines would represent the four primary components of source credibility.

There were also some significant limitations to this study. Due to the vast volume of Twitter news headlines posted by each of the five newspapers included in this study, only Twitter headlines that received the highest rate of engagement (i.e. the top 25%) were considered for analysis. Data collection took place on ten separate days, over a duration of ten weeks.

Engagement and duration were two criteria used to delimit the scope of this study and create a realistic sample of 639 news articles. However, this approach created the possibility that news headlines during this duration may be dominated by just one, or a relative few, news stories or topics of coverage. In this case, two topics of coverage – a global pandemic and an international conflict between Russia and Ukraine – were consistently prevalent among all five newspapers during the ten weeks of coverage considered in this study. Moreover, due to the relative subjective nature of qualitative analysis, a detailed instructional guide for analysis and training of coders was necessary to substantiate agreement and results. These limits and recommendations for future study are further discussed in Chapter Five.

Definition of Terms

To better understand the literature and the context of this study, it is necessary to first define some key terms.

- **News sharing/retweet:** Online news sharing can be defined as “the practice of giving a defined set of people access to news content via social media platforms, as by posting or recommending it” (Kümpel et al., 2015, p. 2)
- **Audience engagement:** Audience engagement refers to the ways in which social media users interact with posts. They may include clicks, likes, and shares (Tandoc, 2015).
- **Memes and gifs:** Some forms of symbolic communication, including memes, may feature an image, with or without text. Gifs are instances of brief animated images that also may or may not include text. Beskow et al. (2020) broadly described memes as any digital unit that transfers culture, more commonly known as an image with superimposed text that conveys some type of merged message. Both memes and gifs combine humor

and cultural relevance, making them critical artifacts (Beskow et al., 2020). However, their examination requires depth of consideration and analysis.

- **Clickbait:** Headline manipulation is often referred to as “clickbait” because it is designed to bait, or lure, social media users to click on a headline and access the full article published on an organization’s website (Lee & Tandoc, 2017). As social media news consumption grows, so does the need for headlines that deliver clicks. Examples of clickbait strategies would include headlines that are intentionally vague so as to arouse curiosity, or headlines that include language designed to evoke an emotional response (Kuiken et al., 2017).
- **Virality/ “going viral”:** Social media content that is shared among users to fellow friends, family, and followers achieves a greater reach of audience. Achieving a high status of exposure and reach through social media sharing and/or online news sharing is known as “going viral” or reaching virality (Phillips, 2012). Harcup and O’Neill (2017) explained that virality is based on the “shareability” of news, which refers to factors such as user engagements, popular topics and trends, and clickbait strategies.

Summary

This chapter provided an overview of the study, including background, problem statement, significance, and research purpose. Research questions were also stated. Definitions of relevant terms were provided, as well as assumptions of the study. Chapter Two presents a review of the literature and contains a summary of research relating to Twitter news headline topologies, engagement, manipulation, accuracy, and credibility. Explanations of source credibility theory and its relevance to the study are also presented. Chapter Three describes the methodology used in the study, including the research design, procedures, data collection,

coding, and data analysis. Chapter Four presents the findings from multiple sources of data derived from the content analysis of headlines published on Twitter, as well as the newspapers' websites. Finally, Chapter Five provides a summary of findings, discussion, implications, delimitations, limitations, suggestions for future research, and a conclusion.

CHAPTER TWO – LITERATURE REVIEW

Overview

News headlines are a key element of news coverage, as they are designed to capture readers' attention. On social media networks, such as Twitter, users click on headlines to access news organizations' websites. Additionally, users engage with news headlines by liking, retweeting, and commenting on news posts. This mixed methods study aimed to examine what typologies of Twitter headlines generate the highest levels of user engagements, how they differ from headlines published on newspapers' websites, whether they accurately represent the full content of website articles, and whether they represent established components of source credibility.

This chapter provides a review of the literature pertinent to studying Twitter news headlines. First, a history of the role and purpose of news headlines is presented along with an overview of social media news coverage. Next, a review of research about how news organizations use headlines to attract and commodify social media users is provided. Problems faced by today's newspapers, including the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today, are addressed. These problems include declining readership on print platforms and online, declining revenue, and an erosion of credibility. Finally, source credibility theory is offered as a theoretical lens for evaluating whether Twitter news headlines support credibility.

Situation to Communication Theory

When studying communication processes, such as the production and consumption of news via social media, researchers have many choices in determining the most appropriate approach for focus, study design, analysis, and theory. Robert Craig's seven traditions serves as a

model to organize theories and guide researchers in this process (Littlejohn et al., 2017). These traditions are semiotic, phenomenological, cybernetic, sociopsychological, sociocultural, critical, and rhetorical. The semiotic tradition is primarily concerned with the study of semiotics, or signs and symbolism, which are necessary for communication to be shared and understood within a culture. The phenomenological tradition focuses more on the human element, rather than symbols. It emphasizes the role of the individual experience in the communication process, as people assign meaning and interpret their own understanding of communication based on their lived experiences and personal relationships. The sociocultural tradition focuses more on the collective human experience, exploring the ways in which individuals interact through shared communication and how this interaction drives understanding. The sociopsychological tradition is concerned not just with the social interactions of individuals but also with the human mind, including individual perceptions and behaviors. The rhetorical tradition also considers personal perceptions, though it has historically emphasized the roles of speech, debate, and persuasion. Like several other traditions, the critical tradition is also centered on the human experience, however it primarily examines issues of power and oppression, specifically as they relate to the ways in which societies privilege or dominate individuals through factors such as race, gender, or socioeconomic status. The critical tradition is rooted in challenging hierarchies and holding those in power accountable. Finally, the cybernetic tradition deals with systems of communication, including how the creation, distribution, and understanding of messages is dependent on other parts of the system (e.g. the medium). Each of these traditions represent a different perspective and approach to communication research that is nuanced.

Cybernetic Tradition

The approach to inquiry in this study was consistent with the tradition of communication research that Robert Craig referred to as cybernetics (Craig, 1999). Cybernetics is the study of information processing, feedback, control, and communication systems (Umpleby et al., 2019). August (2021) explained that the cybernetic tradition has been defined by theories of regulation based on connectivity and codes, communication, and circulation. These elements are all important in the understanding of communication that takes place within a system, such as a social media network. Notably, each part of the system influences other parts.

While social media is certainly a platform for human communication as it relates to social behaviors, influences, and persuasion, the platforms are entirely dependent on a system or network for interaction. Algorithms determine the reach and virality of messages as users like, comment, or share. Creators of these messages know very little about the individuals who see the messages or choose to engage with posts. Rather, they are casting a wide net intended to reach a broad range of users. Yet, social media platforms have become critical networks for news media as they aim to reach as many new consumers as possible (Newman et al., 2021). As journalists adapt coverage from online news websites to social media, they reformulate headlines to drive engagement and boost metrics, which leads to increased revenue (Lamot et al., 2022).

Through data metrics, journalists are able to monitor and interact with social media users to further extend the reach or virality of their social media posts, as well as increase exposure to their own websites. This requires journalists to market their news content within the system of digital communication that also features posts by friends, family, celebrities, groups, companies, and organizations unrelated to news (Welbers & Opgenhaffen, 2018; Tandoc & Vos, 2016). The headline serves as the link between the professional news article on the website and the social media users rapidly scrolling through a personalized feed (Kuiken et al., 2017). The more

engagement, or digital communication, with a message, the greater the chance that the message will perform better within the platform's algorithm (Kalsnes & Larsson, 2018). Therefore, as news organizations work to adapt online news content to social media, they must consider the nature of the platform, including its virality, connectivity, popularity, and datafication (Trilling et al., 2017; Van Dijck & Poell, 2013).

With the modified model of source credibility used as a lens in this study, which is based on the four categories of competence, character, care, and commonality, it was possible to conduct a content analysis of source credibility as it is represented through social media news headlines. Examining the source enables researchers to focus on the origin and transmission of a message, rather than the receivers' perceptions alone. The cybernetic tradition is typically associated with systems of processing information, such as the transmission of messages from an information source to a receiver (Apuke, 2018). In this way, it is possible to examine the distribution of news content from news organizations to social media users.

Social media is a key component of modern media systems, with user feedback or comments acting as noise that interferes, disrupts, or sways the distribution of news. In other words, while the consumption of news on social media differs from traditional media, such as print editions of newspapers, this experience is largely contingent on the factors that are specific to social media platforms, including virality (which is based on sharing and liking) and clickbait strategies used by news sources to promote content. As Littlejohn and Foss (2017) explained, variables of a complex media system control and influence the character of the entire system. To truly focus on the source of news information and how it is presented or distributed to audiences, an approach that is rooted in the cybernetic tradition of communication research was required.

To examine the credibility of viral news headlines within the Twitter network, it was necessary to utilize an appropriate theory as a lens. Source credibility theory was appropriate for assessing and synthesizing established components of both credibility and traditional principles of journalism. Additionally, it was effective as a framework for qualitative assessment, such as content analysis, as well as the basis for developing a scale or measurement for credibility. These criteria made it an optimal theory for this mixed methods study.

Theoretical Framework

Researchers who have studied media have applied a wide variety of communication theories to news production and consumption. Journalism studies have traditionally been designed around mass communication models, but many media effects theories that predate digital platforms are difficult to apply in the modern era of social media (Singer, 2018). Scientific methods built on transmission models that consist of print newspapers and broadcast may not be adequate for the examination of news content tailored to social media audience participation and engagement (Scheufele & Tewksbury, 2007). For example, Noelle-Neumann's (1993) spiral of silence theory posited that media coverage shapes public actions and opinion, and that consumers of news will remain silent rather than express unpopular opinion. However, more modern studies into the spiral of silence theory have yielded only mixed or culturally distinctive results (Scheufele & Moy 2000), as social media platforms have created more opportunities for news consumers to express personal opinion.

Uses and gratifications theories attempt to explain consumer needs and gratifications that social networks may fulfill (Raacke & Bonds-Raacke, 2008). Social media interactivity may be beneficial for participants and society, such as an increase in their sense of community, social support, and satisfaction (Oh et al., 2014). However, news consumers may also use social media

platforms to seek out content that affirms their opinions. Such uses and gratifications pertain only to the motives of news consumers, not news sources. Conversely, agenda setting theory posits that media coverage not only influences what audiences think about but also how they think about key issues (McCombs et al., 2014; McCombs & Shaw, 1972), thus raising questions and concern about media bias. Muddiman et al. (2014) conducted a content analysis of cable news coverage of the U.S. war in Iraq on three national networks including Fox News, CNN, and MSNBC. They found that cable news exposure predicted political opinions about the war, affirming that attribute agenda setting influences individual consumers of news.

Framing theories have also been applied to news media coverage. Stroud and Muddiman (2019) studied two prominent news frames of political coverage: issues and strategy. Issue frames included news headlines that emphasized topics such as education or the economy, whereas strategy frames highlighted political candidates and their motives, as well as behaviors and actions during campaigns. Stroud and Muddiman found that while both affect audiences' political beliefs, strategy frames produced greater cynicism and distrust than issue frames. Yet, strategy-based news generated more engagements in the form of clicks, comments, likes and shares. In other words, audiences seem to prefer news that is divisive. Studies into media frames have typically examined one type of content, such as politics (Kim & Patnode, 2021). Moreover, such studies do not necessarily provide a thorough or robust analysis of the news source or how such frames support or undermine source credibility based on a broad range of coverage.

Source Credibility Theory

Understanding how news content may support or undermine traditional journalistic norms and standards of credibility calls for a thorough content analysis, including a review of framing and themes. Assessing credibility is best guided by utilizing source credibility theory as

a lens. Source credibility theory is an established theory based on components of credibility, which are similar to traditional journalistic principles. The theory emphasizes receivers' perceptions of the source of a message, and also addresses the source's influence over the audience. Thus, it is an appropriate theory to apply in any examination of credibility, particularly as it relates to a system of communication in which information is disseminated and received through a channel or network.

Background of Source Credibility Theory

Carl Hovland (1953) is largely considered to be the founder of source credibility theory. He was a psychologist who worked at Yale University, and during WWII, he conducted experiments to study how the mind responds to persuasion, particularly propaganda. His theory is derived from collaborative work he conducted with a colleague focused on studying the attitude of the audience toward the communicator as a factor in the effectiveness of communication (Hovland & Weiss, 1951). These experiments and surveys explored how the brain remembers and forgets. They started with an Army orientation film and asked participants if they believed the film to be propagandistic or informational. They found that participants were more likely to discount messages from sources they deemed to be untrustworthy during the time of exposure. Conversely, participants were more likely to retain messages from sources perceived as fair and just.

Exploring Credibility by its Components or Dimensions

Hovland and Weiss (1951) aimed to explain how the persuasiveness of communication is determined by the perceived credibility of the source. They identified perceived expertness and perceived trustworthiness as key components in the conceptualization and construct of credibility. Expertise refers to the extent to which a speaker is perceived to be capable of making

correct assertions. Trustworthiness refers to the degree to which an audience perceives the assertions made by a communicator to be ones that the speaker considers valid. Most early studies of source credibility built upon these dimensions of expertise and trustworthiness. Hovland would later add goodwill, or care for the audience's wellbeing, as a third dimension of source credibility (Hovland et al., 1953).

Berlo et al. (1969) extended source credibility theory with a focus on the perceptions of the receiver of messages and acceptance of information. They created a measurement of credibility perceptions based on three dimensions for evaluating sources: safety (safe-unsafe; just-unjust; kind-cruel; friendly-unfriendly; honest-dishonest), qualification (trained-untrained; experienced-inexperienced; skilled-unskilled; qualified-unqualified; informed-uninformed), and dynamism (aggressive-meek; emphatic-hesitant; bold-timid; active-passive; energetic-tired). The addition of dynamism as a dimension went beyond Hovland et al.'s (1953) conceptualization of credibility. In their studies, Berlo et al. asked participants to describe the qualities that made various sources acceptable. Next, they constructed a set of 83 pairs of polar adjectives to serve as scales. Participants were then instructed to rate several sources of information, including one major newspaper, The New York Times, and one broadcast network, the American Broadcasting Company (ABC).

McCroskey and Teven (1975) began studying source credibility as early as 1975, and in 1999, they revisited Hovland's notion that goodwill should be incorporated into the ethos/credibility construct. They made the case that goodwill must also be included in any evaluation of credibility (McCroskey & Teven, 1999). They defined goodwill as intent toward receiver, perceived caring, understanding, empathy, and responsiveness. Using a Likert scale survey and a ten-item bipolar scaling instrument, they claimed it was possible to measure

goodwill. Moreover, they posited that this new evaluation of credibility translated to believability and likability, which are critical for the success of news outlets, politicians, and organizations. They surveyed 783 undergraduate students enrolled in a communications studies course. Participants were asked about their perceptions of various sources, including politicians, celebrities, and personal connections, including supervisors and roommates. The results indicated a direct correlation between expertise, trustworthiness, goodwill, and credibility.

Several other scholars have extended source credibility theory to apply more broadly to a range of research topics, often adding, subtracting, or modifying dimensions of credibility. Kohring and Matthes (2007) advanced and modified McCroskey and Teven's (1999) scale, specifically for the purpose of measuring trust in news media. Their elaborate scale, based on hundreds of interviews, consists of four dimensions: trust in the selectivity of topics, selectivity of facts, accuracy of depictions, and journalistic assessments. Each dimension was built on traditional journalistic values and normative practices, taking into account the usefulness and value of news reporting for communities that journalists serve.

The literature also includes many examples of source credibility theory being broadly applied to other fields and disciplines beyond journalism. Celebrity endorsements have become a popular topic for researchers and the modern era of social media (Djafarova & Rushworth, 2017). Ayeh (2015) integrated the technology acceptance model with source credibility theory to evaluate how online travelers use consumer-generated reviews on the website TripAdvisor for travel planning. Their survey found that perceptions of credibility – trustworthiness, expertise, and intent or motive – positively impacted perceptions of usefulness and intention of online reviews. Each participant was asked to assess the trustworthiness, expertise, and intent of individual reviews of hotels, restaurants, and attractions. This process of assessing the qualities

of information in these customer reviews can be applied to assessing the similar qualities of news content.

Other researchers created their own models for measuring credibility. Petty and Cacioppo (1986) incorporated source credibility theory into an elaboration likelihood model (ELM) of persuasion. The idea was to understand what makes sources persuasive and influential, specifically how readers, listeners, or viewers learn, accept, and remember a message. Persuasion often refers to an action taken. As it applies to modern journalism presented on social media, this action may include liking, commenting, or sharing posted news content. ELM consists of two routes: a central route and peripheral route. The peripheral route is generally weak and passive, requiring little involvement on the part of the audience. A Twitter user who passively scrolls past a news headline and simply “likes” a news post without bothering to read the article may be persuaded to take such action based, not on the headline or article per se, but rather another factor, such as how the headline appears to validate the reader’s political beliefs. Whereas, a central route of persuasion requires more involvement, such as clicking on a headline to read the entire news article and then perhaps commenting directly on its content or retweeting with the addition of the reader’s own remarks about the content or topic.

Zhou et al. (2016) utilized Petty and Cacioppo’s (1986) ELM to examine how online vendors quickly foster trust when consumers visit their website for the first time. Zhou et al. conducted an experiment with a simulated online shopping experience, followed by an online survey. The results of their study indicated that in e-commerce, trust reflects (1) consumer belief in an online vendor’s ability to fill the order properly, (2) integrity so as not to deceive, and (3) benevolence that demonstrates the vendor cares about consumer wellbeing. These qualities of

ability, integrity, and benevolence are consistent with the three commonly held dimension of source credibility theory: expertise, trustworthiness, and goodwill.

Appelman and Sundar (2016) proposed yet another scale for measuring credibility. Taking a confirmatory factor analysis approach, they found that message credibility, specifically in the context of news, can be measured by asking participants to rate how well three adjectives describe content: accurate, authentic, and believable. For this study, participants read two news articles, one high in credibility and one low in credibility, and then answered questions to assess their perceptions of credibility based on the proposed scale items. The articles originated from various online news sites and differed in terms of topic, sourcing, and tone.

Social Media and News Credibility

While many of the methods used for examining credibility prior to the proliferation of social media were based on traditional journalistic values and norms, the modern culture of journalism, which enables opinion and bias to spread more widely, challenges traditional applications of source credibility theory. Allcott and Gentzkow (2017) examined the phenomena of so-called “fake news” and selective exposure. They analyzed fake news reports during the 2016 U.S. Presidential election and found that misleading reports were more widely shared and generated more audience engagement. This violation of traditional journalistic standards supports the notion that fake or misleading news, along with a culture of clickbait headlines, is more profitable for news organizations. Moreover, Allcott and Gentzkow found that a high-credibility source was even more influential when delivering negative or opinionated messages because social media news audiences seek out messages that support their beliefs and perceptions, resulting in an echo chamber. As such, audiences evaluate, accept, and reject news based on their own biases, which strongly impact perceptions of source credibility. The

researchers further posited that consumers prefer partisan news over credible news, which results in social consequences and distorts consumers' ability to infer the true state of the world and make voting decisions.

Modifying Source Credibility Theory for Modern Application

While source credibility theory may still serve as a relevant lens for analyzing news content, the theory may fall short of explaining modern perceptions of journalism, specifically news content on social media. Mellado et al. (2020) examined the challenges of applying traditional theories to modern studies of journalistic practices, including distribution and representation. They argue it is imperative that researchers reexamine traditional theories, such as source credibility theory, to explore potential updates and modifications that are more relevant to today's media landscape and serve a more practical purpose for researchers and stakeholders. Singer (2016) also concluded that traditional theories of communication and media are based on an outdated linear transmission model. News is no longer information produced and distributed to audiences in a consistent manner, such as print editions of newspapers. Singer instead asserted that today's news landscape is more interconnected, immediate, immersive, instantaneous, and individualized. As such, traditional theories may not be suitable for analyzing modern social media platforms.

A significant problem with the traditional research application of source credibility theory is the inconsistent construct of dimensions or components of credibility. Cronkhite and Liska (1976) were among the early critics of source credibility studies. They argued that credibility, which Hovland et al. (1953) conceptualized as a construct of three dimensions including trustworthiness, expertise, and goodwill, should be reconceptualized as a process involving (a) source-message characteristics, (b) inferred attributes, (c) source functions in

specific topic-situations, (d) criteria for source acceptability, and (e) receiver responses.

Cronkhite and Liska's approach to examining credibility may be more relevant to modern communication issues, in which specific topics, media platforms, and digital dialogue are significant factors in the evaluation of credibility. To address these concerns, it is imperative that modern researchers consider the specific conditions of media technology. Given this, it is time to extend and update source credibility theory.

It is appropriate to synthesize traditional journalistic values and norms with dimensions of credibility. Based on the literature, researchers have already provided a foundation for doing so. Gaziano and McGrath's (1986) conceptualization of news credibility focused on fairness, absence of bias, concern for community, and trained reporters. Helpfulness, or usefulness, is a fundamental normative objective of journalism (Thomas, 2019). Urban and Schweiger (2014) identified six criteria that shape the foundation and standards of quality journalism: diversity of viewpoints, impartiality, relevance, accuracy, comprehensibility, and compliance with ethical standards. News media still place a high value on credibility (Nisbet, 2009) and have largely maintained that trustworthiness and sincerity are still critical to their brands (Kim et al., 2010). The concepts of trustworthiness, expertise, accuracy, benevolence, usefulness, fairness, intent, concern, and goodwill can be reconceptualized into three categories or components of credibility: competence, character, and care. For this present study, it was also proposed that source credibility theory be extended to include a fourth category: commonality.

The 4 Cs of Credibility: Competence, Character, Care, and Commonality

Based on the literature referenced in this review, there is much overlap, but also ambiguity, about the dimensions of source credibility. Therefore, a simple definition of the components of credibility is needed for the application of modern research analysis. Moreover,

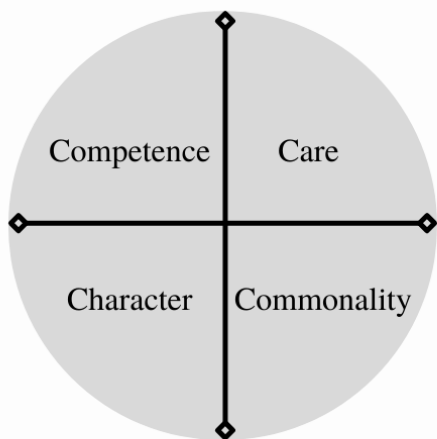
since credibility is a matter of perception, a modification is also necessary to address the issue of bias or likability based on the audience's ability to relate to the source. Therefore, this analysis proposed that source credibility is conceptualized and defined by four key categories: competence, character, care, and commonality (see Figure 1).

Competence encompasses notions of expertise, accuracy, and training. Character includes concepts of trustworthiness, intent, and motive. Care represents perceptions of goodwill, benevolence, and usefulness. To examine the credibility of a source, consideration must be given to the competence, character, and care demonstrated by the source. However, since credibility is also based on perceptions, consideration must also be given to individual perspectives, beliefs, and bias. Therefore, it was proposed that credibility is comprised of a fourth category: commonality. Commonality may be defined as relatability, similarity, agreement, or consistency of viewpoint.

Figure 1

Four Components of Credibility

Components of Source Credibility



COMPETENCE: accuracy, expertise

CHARACTER: trustworthiness, motive, intent

CARE: goodwill, concern, benevolence, responsiveness

COMMONALITY: similarity, relatability, agreement, shared viewpoint

Components of Credibility

The literature clearly supports the case for commonality as a construct of credibility and influence. Political bias and partisanship have become common in modern news presentation, which has resulted in a segmentation of audiences. Kelly (2019) studied news perceptions of objectivity and credibility and found a congenial media effect, in which audiences deemed news content from unfamiliar sources as more credible and less biased when it was consistent with their own political beliefs. Clark et al. (2020) examined perceptions of news credibility among secondary social studies teachers who regularly incorporated news media into their classrooms. They used a 2016 election map to identify “red and blue” (i.e. Republican and Democratic) states to ensure a variety of opinions and political leanings. Teachers responded to Likert-type and open-response questions about how credible they rated various news sources, how they defined credibility, and their political ideologies. Clark et al.’s study results indicated that political bias

impacted perceptions of source credibility. Stroud (2008) also found that news consumers are more likely to select sources that reflect their own biases, particularly regarding political coverage, resulting in a more divided news audience. Moreover, social media has changed the way in which we are exposed to news and how we engage with sharing of news content, often relying on like-minded friends as a source for news (Anspach, 2017). This process of selective exposure further complicates the media landscape for journalists who strive to present balanced coverage.

The relationship between commonality and credibility also transcends news. Djafarova and Rushworth (2017) interviewed young female consumers who use Instagram to determine how the social media platform impacts source credibility and influences purchase decisions. They found that online celebrity endorsements, especially female celebrities, are perceived to be credible and trustworthy when communicating marketing messages to young women. Additionally, they determined that the type of celebrities perceived to be most credible were so-called social media “influencers” (i.e. peer users with a high number of followers) who were often viewed as more realistic and relatable. Martensen et al. (2018) similarly studied how “influencers”, whom they defined as citizen celebrities, influence the fashion opinions of followers on social media. Their research considered five factors of influence: expertise, trustworthiness, likeability, similarity, and familiarity. Martensen et al.’s analysis further suggests that commonality is an important trait in the construct of credibility.

Related Literature

Credibility is crucial for journalists and is derived from traditional principles of journalism. Journalists earn credibility by demonstrating in their coverage the four components of source credibility theory, which are competence, character, care, and commonality. Therefore,

this study aimed to specifically assess the credibility of viral Twitter news headlines published by traditional newspapers. However, it is first necessary to consider the related literature on news headlines and modern news practices, including the shift from print editions of newspapers to social media platforms, the challenges these platforms present, how news consumers engage with information on Twitter, and how Twitter is used as a site for research.

News Headlines

The purpose of newspaper headlines has primarily been to summarize content and attract attention to the full-text newspaper article (Ifantidou, 2009). Journalistic standards dictate that headlines should be brief, clear, interesting, present new information, feature names and concepts of high news value for readers, and frame the story for reader understanding (Dor, 2003). However, news headlines may not adequately summarize full-text news reports (Althaus et al., 2001). In a review of headlines and textbooks that serve as guides for writing headlines, Ifantidou (2009) found that news headlines tend to oversimplify full-text content or portray topics subjectively by drawing reader attention to only one aspect of a story. This practice may amount to misrepresentation of news coverage. One goal of the proposed study is to examine whether Twitter news headlines that generate high levels of user engagement (e.g. likes, shares, and comments) accurately represent the full text of news articles published on newspapers' websites.

Media channels impact news exposure and reader habits. Traditionally, newspaper readers would scan headlines printed in the pages of a newspaper for topics of interest (Jarodzka & Brand-Gruwel, 2017). However, the process of news consumption has evolved over the past 25 years. Digital readers now browse and scan screens, spotting keywords as they select content (Liu, 2005). News consumers scan news online for headlines, but do not necessarily click on the

headline to access and read the full digital text of the article on the source's website (Costera Meijer & Groot Kormelink, 2015). As such, the role of the social media news headline differs from traditional print headlines in that its effectiveness is measured in data metrics, including the rate by which users click onto headlines to access full articles or engage with news posts (Kuiken et al., 2017). To boost engagements, editors and journalists have modified the practice of headline writing, using words, phrases, and techniques (Tandoc, 2014).

News Coverage Shifts to Social Media

It should come as no surprise that modern technological networks, such as social media, have changed the way news is consumed. Technology drives changes in human communication. Some theorists, including Walter Ong (2012), have argued that verbal dialogue is necessary to understand one's place in the world. Ong posited that orality is what separates us from computers, smart phones, and robots. Yet, in today's complex system of digital communication and social media, literacy and orality can scarcely be separated. It is often the communication that originates on these technological networks that drives face-to-face conversations. To better understand how communication is shaped by technology, it is necessary to consider how media evolves. Lehman-Wilzig & Cohen-Avigdor (2004) analyzed the media evolution of several media platforms to identify six stages: birth (technical invention), penetration, growth, maturity, self-defense, and adaptation, convergence, or obsolescence. They created a model to analyze and predict the viability of the internet and its chances of survival. However, their model could easily apply to other communication technologies, including newspapers.

Social media are internet-based networks that enable users to create and share content. Unlike traditional media channels, such as newspapers or broadcast, social media are unique in their interactivity (Hoffman & Novak, 2012). Users are interconnected, linked to one another as

digital friends or followers. Peters et al. (2013) defined social media as “communication systems that allow their social actors to communicate along dyadic ties” (p. 283). Interactivity is immediate and multi-directional, meaning users can share and comment directly on content that is posted. Social media requires unique approaches for measuring and examining content, including rich context, the sharing of content, and sequences of user responses (Stewart & Pavlou, 2002). To understand what Twitter news headlines are most effective in attracting user attention and accurately portraying the content of an article, while also supporting credibility, it is unavoidable that researchers consider the basic metrics of the user network: likes, retweets, comments, as well as the content of the headlines and accompanying articles. As such, a quantitative content analysis was deemed the most appropriate scientific method for this study.

Social Media Consumption

News organizations, including traditional newspapers, maintain social media profiles on networks such as Twitter for the purpose of promoting digital content posted to their websites. Twitter users who follow news profiles can access this content directly. Moreover, as users engage with news posts, such as retweeting or commenting, other users that are part of their network experience incidental exposure through a live stream of content (Park & Kaye, 2020). In this way, the Twitter network serves as a bridge linking producers of news and consumers of news (Nielsen & Ganter, 2018).

Social media has not only created a platform for traditional newspapers to attract potential readers, but it has also underscored the importance of headlines and their role in generating interest in news coverage. Exposure to news coverage is determined by the sharing of articles on social media networks (Hermida et al., 2012). Social media news consumers frequently make assessments about quality and credibility of articles, based on headlines alone,

as well as the virality or shareability of news posts (Molyneux & Coddington, 2020). However, more empirical research is needed to analyze the types of new headlines that generate high levels of user engagement and determine whether modern practices of headline writing support traditional news values and credibility.

Social Media Engagement

Social media have afforded news consumers the opportunity to contribute more directly to the newsgathering process (Domingo et al., 2008). One form of participation is commenting directly online about news articles published online and/or shared on social media sites, such as Twitter. Audience engagement now significantly influences the editorial process of news, such as decisions about how to frame, present, and promote news coverage online and on social media (Lee & Tandoc, 2017). Information about trending topics and algorithms that track likes, comments, and shares (i.e. “retweets”) provide a measure of audience engagement for editors and news managers, who make decisions about content. Organizations and companies are able to track their social media campaigns and acquire information about consumers’ online behaviors, including simple metrics (e.g. likes, shares, followers, comments, and their activity regarding trends), the sources of followers, virality of posts, and information on which posts and which customers are interacting the most (Acar & Polonsky, 2007). When audiences click on a headline and then visit the news organization’s website, this click-through rate is tracked and determines how much companies charge advertisers (Russell, 2019). In this way, news organizations can commodify social media users.

Social Media Manipulation

Since journalists today are frequently evaluated on data metrics of audience engagement during performance reviews (Lee & Tandoc, 2017; Tandoc, 2014), there is increasing pressure

on them to increase readership and attract audiences. As a result, traditional news organizations, such as mainstream newspapers, frequently manipulate headlines to attract audiences based on metrics that indicate audience preferences (Ng & Zhao, 2020). These preferences may include stories strong in entertainment value, such as viral videos or shocking images, and opinion pieces that are designed to portray one-sided perspectives on social issues or politics. Blanchett Neheli (2018) found that news employees (e.g. reporters, producers, and editors) commonly feel they are making editorial decisions based on the potential for engagements over news value, and as a result, there is little journalistic value in news content posted on social media, which often includes celebrity gossip, human-interest features, and viral videos (Raymond & Taylor, 2021). The goal is to provide audiences with news they will like, not necessarily news that is informative.

To highlight audience preferences, headlines are sometimes written to be intentionally misleading (Blanchett Nehili, 2018; Lee et al., 2014). Headline manipulation is often referred to as “clickbait” because it is designed to bait, or lure, social media users to click on a headline and access the full article published on an organization’s website (Lee & Tandoc, 2017). As news employees aim to boost audience engagement in the forms of clicks, likes, and shares, they frequently modify, alter, enhance, and manipulate news headlines (Tandoc, 2015). One example of headline manipulation may be the inclusion of inflammatory language or key words and images that are more likely to attract audience attention. Bias, unbalanced, or opinionated headlines may also arouse social media audiences, enticing them to like, share, or comment on a post from a news organization. Traditional news organizations are increasingly relying on headline manipulation to lure and commodify online social media users (Ng & Zhao, 2020; Blanchet Nehili, 2018; Meier et al., 2018).

Social Media News Audiences

Social media news consumers differ from readers of traditional print newspaper. The success of print newspapers was measured by sales figures and subscriptions, which provided key demographics about the consumers for news managers to consider in the editorial process. However, social media audiences are known primarily through digital engagements in the form of likes, shares, comments, and clicks that generate traffic to the newspapers' websites (Kalsnes & Larsson, 2018). Social media also gives users more choice and more editorial control as they select what content to engage with while scrolling through feeds (Lin et al., 2023). Yet, users often have difficulty discerning misinformation from authentic news, due in part to a more lackadaisical or apathetic approach to critical reasoning while consuming news online (Gaozhao, 2021). Visentin et al. (2019) defined news authenticity as the perceived credibility of the content, source, and brand. Reduced reasoning about authenticity, or credibility, may lead to increased dissemination of misinformation. Despite a more relaxed approach to news consumption, a popular topic may boost engagement and even increase cross-group communication through comments, which in turn increases virality (Burt, 2020).

Digital Paywalls

Another key consideration in social media news consumption is the effect of newspaper paywalls. When Twitter users click onto a linked article, they may not be able to access the full context of the article without a subscription. Paywalls are designed to monetize online content and boost demand for content (Aral & Dhillon, 2021; Pattabhiramaiah et al., 2019). However, paywalls also restrict access and are unlikely to entice the Twitter consumer to subscribe unless there is keen interest (Pattabhiramaiah et al., 2022). As such, paywalls generally have a negative impact on website pageviews. However, certain topics, such as coverage of business and

economics, are more likely to drive subscriptions than others (Kim et al., 2020). Moreover, research has shown that paying for news may indicate a sense of value and commitment to journalism, but it does not necessarily indicate higher credibility (Vara-Miguel et al., 2023). Rather, those who are more interested in news tend to trust it more, regardless of whether they pay for it (Vara-Miguel et al., 2023).

Social Media Creates Critical Challenges for News

The phenomenon of manipulated headlines has significant implications for news editors and journalists. Clickbait techniques have contributed to a phenomenon of widespread misinformation because they are typically deceptive by design and algorithms used by social media platforms often fail to filter out false information or fake news (Lee & Tandoc, 2017). However, identifying fake news and discerning what constitutes as fake news has proven to be challenging for audiences and researchers alike (Hamborg et al., 2019).

Tandoc et al. (2019) noted that the primary purpose of fake news is to deceive readers either for financial or ideological gain. They further identified fake news as a critical incident in journalism, forcing journalists to reflect on the industry's practices of newsgathering and presentation. However, after examining newspaper editorials published about the topic of "fake news" during the 2016 U.S. Presidential election, they found no clear consensus on the conceptualization or definition of fake news. There was no discernment between blatantly falsified, deceptive, or biased information. Moreover, journalists accepted little to no blame for the phenomenon of false news or a growing distrust in news media. Instead, Tandoc et al.'s content analysis of editorials indicated that journalists largely dismissed fake news as a social media problem caused by external forces, such as technological platforms (e.g. Google and Facebook), news audiences, and the political environment at the time. Given this, it is time to

examine how traditional news organizations may be contributing to this culture of deception through modern practices, such as headline manipulation on social media networks, and how clickbait-style headlines support or contradict traditional news values.

Social Media as a Research Site

Utilizing social media as a research site creates some challenges, including a vast volume of data, which is often referred to as Big Data and takes many forms including text, images, videos, graphics, and memes or gifs, which are images superimposed with text and are sometimes animated. Data from social media falls into two general categories of structured and unstructured, with the majority of data being unstructured (Siebel, 2019). Unstructured data can be very challenging to analyze due to its rich context, which must be interpreted through thorough analysis. For example, comments need to be parsed and vetted to identify sentiment and reactions. Frischlich et al. (2019) conducted such a study when they analyzed the content of social media news posts for hostility and anger expressed through user comments and replies.

Such analyses can be tedious and time-consuming. A typical post on some newspapers' Twitter accounts may elicit hundreds of comments. As such, it is typically necessary to delimit the scope of study due to time constraints and available resources. Some forms of symbolic communication, including memes and gifs, pose unique challenges. Beskow et al. (2020) broadly described memes as any digital unit that transfers culture, more commonly known as an image with superimposed text that conveys some type of merged message. While both memes and gifs combine humor and cultural relevance, making them critical artifacts (Beskow et al., 2020), their examination requires depth of consideration and analysis. While some researchers have also expressed concerns about using social media as a research site due to privacy concerns (Patterson, 2018; Fiesler & Proferes, 2018), others have acknowledged that digital media has

become so prevalent in fields, such as news and consumerism, that it is hardly possible for researchers to conduct research in these fields without considering online spaces (Hallett & Barber, 2014).

Despite its challenges, social media provides a plethora of rich data that is beneficial for understanding human communication and behavior. Numerous studies have utilized social media as a research space for marketing efficacy in industries such as tourism (Leung et al., 2015). Ahuji and Alavi (2018) found that Facebook can be a useful marketing tool for building trust and brand loyalty. In a similar way, news organizations can use social media to promote journalistic brands to consumers of news (Russell, 2019). Social media data are used to try to promote a discussion and solution to social impact problems (Amenta et al., 2017; Kozinets, 2015).

Peer influence is another important component of social media usage because it drives both attitude and behavioral intention (Jung et al., 2016). If a company or organization can persuade consumers to like or share its posts, then the brand's posts will appear on consumers' profile pages or in digital "newsfeeds" or "threads," ensuring that the content is seen by a broader audience of consumers' friends or followers. This is a phenomenon known as virality or "going viral" (Wallace et al., 2012; Lipsman et al., 2012). Audience engagements also impact news exposure. Clicking, commenting, and reacting to content on social media sites are actions that are tracked and used to create algorithms that determine the type of content that will be ranked highly on users' news feeds in the future (Mosseri, 2018).

Twitter as a News Platform

A 2021 Pew Research Center study found that 23% of Americans use Twitter and nearly 70% of Twitter users get their news, especially breaking news, from the social media site.

However, only 7% of Twitter news consumers surveyed said they had “a great deal” of trust in the accuracy of information on Twitter (Mitchell et al., 2021). Given the disparity between the popularity of the platform as a source for breaking news and the apparent lack of trust, it is critical to examine the causes, including journalistic practices. The findings should be of practical value and interest to journalists and news organizations.

This present study consisted of data collected on the social media network Twitter. Therefore, it is necessary to first examine the specific attributes of Twitter. Bossetta (2018) found that social media networks differ significantly about functionality, connectivity, and privacy. The functionality of Twitter is unique. Twitter’s broadcast feed aggregates, ranks, and displays content posted by Twitter profiles that users track, or “follow”, as well as content that these accounts engage with, such as liking, sharing, or commenting. Sharing content is known as “retweeting”. Additionally, Twitter supports a wide range of media, including text, images, videos, and gifs, though text content is limited to 280 characters. Twitter users also have the option to mention or tag other users by way of the @ icon and integrate content by topic using a # symbol. All hashtags (#) are tracked in a separate dataset that appears and the most popular topics appear in Twitter’s trending topics list. Regarding connectivity, any Twitter user can follow another Twitter profile. There is no request or confirmation needed for connection, which means Twitter users need not have an off-platform connection to one another, as is the case with some other social media networks.

To track message diffusion on Twitter, Bastos et al. (2013) created codes for different types of engagement, including retweets (RT), mentions (AT), and the followers’ and followees’ networks (FF). They also found a linear relationship between the number of followers and retweet rate. The scope of their study did not include content. However, other studies have

examined the consumption of news on social media and how users engage with content on Twitter, which is different than traditional print editions of newspapers or even websites in which the entire article is accessible. Social media users must click onto a news headline to read the complete text but frequently do not (Molyneux & Coddington, 2020). On Twitter, they regularly check, scan, or monitor news updates on their Twitter feeds, similar to the manner in which they may review and read an email (Costera Meijer & Groot Kormelink, 2015).

Summary

To fully understand the factors which influence and constrain the flow of news content on social media, it is important to consider journalistic norms and technological factors, such as headline manipulation, clickbait strategies, and their relationship to the components of source credibility. Additionally, it is also necessary to consider how differently news headlines are presented on social media compared to news organizations' websites and what types of headlines are most likely to generate high levels of user engagement, which is a fundamental determinant of news exposure. Traditional mainstream newspapers, such as the New York Times, Washington Post, and Wall Street Journal, provide a unique opportunity to study social media news headlines, the phenomenon of headline manipulation to drive engagement, and the potential impact on news source credibility. Chapter Three establishes a clear methodology for this study's examination of social media news headlines, including a detailed study design, which was guided by the literature and used source credibility theory as a lens for analysis.

CHAPTER THREE – METHODOLOGY

Overview

As trust in news media falters, it is critical that journalists and editors examine how modern practices may contribute to declining revenues and the erosion of credibility. Over the last two decades, news organizations have increasingly relied on social media networks as they compete for the attention of and engagement from social media users to attract new audiences and boost advertising revenue (Arbaoui et al., 2020). This has led to a phenomenon of news headline manipulation (Blanchett Neheli, 2018; Tandoc, 2015). Clickbait-style tactics are regularly used to boost interest and engagements, which are measured in metrics such as clicks, likes, shares, and comments. However, it has remained unclear how these practices may impact a news organization's credibility. This study filled a gap in the research by exploring the relationship between modern social media news coverage and traditional standards of source credibility.

This study examined Twitter news headlines published by five popular legacy newspapers in the United States: the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today. A qualitative content analysis was conducted (1) to determine the typologies of Twitter headlines that generate the highest levels of user engagements in the form of likes, retweets, and comments, (2) to assess the consistencies of representation between the Twitter headlines and coverage published on the newspapers' websites, and (3) to assess credibility, using source credibility theory as a lens. Next, the results of this qualitative content analysis were analyzed quantitatively to determine the frequency of occurrence for headline manipulation by typology of coverage, as well as the rate of credibility. The data for this quantitative analysis was derived from the qualitative content analysis, which

was conducted by two evaluators who coded their assessments after receiving instruction to guide their interpretation. The results of this mixed methods study provide key insights for journalists and editors who wish to reflect upon and revisit modern approaches to news coverage.

This chapter begins with an overview of the purpose of the study and the practical implications for both creators of news content and news audiences. Research questions are presented, and research methods are established. Next, an overview and explanation of content analysis approaches is described. Data collection, including a description of relevant data, sampling, and storage, is defined. Finally, the framework for analysis is also presented.

Purpose of the Research

The concept of source credibility is based on four perceptions of quality, including competence, character, care, and commonality, as established in the literature and summarized in Chapter Two. When examining credibility, which is the capital of journalists and news organizations, such as traditional newspapers, researchers have many qualitative and quantitative methodologies to choose from. What is consistent is that most studies employ some type of content analysis in their exploration of news content.

Few qualitative studies have examined the content of news headlines and articles on social media. Some of these studies have analyzed tone and patterns present in social media comments (Su et al., 2018) or the ways in which organizations use social media as a tool to generate trust and build social relationships (Lin et al., 2014). Some examples of quantitative methods can also be found in the literature. For example, Stroud and Muddiman (2019) conducted a thematic analysis of news media frames presented in political news headlines and then examined audience engagements. Their research focused on quantitative metrics, such as the total number of likes and shares.

Quantitative approaches to exploring news content and credibility tend to be computerized with a focus on big data. For example, Choi (2019) attempted to quantify journalistic values (i.e. balance, importance, factuality, and sensationalism) to make them readable by social media algorithms. For that study, eight coders were asked to review 1,000 news article and rate the overall credibility on a scale from one to ten. Z-scores were then assigned to each article to measure the deviation of credibility. Automated content analysis was then conducted to identify variables that may increase credibility perceptions, such as adjectives and quotes within news articles. The results of Choi's study suggested that algorithms could be improved for detection of credibility, however significant limitations were reported. Developers and owners of news algorithms are generally not transparent about the values and criteria used within their algorithms, nor are they legally required to disclose this information.

Rationale for Mixed Methods Research Design

Mixed methods examination integrates qualitative and quantitative methods within a single study. Creswell and Plano Clark (2017) identified several mixed methods based on the timing of data collection and analyses, including convergent, exploratory sequential, and explanatory sequential designs. Convergent studies include qualitative and quantitative phases that unfold simultaneously. Explanatory studies begin with a quantitative phase, which is followed by a qualitative phase to add further examination or explanation. An example might be a survey that is followed by interviews with respondents. Exploratory sequential studies begin with a qualitative phase that informs a quantitative phase.

This study was an exploratory sequential mixed methods study. Qualitative results were used to construct a quantitative scale. The study relied on converted data, which are codes that represent qualitative data derived from a content analysis. Coded data was then merged to

identify patterns. For example, coding from typologies of Twitter news headlines were compared to coding for headline consistency or credibility. This enabled the researcher to examine the relationship between typologies and credibility, as well as headline manipulation and credibility. This pragmatic approach allowed for a more objective and scientific examination of data strands (Creswell & Plano Clark, 2017). The research questions in this study were emergent. The original study design consisted of a qualitative content analysis to identify typologies, assess headline consistency, and assess credibility. As data was collected, a quantitative study was developed by converting data into numbers. Specifically, utilizing a credibility score made it possible to examine degrees of credibility and integrate the results with other findings from the qualitative analysis.

The current study presented in this dissertation is unique in that it evaluated the content of Twitter news headlines and news articles published on the newspapers' websites, utilizing both qualitative and quantitative approaches. This design included a content analysis guided by instructions for interpretation, hand-coding of the assessment, and then scientifically proven quantitative methods of analysis. While there is some degree of human interpretation in almost all hand-coded content analyses, coding was guided by specific procedures using prescribed categorical themes and a detailed codebook.

Metrics of user engagement were used to determine an engagement score to serve as a criterion for data collection, data analysis, and for the purpose of establishing a realistic sample to delimit the scope of the study. In the qualitative phase of research, the researcher and a co-coder assessed the content of Twitter news headlines and the content and context of correlating news headlines and articles published on the newspapers' websites. In the quantitative phase of research, coded results from the qualitative phase were analyzed using statistical methods, with

testing for inter-coder reliability. All quantitative data was derived from the qualitative content analysis. For example, a credibility score was assigned to each Twitter headline based on the coders' assessment of the four components of source credibility. More details on this approach are provided later in this chapter.

Research Questions

User engagement refers to the number of likes, retweets/shares, and comments on each tweet. A tally of each is visible to all Twitter users, located at the bottom of each Twitter post and underneath the linked content. Only Twitter news headlines that resulted in highest levels of engagement (i.e. top 25%) were analyzed in this study and engagement was determined by the sum of likes, retweets/shares, and comments on each tweet. A total of 63 Twitter headlines and linked website headlines and articles were assessed in this study.

Phase one of the study consisted of a content analysis (1) to identify types of news coverage that generated high Twitter user engagement, (2) to assess whether the Twitter headlines were consistent with the linked website headlines and articles, and (3) to assess the credibility of Twitter headlines. Phase two of the study consisted of a quantitative analysis derived from data generated in phase one. The following research questions were answered using this mixed methods approach of examination:

RQ1: What typologies of news headlines published by the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today generated high user engagements on Twitter? To answer RQ1, coders were provided with 11 categories of news content and asked to assess which category (or categories) best described the nature of the news topic presented in each Twitter headline. When Twitter users click onto a headline on the social media network, they are redirected to the news organizations' websites where the full

news articles are published. Given examples in the literature, detailed in Chapter Two, that have indicated social media news headline manipulation is a common modern practice of journalism, coders were asked to examine how the Twitter headlines differed from headlines published on the news sources' websites. This examination led into the second research question.

RQ2: Are Twitter news headlines that generate high levels of user engagement consistent with news headlines published online by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)? By comparing data from the coding of RQ1 and RQ2, it was possible to determine which typologies of news coverage were most consistent in the presentation of headlines published on Twitter and on the news sources' websites. The results are further examined in the third research question.

RQ3: Among Twitter news headlines that generate high levels of user engagement, what typologies of news coverage were most (and least) consistent with news headlines published online by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)? Coders were also asked to examine whether the Twitter headlines were consistent in representation to the full context of the linked news articles. These results led to the fourth research question.

RQ4: Are Twitter news headlines that generate high levels of user engagement consistent in representation to the full context of news articles published online by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)? By comparing data from the coding of RQ1 and RQ4, it was possible to determine which typologies of news coverage were most consistent in the presentation of headlines published on Twitter and the full context of articles on the news sources' websites. This observation led to the fifth research question.

RQ5: Among Twitter news headlines that generate high levels of user engagement, what typologies of news coverage were most (and least consistent) in representation of Twitter headlines and the full context of news articles published online by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)? Coders were also asked to examine whether the Twitter headlines were credible, based on consistency with source credibility theory (SCT). The results are connected with the four components of credibility, which were identified in the codebook and examined in the sixth research question.

RQ6: Based on the four components of credibility (competence, character, care, and commonality), how credible are Twitter news headlines that generate high levels of user engagement by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)? By comparing data from the coding of RQ1 and RQ6, it was possible to determine which Twitter headlines, by typology, were most (and least) credible, based on consistency with the four components of source credibility theory (SCT). This analysis led to the seventh research questions.

RQ7: Based on the four components of credibility (competence, character, care, and commonality), what typologies of Twitter news headlines were most (and least) credible among those published by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today) that generated the high user engagements? By comparing data from the coding of RQ2 (headline to headline consistency) and RQ6 (credibility), it was possible to determine whether Twitter headlines that are consistent with website headlines are more credible than those that are inconsistent. This analysis was used to formulate the eighth research question.

RQ8: Were Twitter news headlines that were consistent with headlines published on the news sources' websites (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today) more credible than Twitter news headlines that were inconsistent with the website headlines? By comparing data from the coding of RQ4 (headline to article consistency) and RQ6 (credibility), it was possible to determine whether Twitter headlines that are consistent in portrayal to the full context of correlating website articles are more credible than those that are inconsistent. This examination led the ninth research question.

RQ9: Were Twitter news headlines that consistently represented the full context of linked articles published on the news sources' websites (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today) more credible than Twitter news headlines that were inconsistent with the full context of the website articles? This analysis provided further insight into the impact of headline manipulation on credibility. This is essential because headline representation of articles is often less apparent than a simple comparison of headlines.

Qualitative Phase

Studies based on metrics, such as social media likes, shares, and comment totals, provide significant quantitative data to measure engagements, but this data alone provides incomplete insight into credibility. A higher number of engagements does not necessarily equal a greater perception of credibility. To fully understand the problem of eroding trust in news media, we must approach the issue holistically, considering the notion of news sharing, modern practices of headline manipulation designed to increase sharing, and the relationship between these headlines and established components of credibility.

For the first phase of this study, qualitative content analysis was utilized as a research method to explore the Twitter accounts of the New York Times, Wall Street Journal, Washington Post, Los Angeles Times, and USA Today. These publications were selected based on circulation, readership, and Twitter followers. According to the Pew Research Center (2021), these newspapers are among the most read newspapers in the United States in terms of print circulation and digital readership. Each newspaper maintains a robust Twitter account as well.

A time-tested approach that's been used by researchers for more than 70 years, content analysis, is not only an appropriate method for studying communication in a systematic and objective manner, but one that can be conducted qualitatively and quantitatively (Weber, 1990; Berelson, 1952). Content analysis is especially effective for the purpose of measuring the amount of something present in a representative sample of mass media, such as credibility (Berger, 1991). Content analysis focuses on the content and contextual meaning of text (McTavish & Pirro, 1990), which may include electronic text, observations, and print media (Kleinheksel et al., 2020; Kondracki et al., 2002).

Modern researchers have found content analysis to be particularly useful in the study of social media. For example, Kalsnes and Larsson (2018) conducted a content analysis to examine themes and typologies of news content on Twitter. Due to its flexible nature, content analysis complements both quantitative and qualitative approaches. Although it is more commonly used as a method in qualitative research, Kimberley Neuendorf (2016), a preeminent scholar of content analysis, argued that the method must be rooted in quantitative analysis using quantitative scientific methods. That being said, Neuendorf recognized that human contribution to content analysis is imperative, and researchers cannot rely solely on computerized methods of data collection and analysis alone. Hand-coding that requires some level of interpretation is

acceptable and serves as a valuable procedure for facilitating inferences about media content, such as topics, circulation, and form. Analysis informed by theory further strengthens the application of content analysis.

Research Design

To conduct the qualitative content analysis, the researcher and a co-coder conducted a content analysis of 639 tweets, representing the top 25% of most viral Twitter news headlines posted by the five newspapers. Each tweet was assessed by typology, using a prescribed list of 11 news typologies. The next step of the content analysis required an assessment of the linked articles to discern whether the Twitter news headlines had been significantly modified from the website headline and if the Twitter headline was consistent in representation of the website article. Working from instructions provided in a codebook, the researcher and co-coder then assessed the credibility of each tweet using the four key components of SCT, which include competence, character, care, and commonality.

Researcher as the Instrument

As the lead researcher in this study, I also participated as one of the two coders who conducted the content analysis. This enabled me to identify any possible ambiguities in the code book and also to refine typologies, definitions, and instructions. For example, early on in the content analysis, I recognized the need to permit tweets to be categorized for multiple typologies. Many Twitter news headlines fit more than one definition for typology. For example, coverage of a political response to a disaster might be categorized for the typologies of politics and disaster coverage. Upon my completion of content analysis, all 639 tweets and linked articles were then assessed by the co-coder who did not have access to the results of my own content analysis. This was necessary to ensure the integrity of the analysis.

Setting

Twitter is the social media network that was used as a research site for this study because it has become the predominant platform for social media news content and promotion among traditional news organizations, mainly due to its interactive nature (Russell, 2019). Moreover, Twitter engagements provide more definitive metrics than other social media networks, such as Instagram or TikTok. In addition, Twitter engagements are more streamlined than other social media networks, including Facebook which offers a wider variety of symbols to select a reaction to posts, such as a smiley face emoji or a heart. On Twitter, the total number of likes, retweets/shares, and comments is readily available for users to see. Since virality (i.e. reach) and engagement metrics were relevant to the nature of this study, only Twitter headlines that generated a high volume of engagement were isolated for consideration.

Procedures

Headlines were first analyzed for themes that generated the highest number of user engagements in the form of clicks, retweets, and comments. Tweets collected from a sample were coded into 11 content categories of news coverage. Instructions for how to categorize news topics was included in a codebook (Appendix B). These instructions included detailed definitions of types of content, as well as explanations for interpreting similarities and consistencies between Twitter news headlines and headlines and articles published online, which were linked within the tweets. The researcher and co-coder considered each Twitter news headline and chose from 11 typologies of news content. The codebook instructions stated that each tweet was to be coded for at least one typology, but multiple typologies could be selected if deemed appropriate. These typologies included (1) entertainment/leisure, (2) crime/justice, (3) consumer/personal finance,

(4) economy, (5) schools/education, (6) health/medical, (7) politics, (8) disasters, (9) environment, (10) international, and (11) opinion.

Typologies

Each coder followed instructions from the codebook, which included definitions of each typology of Twitter news headlines.

- ***Entertainment/leisure*** was defined as topics including art, music, theater, games, fashion, food, trends, celebrities, hobbies, travel, culture, social media, and entertainment technology.
- ***Crime/justice*** was defined as criminal activity, such as shootings, robberies, fraud, and trials.
- ***Consumer/personal finance*** was defined as topics including product recalls, product shortages, shopping, and personal taxes, debt, and investments.
- ***Economy*** was defined as news stories about the national debt, inflation, unemployment, and the stock market.
- ***Schools/education*** was defined as topics such as school policies and curriculum, school choice, student behavior, school safety, classroom trends, classroom technologies, teacher salaries and labor issues, student test scores, school rankings, school buses and busing. This typology also included news stories about public and private schools impacting kindergarten through 12th grade, as well as college.
- ***Health/medical*** was defined as content that focused on diseases, viruses, vaccinations, medical treatments, diagnoses, warning signs, medications, hospitals, hospital staffing, and human science.

- ***Politics*** was defined as news stories about political issues, politicians, candidates, campaigns, political parties, political conflict, political platforms, and legislative action.
- ***Disaster*** was defined as coverage focused on major accidents, crashes, fires, severe weather, and thwarted disasters.
- ***Environment*** was defined as topics including climate change, pollution, sustainability, severe weather, and weather patterns.
- ***International news*** was defined as any news coverage focused on foreign interests, foreign affairs, foreign conflicts, and foreign culture, as well as any major news event taking place in a country other than the United States of America.
- ***Opinion coverage*** was defined as any headline labeled as opinion or an editorial, as well as content that demonstrated a clear subjective argument, perspective, or analysis with the purpose of influencing or swaying the reader's opinion.

Headline to Headline Comparison

The qualitative content analysis continued with an assessment of modifications made to the news headlines when they were rewritten from the newspapers' websites for publication on Twitter. To conduct this analysis, the researcher and co-coder clicked on the corresponding link embedded within each of the 639 Twitter news headlines to access the headline and article published on the news sources' websites. Only tweets that included direct links to websites were included in the study, which thereby eliminated tweets that would not yield sufficient data, such as an advertisement for subscriptions. My co-coder and I worked from a codebook with instructions for comparison (Appendix B). Headlines that matched either verbatim, or were substantially similar in language, information, and tone, were considered consistent. Headlines that were substantially modified or dissimilar were considered inconsistent.

Headline to Article Comparison

Context was then considered in relation to the full content of the website article. This is a critical element of social media news coverage and presentation, since a primary goal of social media news headlines is to entice users to click on the article posted to the news organizations' websites. To conduct this analysis, the co-coder and I read the entire article found in the embedded link for each of the 639 Twitter headlines. Each Twitter headline was assessed for whether it provided a consistent portrayal of the full context of the article. This process enabled the co-coder and I to analyze whether each Twitter headline was consistent, or inconsistent, in its representation of the content within the full article. Instructions for analysis and coding were provided in the codebook (Appendix B).

Assessment of Credibility

Further analysis was conducted to examine the relationship between Twitter news headlines and established components of credibility. For this analysis, SCT was used as a theoretical framework. Based on the literature review detailed in Chapter Two, credibility is a construct of competence, character, commonality, and care. According to the codebook (Appendix B), the co-coder and I considered whether the Twitter headlines reflected each of the four key components of credibility, as determined by the synthesized dimensions of SCT.

- ***Competence:*** A twitter headline that provided information derived from the article and was free of misquotes and misattribution meets the criteria for competence.
- ***Character:*** For this component, researchers were asked to consider tone and intent. Language that was inflammatory, aggressive, sensationalized, or intended to scare the reader would not represent good character.

- **Care:** Researchers were also asked to discern whether the Twitter headline demonstrated care for the reader in terms of usefulness, goodwill, or advocacy. A tweet that included helpful or beneficial information would represent care.
- **Commonality:** For this component, researchers considered whether the Twitter headline represented the common interest of social media users. Twitter headlines that were neutral, fair, balanced, impartial, and unbiased met the criteria for commonality. A headline that demonstrated bias, partisanship, or one-sidedness did not.

Sampling

Constructed week sampling, a type of stratified sampling method, was utilized in this study. This technique entails selecting samples of media content based on the day of the week. A researcher can construct a week or several weeks that represent all days of the week by collecting data on different, but not consecutive, days. This technique has shown to be more efficient than simple random sampling or consecutive day sampling (Kim et al., 2018). Additionally, it also reduces, although it does not eliminate, the instance of one major news story dominating coverage and skewing data. For example, an intense weather event or a mass shooting that occurs on one day is likely to yield follow-up news reports for a period of consecutive days.

Using stratified sampling, Twitter headlines and correlating articles were selected from specific days of the week over weeks in a specific period. As news production and consumption vary from weekdays to weekends, with less robust coverage on weekends, the sample for this study included only Twitter news headlines published on weekdays. The sample included ten days over a duration of ten weeks. As such, Week One data was collected on Monday, Week Two data was collected on Tuesday, and so on. At the end of the ten-week period, tweets from two of each weekday (Monday–Friday) were collected and recorded for analysis.

During this span of ten weeks, each of the five newspapers tweeted 49–54 news headlines per day. Collectively, the five newspapers included in this study tweeted 2,532 news headlines during the 10–day period of data collection. For the purposes of creating a realistic sample for analysis and delimiting the study to focus on tweets that generated the highest volume of engagement, only the top 25% of Twitter headlines from each newspaper from each day of data collection were isolated and recorded. A total of 639 Twitter news headlines were assessed, coded, and analyzed in this study (Appendix A).

The top 25% of Twitter headlines by engagement was a measure that was determined by adding the sum of likes, retweets, and comments on a single Twitter news headline post. There is no need to weight any specific engagement since the scope of the study did not entail an analysis of specific engagements. Regarding virality, likes, retweet/shares, and comments have the same impact on Twitter users' feeds. Twitter users who don't follow the news sources are exposed to the sources' tweets when another user they follow engages with the news tweet, regardless of whether that engagement is a like, retweet, or comment.

Considering only Twitter news headlines that generated high levels of user engagement was an important criterion for the delimitation of the study, which specifically aimed to explore modern journalistic practices (e.g. headline manipulation) designed to boost reach on the social media network, it was appropriate to limit examination based on user engagement. The quantity of engagements matters. Edwards et al. (2013) posited that judgments of credibility are made from examining social media posts and tweets. The influence a person has based on metrics, such as likes, retweets, comments, and followers, directly correlates with perceptions of credibility. Tweets that garner the most attention, based on user engagement, continue to attract attention as the tweets are retweeted, which is the basis of virality. Since there is no limit on the

number of engagements a tweet can generate over time, it was necessary to limit the scope of collection. Tweets disseminate quickly and typically reach saturation within one day (Trilling et al., 2016). Hence, data collected from each tweet took place approximately 24 hours after it was first posted to Twitter.

Tweets were collected from each of the five newspapers during the ten days selected for analysis. Only tweets that included content which linked back to the newspapers' websites were collected, which excluded content such as promotional advertisements for subscriptions or polls limited to Twitter users. News headlines, including social status messages that appeared directly above the headlines, were recorded using a Microsoft Excel spreadsheet.

Sample Size

Research procedures for analyzing content on Twitter vary within the literature, particularly regarding sample size. The unscheduled nature of social media news content creates challenges for researchers who aim to identify a representative sample. Unlike traditional mass media channels, such as television or print newspapers, content on social media networks, such as Twitter, is not restricted to a broadcast schedule or a space layout. There are no limits on time or production capacity. As a result, the 24-hour news cycle can generate an unlimited amount of data, which may fluctuate significantly from day to day. As such, sampling methods used for traditional news media channels are less applicable to Twitter. Yet, there is little consensus on social media data sampling methods (Lewis et al., 2013).

Some studies have analyzed all existing content relative to a specific topic. For example, Colleoni et al. (2014) took a big data approach to examine political homophily on Twitter, which is the notion that users seek out content they agree with and other users like themselves. Similarly, Neuman et al. (2014) used a big data approach to study agenda-setting through

political media frames on Twitter. They relied on a computational analysis of keywords in tweets, such as environment, crime, unemployment, climate change, and abortion, which were then categorized by computer into broader frames such as economy, foreign affairs, environment, and social issues. This approach to analysis does not require sampling.

Conversely, other studies employing content analysis as a methodology have been narrower in scope. In a study of media framing on the topic of child autism, Wendorf Muhamad and Yang (2017) conducted a content analysis of 413 news stories, with each coded into categories representing five news frames. In another study that included in-depth analysis of online news articles to examine populist political opinions, Blassnig et al. (2019) examined 332 news articles and reader comments. Harraway and Wong (2021) conducted a thematic content analysis of 100 randomly selected newspaper articles from six newspapers to examine typologies of coverage about immigration and crime. Baroutis et al. (2021) examined newspaper coverage of autism by conducting a content analysis of more than 1300 articles, however their study took place over a duration of three years. Therefore, the scope of this study, which included 63 Twitter headlines and correlating website articles, was sufficient for analysis.

Feasibility and convenience are necessary factors to consider in determining a sample size and scope of a Twitter-based content analysis. Time constraints may necessarily limit the duration of data collection and analysis. When Chew and Eysenback (2010) conducted text mining and analysis to examine public sentiment about the H1N1 pandemic of 2009 through tweets, they based their sample on feasibility, choosing to collect data from 25 tweets per hour, or 600 per day, over a total of nine days. In a study of how television stations use Twitter for promotion and branding, Greer and Ferguson (2011) examined Twitter sites for 488 stations on a single day and considered only the first page of each station's Twitter account due to the high

volume of tweets posted. Given the vast volume of data available on Twitter, researchers can cull significant data for analysis over a duration of two weeks. In a study about opioid usage, Chan et al. (2015) conducted a content analysis of 540 Twitter messages during a two-week period by conducting a search of medical terms for opioids as well as slang terms. They excluded 182 tweets (33%) due to an inability to discern the context of the tweets in a meaningful manner. While tweets including medical terms for opioids were mostly published by news media, tweets from personal Twitter accounts mostly represented misuse/abuse behaviors. The results of the study were sufficient to provide key insights about attitudes and trends in opioid misuse.

Given the necessary constraints on time and resources, the scope of this study was appropriate both in terms of data collection (639 Twitter headlines and articles) and duration (ten days). If the purpose of the study had been to simply examine key words or typologies of Twitter headlines, which are limited to 280 characters and a web link, it would be possible to dramatically increase the sample size of this study. However, more in-depth analysis to compare Twitter headlines and website articles, as well as a close examination of the relationship between Twitter headlines and components of source credibility, required extensive coding and consideration of correlating news articles.

Data Collection

Twitter is a unique social media network that provides a platform for users to share content and engage with content. Posts are limited to 280 characters but may also include images and links to websites where additional content is published. News organizations that share news headlines on Twitter almost always include a link to the full news article published on the organization's website, as well as a photo or video, a source cue to indicate the news organization, and a social status message that may include a summary of the article or excerpt,

such as an attention-grabbing quote. Welbers and Opgenhaffen (2019) studied the use of subjective language included in news headlines published on the social media network Facebook. They specifically examined the social status messages, referring to the headline and lead of news items that news organizations added when publishing links to their news items on Facebook. The social status is a component of Twitter news headlines as well. Like headlines in newspapers, Twitter status messages appear at the top of the article and concisely refer to the article below. Therefore, it is important to consider the social status as a key element of social media news headlines.

For this study, a standard unit of measurement for data analysis was a single Twitter headline, or a tweet. A direct link to each tweet was copied and recorded into a Microsoft Excel spreadsheet, as well as the link embedded within the tweet for the corresponding article published on the news sources' websites. This enabled the co-coder and I to revisit each Twitter headline and the online articles for comparison.

Integration of Qualitative Data for Quantitative Phase

As a research method for social media, content analysis provides substantial benefits over other research methods. The method can be conducted through passive monitoring and notetaking of text, symbolism, meanings, and consumption patterns (Kozinets, 2002). Moreover, it is more naturalistic and less obtrusive than focus groups or interviews (Kozinets et al., 2010). However, much of the data available on social media is highly unstructured. Therefore, data is best extracted through content analysis and then converted to quantitative data through systematic coding (Chan et al., 2016).

Quantitative Phase

Converting data from content analysis into numeric form requires a study design that clearly defines units, sampling, recording, coding, and data language (Krippendorff, 2004). The coding system utilized in this study was guided by clearly defined units, samples, and properties, which made it possible to assign digits to the results of the content analysis. The basic steps for converting qualitative data into quantitative data are further explained in this chapter, along with the steps taken to analyze that data statistically.

Research Design

The qualitative content analysis began with coding of typologies of Twitter news headlines posted daily by each newspaper: New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today. Only the highest-ranked (top 25%) Twitter headlines in terms of number of engagements were analyzed. Each newspaper was tracked separately. Each tweet was coded separately as well. A comprehensive coding system requires the use of a codebook or coding list (Neuendorf, 2016). A code book (Appendix B) was provided to both coders, which contained the list of variables (i.e. units of analysis) to be researched. The codebook also provided key definitions and examples, and established a consistent framework for conducting the research.

As the co-coder and I completed phase one of this study, the qualitative content analysis, our responses were recorded using a simple numeric system of 1 and 0. This was in preparation for phase two of the study, which consisted of a quantitative analysis. This data was recorded in a Microsoft Excel spreadsheet, which was later used for statistical analysis. For typologies of Twitter news headlines, coders assessed each tweet for classification by topic or type of news coverage: entertainment, crime/justice, consumer/personal finance, economy, schools/education, medical/health, politics, disaster, environment, international, and opinion. Headlines were then

coded as 0 or 1 to indicate whether the topic fits a specific category (1) or not (0). These values were simply added to identify typologies of headlines that generated high levels of user engagement.

Phase two of the study also included a quantitative analysis to examine whether Twitter news headlines were similar (1) or dissimilar (0) when compared to headlines on the newspapers' websites. Both coders also examined Twitter news headlines compared to the full context of the website articles to discern consistency. Answers (yes or no) were also coded as 1 or 0. Finally, both coders considered the Twitter news headlines in relation to each of the four components of source credibility (i.e. competence, character, care, and commonality). These components were identified and developed through an extensive literature review of SCT, which is a useful framework to identify patterns and themes that may serve as codes in a directed content analysis (Chan et al., 2016).

The codebook (Appendix B) provided training and instruction to guide the coding process of evaluating the components of credibility. Each tweet was coded for each of the four categories. Descriptions of each credibility component were provided within the codebook. Each of these four categories was also coded with 1 (yes, it meets the criteria for categorical credibility) or 0 (no, it does not meet the criteria).

Instrumentation

Coding was done by hand, rather than using computer-assisted technology, and was derived from the qualitative content analysis of myself and a co-coder, both graduate-level students from an accredited university. Coding was recorded in a Microsoft Excel spreadsheet that was also used for statistical analysis. This software application provided sufficient data analysis for descriptive statistics, numeral outcomes, and identifying groups. Microsoft Excel

also provided sufficient quantitative results to be used for data visualizations, including the creation of graphs and charts that were used illustrate the results of the study for a better reader experience.

Procedures

At the onset of the study, details such as headline text, links to the website article, and totals of engagements (likes, retweets, and comments) were recorded. In phase one of the study, tweets were assessed by each coder, who then classified and coded them by theme, using 11 predetermined categories of coverage. As part of this qualitative content analysis, both coders also assessed Twitter headlines in relation to correlating website headlines and articles. Twitter headlines in relation to the four key components of source credibility were also assessed. Phase two of the study relied on hand-coding from the content analysis to (1) compare Twitter headlines to headlines published on the newspapers' websites, (2) determine whether the Twitter headlines consistently represented the content and context of full articles published online, and (3) examine the relationship between Twitter news headlines and components of credibility.

The primary purpose of the study was to explore the phenomenon of modern Twitter news headline creation, in which news organizations regularly rely on manipulative techniques designed to lure users to engage with news content, and to examine how consistent headlines are with established components of credibility. Each phase of analysis was based upon categories developed from coding schemes, developed from a measure of a single tweet. Valenzuela et al. (2017) took a similar approach in a study of news frames that drive engagement on social media. They found that conflict, economic, human interest, and morality frames are most likely to result in virality based on sharing.

For this study, only headlines that generated the most audience engagement in the form of likes, retweets, and shares (top 25%) were isolated for consideration in this study. Given the high percentage of intercoder reliability (90% agreement), it was determined that only data provided by one coder (Coder A) would be considered for further analysis, which was conducted using Microsoft Excel.

Data Analysis

To answer RQ1, the sum of each 11 typologies was used to determine with types of Twitter news headlines generated the highest volume of user engagement. RQ2 pertained to the consistency of Twitter news headlines compared to the headlines published on the news sources' websites. The aim was to examine the frequency in which headlines were modified or manipulated from one media platform (website) to the other (Twitter). This question was answered by a simple tally from Coder A's data. By comparing the data from typologies to headline consistency, it was possible to determine which typologies of news coverage were most consistent in the presentation of headlines published on Twitter and on the news sources' websites. This examination is addressed by RQ3.

RQ4 examined the frequency in which Twitter news headlines consistently (or inconsistently) portrayed the full context of the correlating website articles. This question was also answered by a simple sum from Coder A's data. By comparing Coder A's data from typologies to headline-article consistency, it was possible to determine which typologies of news coverage were most consistent in the portrayal of Twitter news headlines to the full context of correlating website articles. This analysis led to RQ5. The remaining research questions pertained to source credibility. RQ6 aimed to examine the credibility of Twitter news headlines

by component. The sum of Coder A's numeric data from the four components of credibility (i.e. competence, character, commonality, and care) was used to answer this question.

To further assess credibility, each Twitter news headline was assigned a credibility score of 0 – 4, based on the data provided by Coder A. This score was a combined sum of the numeric coding from all four components of credibility. For example, a tweet that represented all four components was assigned a credibility score of 4. Likewise, a tweet that represented two components of credibility was assigned a credibility score of 2. To analyze what typologies of Twitter news headlines were most credible, data from the coding of typologies was compared to the credibility score of each tweet. This examination is addressed by RQ7.

To determine whether Twitter news headlines that were consistent with website headlines were more (or less) credible than headlines that were inconsistent among the two media platforms, data from the headline-to-headline comparisons was cross-referenced with credibility scores. This is addressed by RQ8. Similarly, to determine whether Twitter news headlines that consistently portrayed website articles were more (or less) credible than headlines that inconsistently portrayed the content of website articles, data from the headline-to-article comparisons was cross-referenced with credibility scores. This examination is the basis of RQ9.

Summary

Since the concept of credibility is considered a traditional pillar and the highest value of journalism, this study has provided key insights and practical implications for modern journalists and editors, as well as for Twitter users who are also news consumers seeking the most credible news coverage. The research was conducted using both qualitative and quantitative methods to ensure a thorough examination. Data collected from the qualitative content analysis was converted into nominal data that could then be analyzed quantitatively. Intercoder reliability

testing demonstrated a high percentage of agreement across all categories of data collection, indicating that coders received adequate training and instruction to conduct an empirical study. The results of data analysis are examined further in Chapter Four.

CHAPTER FOUR – FINDINGS

Overview

In this mixed methods study, analysis of the collected data was conducted through both quantitative and qualitative methods. Both approaches yielded meaningful results, which together provided key insights that contribute to the body of knowledge about the topic of social media news headlines and credibility. The results revealed which typologies of Twitter news headlines are most likely to be modified from the newspapers' websites, thus indicating a pattern of manipulation to appeal to Twitter users. The results also revealed which typologies of Twitter news headlines are most and least credible. Additionally, the results of the study revealed that modified Twitter news headlines are generally less credible. In this chapter, the results of this study are presented in the order of the nine research questions that were proposed. Illustrations of the results are also presented to aid in the understanding of analysis and discussion that will follow in Chapter Five.

Research Questions

The research questions aimed to examine the typologies of Twitter news headlines that generated the most user engagement, the frequency in which headlines are modified in the transition from the newspapers' websites to Twitter, the frequency in which Twitter headlines represent the full context of website articles, the relationship between Twitter news headlines and the four key components of credibility, and whether headline modification had any bearing on

credibility. The following research questions were developed to examine the phenomenon of headline manipulation and credibility:

RQ1: What typologies of news headlines published by the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today generated high user engagements on Twitter?

RQ2: Are Twitter news headlines that generate high levels of user engagement consistent with news headlines published online by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)?

RQ3: Among Twitter news headlines that generate high levels of user engagement, what typologies of news coverage were most (and least) consistent with news headlines published online by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)?

RQ4: Are Twitter news headlines that generate high levels of user engagement consistent in representation to the full context of news articles published online by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)?

RQ5: Among Twitter news headlines that generate high levels of user engagement, what typologies of news coverage were most (and least consistent) in representation of Twitter headlines and the full context of news articles published online by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)?

RQ6: Based on the four components of credibility (competence, character, care, and commonality), how credible are Twitter news headlines that generated high levels of user engagement by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today)?

RQ7: Based on the four components of credibility (competence, character, care, and commonality), what typologies of Twitter news headlines were most (and least) credible among those published by the news sources (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today) that generated the high user engagements, are most credible?

RQ8: Were Twitter news headlines that were consistent with headlines published on the news sources' websites (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today) more credible than Twitter news headlines that were inconsistent with the website headlines?

RQ9: Were Twitter news headlines that consistently represented the full context of linked articles published on the news sources' websites (New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today) more credible than Twitter news headlines that were inconsistent with the full context of the website articles?

Qualitative Findings

The first phase of the study consisted of a qualitative content analysis, which was guided by a codebook that provided definitions of each credibility component, as well as a proscribed list of typologies of news content. RQ1, RQ2, RQ4, and RQ6 were answered directly through the qualitative content analysis, with a tally of variables recorded by the coders. They are detailed in this section.

Research Question 1

RQ1 examined the typologies of Twitter news headlines that generated the highest volume of engagement (top 25%) based on a sum of retweets, likes, and comments. Coding from

the content analysis was organized in columns by typology, the sums of which were used to answer RQ1.

Table 4 shows the total number of Twitter headlines that were coded for each typology, as well as the percentage of the Twitter headlines included in the study. The sum of engagements represented by each typology is listed in the fourth column of the table. The average number of engagements per Twitter headline is included in the final column. As noted below Table 1, the total number of headlines by typology was greater than the total number of tweets analyzed in the study (639) due to the coding of tweets in multiple typologies. Based on this analysis, Twitter news headlines about politics, international events, entertainment, and crime were among the most common typologies to generate highest levels of engagement. More than a third (32.55%) of the Twitter headlines presented coverage of politics, thus indicating that Twitter users are more likely to engage with political content.

Table 1

Twitter Headlines by Typology

TYPOLGY	# OF TWITTER HEADLINES BY TYPOLGY*	% OF TOTAL TWEETS INC. IN ANALYSIS	TOTAL ENGAGE -MENT	ENGAGEMENT PER TWITTER HEADLINE AVG
POLITICS	208	32.55%	220,617	1,061
INTERNATIONAL	189	29.57%	196,085	1,037
ENTERTAINMENT	147	23.00%	96,894	659
CRIME	104	16.27%	116,206	1,117

HEALTH/MEDICAL	67	10.49%	43,531	650
OPINION	58	9.07%	41,053	708
SCHOOLS/EDUCATION	46	7.20%	63,885	1,389
CONSUMER	45	7.04%	47,684	1,060
ECONOMY	26	4.07%	25,932	997
DISASTER	22	3.44%	9,915	451
ENVIRONMENT	17	2.66%	4,565	269

*Total sum is greater than 639 due to coding in multiple categories

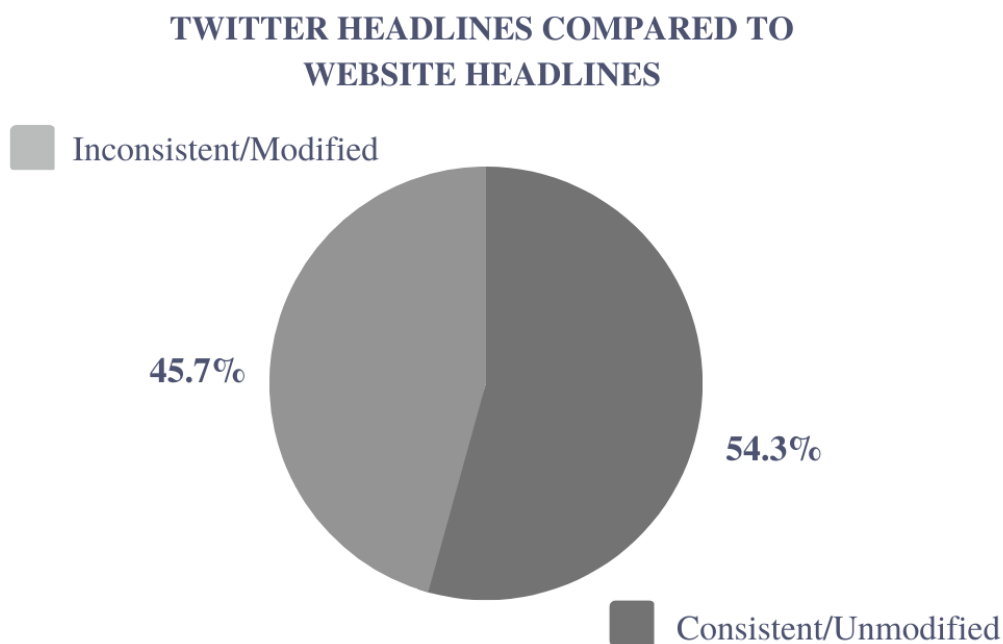
This table illustrates the total of news headlines coded for each typology of news (refer to second column), as well as the overall percentage (refer to third column), based on the 639 tweets included in the study. The total engagement (refer to fourth column) was determined by a sum of retweets, likes, and comments. The fifth column shows the average Twitter engagement, per tweets, which was based on the total engagement and divided by the number of tweets for each typology.

Research Question 2

RQ2 examined the frequency in which viral Twitter headlines differ from headlines published online due to modification or manipulation. The results provided insight into how common the practice of headline manipulation is among the presentation of news on Twitter. Of the 639 Tweets examined in this study, 347 (or 54.30%) were similar (i.e. consistent or unmodified) and 292 (or 45.7%) were dissimilar (i.e. inconsistent or modified) in comparison to the headlines published online. Figure 2 illustrates these results in a pie chart.

Figure 2

Headline-to-Headline Comparison



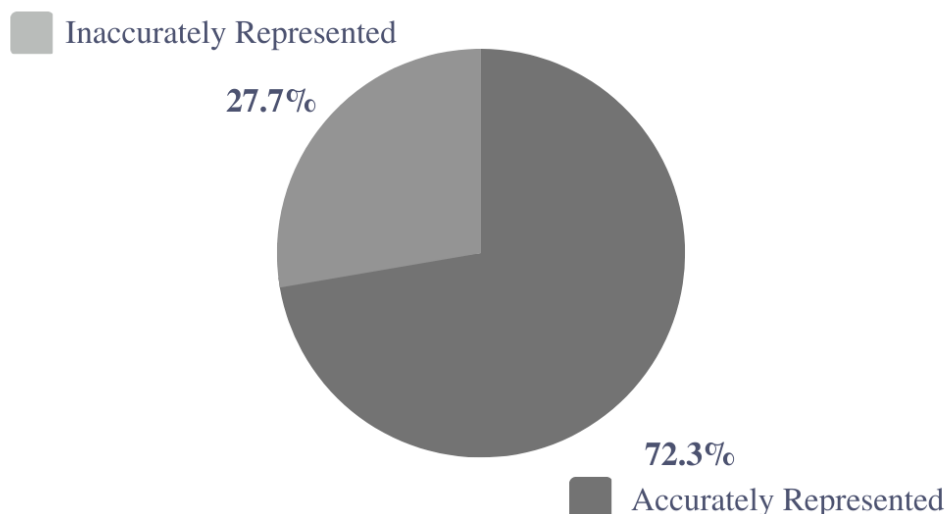
Research Question 4

RQ4 examined the frequency in which viral Twitter headlines accurately present the content and context of the linked articles. The results provided insight into the relationship between Twitter news headlines and representation of news coverage published on the newspapers' websites. Frequency of coded consistencies provided a simple measure of Twitter headline modification or manipulation. Of the 639 Tweets examined in this study, 462 (or 72.30%) were consistent/accurate and 177 (or 27.7%) were inconsistent/inaccurate in their representation of the full content of articles published online (see Figure 3).

Figure 3

Headline-to-Article Comparison

TWITTER HEADLINES COMPARED TO FULL CONTENT OF WEBSITE ARTICLES



Research Question 6

RQ6 specifically addressed credibility and aimed to examine the overall credibility of Twitter news headlines by individual components of credibility. To determine credibility by component, coders assigned the numerals of 1 or 0 to identify each tweet as either consistent or inconsistent with each of the four credibility components. Separate columns were created for each component within a Microsoft Excel spreadsheet, which were tallied to answer this research question (see Table 2). The results indicated competence as the component most frequently demonstrated in Twitter news headlines, with 562 of the 639 Twitter headlines (nearly 88%) identified as competent. Character was the second most common credibility component, demonstrated in 526 (82%) of the Twitter headlines. This was followed by commonality, which was demonstrated in 490 (77%) of the Twitter headlines. Lastly, care was the credibility component least common among Twitter news headlines, with only 66 (10%) of the Twitter headlines demonstrating care. Table 8 shows the results of this analysis. The data is also

represented in a graphic, indicating the percentage of overall tweets that demonstrated each component of credibility (see Figure 4).

Table 2

Headline Credibility by Component

CREDIBILITY COMPONENT	# OF TWITTER HEADLINES CREDIBLE BY COMPONENT*	% PERCENTAGE OF TOTAL TWITTER HEADLINES**
COMPETENCE	562	87.95%
CHARACTER	526	82.32%
COMMONALITY	490	76.69%
CARE	66	10.32%

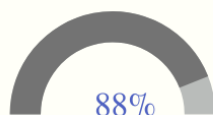
Table 2 illustrates the overall rate of credibility for the total of 639 tweets analyzed, by key the four key components of credibility. The first column identifies the four credibility components. The second column shows the total number of Twitter headlines assessed as credible for each component. The third column shows the percentages of credibility, by component, which were determined by dividing the sum of credible Twitter headlines for each component by the total tweet sample that was analyzed in the study ($n = 639$).

Figure 4

Headlines by Percentage of Credibility Component Demonstrated

COMPONENTS OF CREDIBILITY

REPRESENTED IN TWITTER HEADLINES



Competence



Character



Commonality



Care

Coding

In the second phase of the study, some research questions were quantitatively answered by statistically cross-referencing the coded results of the content analysis. For example, RQ1 and RQ2 were answered directly through qualitative content analysis. RQ1 and RQ2 were then statistically cross-referenced to answer RQ3. In this mixed methods study, data from the qualitative phase of research had to be converted into quantitative data. This process began during the coding process through the recoding of qualitative data.

The procedures utilized for analysis included two key instruments: a codebook designed to guide qualitative assessment of the collected data and a Microsoft Excel spreadsheet that aided in quantitative analysis. The first phase of the study entailed qualitative content analysis conducted by the coders who were tasked with assessing tweets based on typology of news coverage, which is explained later on in this chapter. The researcher and co-coder used the

numerals of 1 and 0 to record the responses within an Excel spreadsheet. Each typology, and other variables in this study, were treated as agreement statements. The numeral 1 indicated agreement that the Twitter headline could be categorized for that specific typology, while the numeral 0 indicated disagreement.

After assessing each tweet to categorize by typology, the researcher and co-coder then assessed each Twitter news headline for consistency with the headline published on the newspapers' websites, as well as for consistency with the full content and context of the website articles. A Twitter headline that was unchanged or unmodified from the website headline was determined to be consistent, where the language and representation matched. Examples of consistent (i.e. matching) headlines are presented in Appendix E. A Twitter headline that was altered or modified significantly was determined to be inconsistent, or not a match. For example, one website article published by the Washington Post featured the headline "Analysis: What could the Mar-a-Lago search mean for Trump legally?" When the article link was posted to Twitter, the headline was changed to "Analysis: Trump is the most egregious violator of the Presidential Records Act in the law's 44 years of existence, historians say." More examples of inconsistent headlines that do not match are presented in Appendix F. A Twitter headline that adequately and accurately represented the article was determined to be consistent. A Twitter headline that misrepresented the article, or featured an unbalanced representation of the article, was determined to be inconsistent. One such example was a New York Times website article about a controversial Supreme Court ruling regarding the landmark abortion case of *Roe v. Wade*. The Twitter headline featured only a quote from one politician and did not acknowledge other perspectives that were included in the article. This and other examples of Twitter headlines

that were assessed as inconsistent with the full content of the article are presented in Appendix G.

Further qualitative content analysis was conducted to examine the relationship between social media news headlines, establishing components of credibility (competence, character, care, commonality) as defined in the updated framework of SCT. Each Twitter headline was assessed for competence, based on factual accuracy of representation of information provided within the website article, as well as objective reporting. Competence was defined as being void of erroneous information inconsistent with facts contained within the article, as well as an absence of bias or subjective reporting. As accuracy and objectiveness are considered pillars of journalism, incompetent Twitter headlines stood out as glaring exceptions to the rule. One example was a Twitter headline from the Los Angeles Times that included a photo of the Pope next to U.S. Senator Nancy Pelosi. The headline suggested that if the two ran against one another in an election, Pelosi would almost certainly defeat the Pope. However, the website article content consisted of mostly opinion and speculation about a hypothetical scenario. This and other examples of Twitter headlines demonstrating a lack of competence are presented in Appendix H.

Character was evaluated based on the nature of the Twitter headline and traditional norms of journalism. Therefore, a Twitter headline that emphasized controversy or conflict, for example, and used inflammatory language or sensationalism would be inconsistent with the credibility component of character. One example was a Washington Post Twitter headline for an article about a historical perspective on George Wallace, who had won the Democratic nomination for president 50 years ago. The headline invoked President Donald Trump and associated with him the inflammatory terms “barely muffled racism” and “combative populist”.

This example and others of Twitter headlines demonstrating a lack of character are presented in Appendix I.

Twitter headlines were evaluated for care based on usefulness or benevolence, beyond the standard intent to inform. As such, a headline that emphasized advice or helpful information, such as a consumer recall, health advocacy, or in-depth reporting to improve the lives of readers, would demonstrate care. One example of a Twitter headline that demonstrated care was for an article about Global Accessibility Awareness Day, which was designed to support people with disabilities. Examples of Twitter headlines demonstrating care are presented in Appendix J.

Commonality was the final consideration of credibility. For this analysis, news headlines that demonstrated common human interest were rated as consistent with commonality, whereas headlines that emphasized a one-sided or biased point of view, pitting opposing perspectives against one another, were considered as inconsistent with commonality. For example, a Twitter headline from the USA Today combined news of a mass shooting at a school in Texas with news of a convention of the gun rights organization, NRA, taking place more than 300 miles away. Examples of Twitter news headlines coded as inconsistent with the credibility component of commonality are presented in Appendix K. All the data from the qualitative content analysis was converted to numeric data for further quantitative examination, using the same coding system of 1 (*agreement*) or 0 (*disagreement*).

Theme Development

The typologies of news coverage analyzed in this study were entertainment, crime/justice, consumer/personal finance, economy, schools/education, health/medical, politics, disaster, environment, international, and opinion. First, entertainment news often pertained to celebrities, fashion, or art. One example was a tweet and article about an Andy Warhol painting

of Marilyn Monroe that sold at a recent auction. Second, tweets and articles about crime and justice typically included news about suspects and police arrests. Both coders identified a tweet and article about police officers who were struck by a car driven by a fleeing suspect as crime/justice. Third, coverage of consumer/personal finance news often included information about shopping trends, individual stock trading, safety recalls, and buyer advocacy, such as an article about the high volume of water in most hygiene and cleaning products. Fourth, articles in this study identified as economic news frequently focused on issues such as the national unemployment rate or a possible recession.

Both coders identified articles about student loans and graduation rates as education news. Health/medical news assessed in this study was often about the COVID-19 pandemic. Regarding politics, coders identified coverage of the U.S. Senate confirmation of a Supreme Court nominee as political, as well as coverage of the governor of Florida in a spat over taxes with Walt Disney World. Disaster coverage included articles about flooding in North Carolina, wildfires in California, a multi-car collision on a Pennsylvania roadway, and a large building collapse in Florida. Articles about the benefits of wind power over coal and a potential ban on gas-fueled vehicles were identified as environmental news. International news in this study was largely dominated by articles about the Russian invasion of Ukraine. Finally, tweets showcasing editorials were categorized as opinion. Additional examples of each typology of news are presented in Appendix C.

Coders were given the option to categorize tweets and articles as multiple typologies. For example, an article about a comedian who halted a live performance to scold a patron who was not following proper pandemic-related protocols was coded for both entertainment and health/medical news. A musician's public statements about a recent Supreme Court ruling were

coded as entertainment and politics. Likewise, an article about President Joe Biden considering student loan forgiveness for families that earn less than a specific income threshold was coded for politics, education, and economy. More examples of tweets coded for multiple typologies are presented in Appendix D.

In addition to the typologies of news coverage, the content analysis also entailed (1) a comparison of the Twitter news headlines to the website headlines, (2) a comparative assessment of the Twitter headlines to the content and context of the website articles, and (3) a content analysis of the Twitter headlines in relation to the four identified components of source credibility (competence, character, care, and commonality). All the data from the qualitative content analysis was converted to numeric data for further quantitative examination, using the same coding system of 1 (*agreement*) or 0 (*disagreement*). By converting all the qualitative data into numeric data, including the conversion of credibility components into a credibility score of 0–4, it was possible to then extend the themes of analysis to the second and quantitative phase of the study, which consisted of statistical comparisons of the data from the qualitative content analysis. These themes included an examination of headline manipulation by typology and credibility by typology, as well as an integration of variables to examine whether headline manipulation has a bearing on credibility. Research questions were developed to specifically address a quantitative examination.

Quantitative Results

The second phase of this study was a quantitative statistical analysis of the coding that was conducted during the qualitative phase of research. Using a Microsoft Excel spreadsheet, it was possible to extract meaningful data about the relationships between viral Twitter news headlines and credibility. First, coder responses were transformed into numeric data, using 1 and

0 to represent agreement (*yes*) or disagreement (*no*). This coding scheme made it possible to examine the phenomenon of headline manipulation and the impact on credibility beyond the results of the qualitative content analysis. Using statistical formulas within the Excel software, it was possible to cross-reference columns of numeric data to identify statistical relationships between news content typologies and rates of consistency with website headlines, article content, and components of credibility. Thus, Excel proved to be a valid and reliable instrument for the descriptive analyses of data collected for this study. First, however, the coded results of the qualitative content analysis had to be verified for reliability and agreement.

Reliability

To reduce subjectivity in the data analysis of content and check for reliability, a pilot test was conducted to evaluate inter-coder reliability (ICR). The purpose of ICR is to examine agreement among two or more independent qualitative coders (Nili et al., 2020). ICR serves to identify bias or mistakes before codes are refined for final analysis and used to develop or test a theory. The process also improves quality and transparency of analysis (O'Connor & Joffe, 2020). Reliability of coding is the extent to which independent coders agree on how the data should be coded by demonstrating how consistently they assign the same codes to each artifact collected as data (Lamprianou, 2020). After a coding scheme is developed, coders must be selected and trained (MacPhail et al., 2016). Due to the human nature of hand-coding, errors can never be eliminated. However, reliability can be tested and achieved by having more than one coder examine a sub-sample (i.e. reliability sub-sample) of data and then check for ICR.

A minimum of two independent coders is generally needed to establish ICR and they should be trained in the descriptions of codes, as well as how to interpret data and any relevant theoretical concepts to inform the coding process (O'Connor & Joffe, 2020). For this study, both

coders examined the same sample of 639 Twitter headlines and correlating website headlines and articles. This vast sample was more than sufficient to assess reliability. The literature has showed that due to resource constraints, researchers usually limit ICR testing to a subset of the data, which is typically 10–25% of the entire dataset and is selected randomly (O'Connor & Joffe, 2020). Neuendorf (2016) posited that the reliability sub-sample should be no smaller than 50. In a study about the credibility of news articles most shared on social media about the topic of breast cancer, Biancovilli et al. (2021) conducted a content analysis of 1,594 news articles, with more than 1,000 total shares. Their data included a random sample of articles collected over a duration of one year. The articles were coded into categories based on source (traditional/digital), nature of content (rumor/verified), and frames (personal story, new technology, complaint, solidarity, treatment, and risk factors). Percent agreement was used to calculate inter-coder reliability on a sub-sample of 100 articles.

To determine ICR for this current study, the coding values (1 = agree, 0 = disagree) from each coder were compared for agreement within Microsoft Excel. The two coders consisted of the primary researcher and another graduate-level college student. Both were trained in the coding scheme. Both coders conducted blind coding, meaning neither saw the coding of the other until the task of coding the was completed. The results of the two coders' work were compared for agreement in all 11 typologies of news, as well the rate of agreement for Twitter headline to website headline comparison, Twitter headline to website article comparison, and all four components of credibility. The percentage of agreement between coders was significantly high (at least 90%) across all typologies of Twitter headline news content (see Table 3).

Table 3

Percentage of Agreement Between Coders by Typology

TPOLOGY	% OF AGREEMENT
ENTERTAINMENT	97.33%
CRIME	97.02%
CONSUMER	99.50%
ECONOMY	95.93%
SCHOOLS/EDUCATION	98.74%
HEALTH/MEDICAL	97.80%
POLITICS	98.90%
DISASTER	96.71%
ENVIRONMENTAL	97.33%
INTERNATIONAL	99.21%
OPINION	90.92%

The percentage of agreement between both coders for comparison of Twitter headline to website headline, as well as Twitter headline to website article, was also significant with more than 98% and 97%, respectively.

Table 4

Percentage of Agreement Between Coders in Headline-to-Headline and Headline-to-Article Comparisons

CONSISTENCY	% OF AGREEMENT
TWITTER HEADLINE/WEBSITE HEADLINE	98.27%

TWITTER HEADLINE/FULL ARTICLE ON WESBITE	97.65%
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The researcher and co-coder assessed Twitter headlines using the four components of credibility. Once again, the percentage of agreement between both coders was significant and ranged from 94.52% to 97.80%.

Table 5

Percentage of Agreement Between Coders by Credibility

DIMENSIONS OF CREDILITY	% OF AGREEMENT
COMPETENCE	97.80%
CHARACTER	94.52%
CARE	96.40%
COMMONALITY	95.30%

Results

Given the high rate of agreement among coders, it was determined that the codebook and coding system were valid and reliable for empirical assessment. The next step in the study design was to conduct a quantitative analysis within Microsoft Excel. While some research questions required only a simple tally to determine the sum of coded qualitative data, some research questions required cross-referencing coded data for a statistical comparison to identify relationships between variables. The results of the quantitative data analysis provided answers to the emergent themes explored in RQ3, RQ5, RQ7, RQ8, and RQ9.

Research Question 3

RQ3 was designed to examine the practice of headline modification or manipulation by typology to determine which typologies of news were most frequently modified or manipulated on Twitter. To determine headline/headline consistency by typology (i.e. whether the headlines on Twitter matched with the headlines published online), Microsoft Excel was used to compare each tweet by typology and its coded value for consistency (1 = consistent, 0 = inconsistent). This analysis was completed by using an IF/AND formula within Excel. The results are presented in Table 6, which shows that Twitter headlines about the environment were most consistent (or least modified) in comparison to the headlines published on the newspapers' websites. Coverage of consumer news was the second most consistent, followed by the headlines about the economy, international news, entertainment, crime, health/medical, politics, disaster, and schools/education. Twitter headlines presenting opinion were least consistent (or most modified). The columns in Table 5 represent the typologies of news, sum of Twitter headlines by typology, sum of the headlines that consistently matched or were unchanged from the websites to Twitter, and the percentage of Twitter headlines that were consistent. The results are ranked from most to least consistent by typology.

Table 6 shows the coders' results of comparative analysis for headline consistency, organized by typology. The second column represents the total of Twitter headlines by typology. The third column indicates the number of Twitter headlines assessed as matching, or consistent with, the headlines published online. The fourth column shows the percentage of consistency by typology, based on the total of matching headlines, divided by the total of headlines for each typology.

Table 6

Consistency of Twitter Headlines Compared to Online/Website Headlines, Ranked by Most to Least Consistent

TPOLOGY	# OF TWITTER HEADLINES BY TPOLOGY	# OF TWITTER HEADLINES MATCHED ONLINE HEADLINES	PERCENTAGE OF HEADLINE/HEADLINE CONSISTENCY
ENVIRONMENT	17	12	70.58%
CONSUMER	45	30	66.66%
ECONOMY	26	17	65.38%
INTERNATIONAL	189	120	63.49%
ENTERTAINMENT	147	80	54.42%
CRIME	104	56	53.84%
HEALTH/MEDICAL	67	29	43.28%
POLITICS	208	89	42.78%
DISASTER	22	9	40.90%
SCHOOLS/EDUCATION	46	14	30.43%
OPINION	58	15	25.86%

Research Question 5

RQ5 aimed to examine Twitter headlines and news coverage featured on the newspapers' websites, specifically by typology, to determine which typologies of Twitter news headlines provided an accurate representation of the articles published online. To determine

headline/article consistency by typology (i.e. whether the headlines on Twitter matched with the full content of the articles published online), Microsoft Excel was used to compare each tweet by typology and evaluate its headline/article consistency. This was conducted by using an IF/AND formula within Excel to cross-reference tweets' coded values for Twitter headline/article consistency (1 = consistent, 0 = inconsistent) and typology. The results are presented in Table 7, which shows which typology of Twitter headlines were most consistent (or least modified) in comparison to the content of the complete articles published on the newspapers' websites. Coverage of consumer news was the most consistent, followed by the topics of the economy, the environment, international news, disasters, entertainment, crime, schools/education, health/medical, politics, and opinion. The columns in Table 7 represent the typologies of news, sum of Twitter headlines by typology, sum of the headlines that consistently matched (or were unchanged from the websites), and the percentage of Twitter headlines that were consistent with the correlating articles. The results are ranked from most to least consistent by typology.

Table 7

Consistency of Twitter Headlines Compared to Full Content of Online/Website Articles, Ranked by Most to Least Consistent

TPOLOGY	# OF TWITTER HEADLINES BY TPOLOGY	# OF TWITTER HEADLINES MATCHED ONLINE ARTICLES	PERCENTAGE OF HEADLINE/ARTICLE CONSISTENCY
CONSUMER	45	42	93.33%

ECONOMY	26	24	92.30%
ENVIRONMENT	17	15	88.23%
INTERNATIONAL	189	164	86.77%
DISASTER	22	19	86.36%
ENTERTAINMENT	147	110	74.82%
CRIME	104	77	74.03%
SCHOOLS/EDUCATION	46	27	58.69%
HEALTH/MEDICAL	67	37	55.22%
POLITICS	208	96	46.15%
OPINION	58	24	41.37%

Table 7 illustrates the results of coders' comparative content analysis of Twitter headlines with the full content of the linked website articles for each tweet. The second column identifies the total of Twitter headlines coded for each typology. The third column shows the total of headlines assessed as matching, or consistent with, the content of linked articles. The fourth column shows the percentage of consistency, which was based on the total number of Twitter headlines that matched linked articles and divided by the total of tweets by typology.

Research Question 7

RQ7 examined the overall credibility of Twitter news headlines by typology. For this phase of quantitative analysis, each Twitter headline was assigned a numeric credibility score of 0–4, with 1 point for each credibility component demonstrated and each component assigned equal weight.

To determine credibility by typology, Microsoft Excel was used to cross-reference the credibility score and typology of each tweet. This was conducted using an IF/AND formula within Excel to identify typology by numeric value, with a 1 in each column of typology to indicate if the tweet represented that typology, and a sum of the credibility score for each tweet (0–4). Next, to determine the average rate of credibility, the sum of credibility scores by typology was calculated and then divided by the sum of tweets by typology.

The results of this analysis revealed that the typologies of schools/education, environment, disaster, and consumer news were most credible, with each typology having an average credibility score greater than 3, on a scale of 0–4. The typologies of economy, international, crime, entertainment, and health/medical had an average credibility score of 2–3. Twitter headlines about political news had an average credibility score of 1.8 and the least credible typology was opinion, with an average credibility score of less than 1 (0.8). These results are shown in the following tables, ranked first by typology (see Table 9), and then ranked by credibility from most to least credible (see Table 10).

Table 8 illustrates the rate of credibility by typology of news, ranked by the most common to least common typology of Twitter news headlines. The second column shows that the total of Twitter news headlines coded for each typology. The third column indicates the total credibility score for each typology, based on a sum of the credibility score for all tweets coded for the typology. The credibility score (0–4) was based on a sum of coder analysis for each of the four credibility components. The fourth column represents the average credibility score by typology, determined by the sum of credibility scores, divided by the total of Twitter headlines coded for each typology.

Table 8*Credibility by Typology*

TYPOLGY	# OF TWITTER HEADLINES BY TYPOLGY*	SUM OF CREDIBILITY BY TYPOLGY	AVG. CREDIBILITY SCORE BY TYPOLGY
POLITICS	208	375	1.80
INTERNATIONAL	189	533	2.82
ENTERTAINMENT	147	388	2.64
CRIME	104	288	2.77
HEALTH/MEDICAL	67	157	2.34
OPINION	58	49	0.84 (<1)
SCHOOLS/EDUCATION	46	157	3.41
CONSUMER	45	136	3.02
ECONOMY	26	75	2.88
DISASTER	22	70	3.18
ENVIRONMENT	17	56	3.29

*Total sum is greater than 639 due to coding in multiple categories

Table 9 illustrates the rate of credibility by typology of Twitter news headlines. The typologies are ranked from the most credible to least credible. Average credibility scores for each typology are presented as ranges in four columns.

Table 9*Typology Credibility by Rank, Most to Least Credible*

TPOLOGY RANK	CRED SCORE (Range 3-4)	CRED SCORE (Range 2-3)	CRED SCORE (Range 1-2)	CRED SCORE (Range 0-1)
1 SCHOOLS/EDUCATION	3.41			
2 ENVIRONMENT	3.29			
3 DISASTER	3.18			
4 CONSUMER	3.02			
5 ECONOMY		2.88		
6 INTERNATIONAL		2.82		
7 CRIME		2.77		
8 ENTERTAINMENT		2.64		
9 HEALTH/MEDICAL		2.34		
10 POLITICS			1.80	
11 OPINION				0.84

Research Question 8

RQ8 specifically examined the credibility of Twitter news headlines that were unmodified from the website headlines compared to Twitter headlines that were significantly modified or manipulated. The aim was to determine if headline modification was a factor in assessment of credibility. The results of this analysis revealed that Twitter headlines that were unmodified from the website headlines were more credible than those that were modified, based on a combined credibility score of the four components of credibility (competence, character,

care, and commonality). This finding was determined by comparing the average credibility score of unmodified and modified Twitter headlines. Numeric data from the content analysis of tweets was coded in separate columns within the Excel spreadsheet, where a value of 1 indicated that the Twitter headline had been significantly modified while a value of 0 indicated that it had not been modified. This sum was compared to the sum of the credibility scores (0–4) for each tweet. A total of 292 modified headlines had an overall sum of 628 for credibility, with an average credibility score of 2.15. A total of 347 unmodified tweets had an overall sum of 1,016 for credibility, with an average credibility score of 2.93. These results show that unmodified tweets are significantly more credible than those that have been modified. This data is represented in Table 10.

Table 10

Credibility Score Comparison of Modified to Unmodified Headlines

# OF TWITTER HEADLINES	TOTAL CREDIBILITY SCORE	AVG. CREDIBILITY SCORE
Modified from website to Twitter: 292	628	2.15
Unmodified from website to Twitter: 347	1016	2.93

Table 10 shows the difference in overall credibility scores between the Twitter news headlines that were modified from the website headlines and the Twitter headlines that were unmodified. The first column indicates the total of Twitter headlines that were modified or unmodified. The second column shows the sum of the credibility scores for the modified and

unmodified Twitter news headlines. The third column indicates the average credibility score, which was based on the overall score and divided by the number of Twitter headlines.

Research Question 9

RQ9 specifically examined the credibility of Twitter news headlines that accurately represented the content of linked website articles compared to Twitter headlines that did not accurately represent the linked articles. For this analysis, numeric data from the content analysis of tweets was coded in separate columns within the Excel spreadsheet. A value of 1 indicated that the Twitter headline accurately represented the content of the linked article, while a value of 0 indicated that the tweet did not accurately represent the full content of the article. This sum was compared to the sum of the credibility scores (0–4) for each tweet. A total of 462 tweets accurately represented the linked articles with a combined credibility score of 1,350, for an average credibility score of 2.92. A total of 177 tweets did not accurately represent the linked articles. These tweets had a combined credibility score of 294 and an average credibility score of 1.66. Thus, tweets that accurately represented the full content of linked articles were found to be significantly more credible than those that did not (see Table 11).

Table 11

Credibility Score of Headlines Consistent in Representation of Website Articles Compared to Headlines Inconsistent in Representation of Website Articles

# OF TWITTER HEADLINES	TOTAL CREDIBILITY SCORE	AVG. CREDIBILITY SCORE
Consistently/Accurately represent full content of website article: 462	1350	2.92

Inconsistently/Inaccurately represent full content of website article: 177	294	1.66
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Table 11 shows the difference in overall credibility scores between the Twitter news headlines that were consistent in representation of the linked website articles and the Twitter news headlines that were identified as inconsistent in representation. The first column indicates the total of Twitter headlines that were consistent or inconsistent. The second column shows the sum of the credibility scores for the consistent and inconsistent Twitter news headlines. The third column indicates the average credibility score, which was based on the overall score and divided by the number of Twitter headlines.

Mixed Methods Results Integration

The first phase of data analysis in this study consisted of qualitative content analysis. Coders assessed each tweet to determine the typology of news content from a provided list of topics. The aim was to identify which typologies of news went viral, meaning they had the highest number of retweets, likes, and shares. Coders also assessed the tweets for headline consistency with the headlines published on the newspapers' websites, consistency with the full content of the website articles, and consistency with each of the four components of credibility. The second phase of analysis consisted of statistical comparisons to identify patterns and relationships among typologies, headline modifications, and credibility. Synthesizing these two approaches of analysis provided rich insights into Twitter news headline manipulation and credibility.

The qualitative content analysis yielded significant findings that, once converted into numeric data, could be used for the purpose of analyzing emergent relational themes. The quantitative phase of analysis relied on coded data derived from the first phase of analysis. Using statistical formulas within the Excel spreadsheet made it possible to comparatively evaluate the frequency of specific variables, such as typologies, headline consistencies, and credibility based on credibility scores. Variables were also cross-referenced using IF/THEN statement formulas in the spreadsheet. While RQ1, RQ2, RQ4, and RQ6 were answered through a simple sum of coded responses in designated columns for typology and headline consistencies, RQ3, RQ5, RQ7, RQ8, and RQ9 required a statistical comparison of two or more columns to identify the frequency with which selected variables occurred simultaneously. The results of this mixed methods approach were instrumental in answering the research questions and identifying patterns of credibility.

Summary

A mixed methods approach was utilized to study the practice of Twitter headline modification and manipulation in two forms – a comparison of Twitter headlines to the headlines of linked website articles and an assessment of whether Twitter headlines accurately represented the full content of linked website articles. Moreover, tweets were analyzed by typology of news to identify patterns that indicate a relationship between typology of news coverage and the practice of headline modification on the social media platform of Twitter. Qualitative and quantitative analysis were also used to assess the credibility of Twitter headlines by typology and form of modification or manipulation. These methods generated data that provided key insights into a common practice of social media news coverage as well as practical implications for modern journalists and news managers, which will be discussed in Chapter Five.

CHAPTER FIVE – CONCLUSION

Overview

As traditional newsrooms face increasing challenges and declining revenues, journalists are relying more on social media to boost profits and stay relevant in an everchanging media landscape. As they compete for the attention of social media users, they must seek new ways to generate interest in traditional news coverage and, in turn, commodify digital audiences through measurable engagements, including likes, comments, and shares. Previous research has shown that to entice social media users rapidly scrolling through an endless display of content, journalists commonly manipulate headlines and create attention-grabbing messages in many cases, but at what cost? This study was the first to examine the credibility of Twitter news headlines and whether the practice of manipulation or typology of news coverage have any bearing on credibility.

SCT provided a useful framework for evaluating the credibility of Twitter news headlines, though it first had to be updated to identify the four key components of credibility and apply these standards to modern media platforms. In this chapter, the key results of this mixed methods study are discussed, providing data and insights that have practical implications for modern journalists. The results also contribute to the body of literature on source credibility and establish a framework for assessing credibility in future research. The chapter begins with a review of the study, followed by a discussion of the answers to the research questions according to the phases of analysis. Next, limits of the study are discussed. The chapter concludes with recommendations for future research.

Review of the Study

This exploratory sequential mixed methods study specifically examined Twitter news headlines from five traditional newspapers published in the United States: the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today. A total of 639 tweets representing the top 25% of tweets from each newspaper, based on engagements (i.e. likes, comments, and retweets), were collected over a duration of ten weeks. The Twitter headlines were assessed by a team of two coders who conducted a qualitative content analysis of each tweet. They first categorized each tweet by 11 typologies of news coverage: entertainment/leisure, crime/justice, consumer/personal finance, economy, schools/education, health/medical, politics, disasters, environment, international, and opinion. Next, they compared each tweet to determine whether the Twitter headline was consistent with the headline published on the linked website articles, and whether the Twitter headline accurately represented the full content of the article. Finally, coders assessed each Twitter news headline for credibility. SCT was updated and applied as a tool for assessing credibility. Coders considered four key components of credibility: competence, character, care, and commonality.

This qualitative content analysis was followed by a statistical quantitative analysis of the results from the first phase of the research. All qualitative analysis results were converted to numeric data for the second phase of research. Categorizations of typology were coded with a value of 1 or 0 (1 = agreement, 0 = disagreement). Comparisons of headline consistencies were also coded with a value of 1 or 0 (1 = agreement, 0 = disagreement). For measuring credibility, each of the credibility components was equally weighted to create a credibility score of 0–4. This score was used for statistical computations and comparisons with other data coded during the content analysis phase of the research. A more detailed overview of SCT can be found in

Chapter Two. The methods and procedures used in this study were discussed more thoroughly in Chapter Three.

Discussion

This study and its results are significant, as Twitter has become one of the most popular social media platforms for news consumption, yet most Twitter users claim they lack a great deal of trust in the information they find on Twitter (Mitchell et al., 2021). This lack of trust has undermined the credibility of traditional journalism and the journalists who produce news content. As such, it is imperative that journalists reflect on their own modern practices of Twitter news presentation to evaluate whether they inadvertently contribute to the erosion of their own credibility. Careful consideration must be given to the headlines that are now commonly manipulated to attract and commodify Twitter users who either seek news coverage on the platform or merely happen upon it as they scroll through their social media feeds (Ng & Zhao, 2020; Blanchet Nehili, 2018; Meier et al., 2018). In this rapid flow of digital content, news consumers make quick decisions about how they engage with news headlines (Molyneux & Coddington, 2020; Kuiken et al., 2017) and many do not bother to click onto linked articles before liking, commenting, or sharing tweets (Costera Meijer & Groot Kormelink, 2015). When this happens, misinformation or misleading information may easily spread, further undermining the credibility of a news source as virality increases.

Since credibility is the currency of journalists, they must strive to uphold high standards if they are to retain value in a world where access to social media news is cheap, lest they cheapen the aim of their profession, which is to inform and serve the public. In the modern media landscape where consumers are becoming increasingly skeptical of news sources, traditional outlets, such as newspapers, have a real opportunity to stay relevant and profitable if

they can create headlines that lure Twitter consumers to push past the paywalls without leaving them to feel duped or deceived.

Discussion of Integrated Results by Research Question

The purpose of this study was to (1) identify the typologies of Twitter news headlines that generate the highest levels of user engagement, (2) determine the frequency in which these Twitter news headlines were modified from the headlines on the linked articles published on the newspapers' websites, (3) evaluate whether the Twitter headlines accurately represented the content of the complete website articles, (4) assess the credibility of the Twitter headlines, and (5) identify relationships between typologies and credibility, as well as headline modification or manipulation and credibility. The first phase of qualitative data analysis provided useful results that could be adequately transformed into numerical data, which led to the second phase of analysis, based on quantitative metrics that were statistically compared for further examination. Data from both the qualitative and quantitative phases were integrated to further explore the relationships between variables and to provide a more robust examination of the phenomenon of Twitter news headline manipulation and the impact to credibility. The integration of data was managed through Microsoft Excel, which served as the primary instrument for data analysis in the quantitative phase of the study through comparison or cross-referencing to examine relationships between the variables. A total of nine research questions guided the examination and analysis. The results of the nine research questions are presented in the order they were proposed with an explanation of how qualitative and quantitative methods were integrated to yield substantive findings.

RQ1 examined what typologies of Twitter news headlines generated the highest levels of user engagement. Qualitative content analysis revealed that headlines about politics, including

coverage of politicians, were by far the most common types of headlines to amass high numbers of likes, comments, and retweets. More than 200 of the 639 tweets analyzed (or 32.5%) were about politics. International news was the second most common typology of news identified, accounting for nearly 30% of the tweets analyzed. This typology was followed by Twitter headlines about crime (16%), health and medical news (10%), opinion (9%), schools and education (7%), consumer issues (7%), economic matters (4%), disasters (3%), and environmental news (less than 3%). It is worth noting that while the data was not collected during a presidential election year, politics remain a divisive topic, and thus social media users are likely to have strong opinions that may implore them to engage with such headlines. International news was mainly dominated by one major news story that was featured in headlines for the duration of the study, which was the Russian invasion of Ukraine. The remaining nine typologies of news also provide practical insights for news managers and journalists about the topics in which social media news consumers are most interested.

RQ2 found that viral Twitter headlines were modified from the headlines published on the newspapers' website nearly 46% of the time, indicating that journalists are manipulating headlines to attract Twitter users almost as frequently as they are not. This result reaffirms previous research which has shown that headline manipulation is still a common practice among traditional news outlets. RQ3 examined the practice of headline modification by typology of news coverage by integrating the data from RQ1 and RQ2. This was done by cross-referencing the typologies to the coders' ratings for consistency between headlines that newspapers posted to Twitter and the headlines published on the linked articles.

The results of data analysis for RQ3 indicate that there was the least modifications made to Twitter headlines for coverage of the environment, with more than 70% of the headlines

unchanged and less than 30% modified. Twitter news headlines for coverage of consumer issues, the economy, international news, entertainment, and crime were also mostly consistent, with fewer than 50% of the headlines significantly modified. Health/medical news, politics, disasters, schools/education, and opinion were the news typologies that represented the highest rates of headline modification. Opinion columns, sometimes referred to as editorials, were by far the most frequently modified headlines, with nearly three-quarters of these headlines significantly modified or manipulated in some manner, often to include more inflammatory language to grab the attention of Twitter users. Given that opinions often tend to be controversial in nature, this type of coverage offers the opportunity for inflammatory, or even shocking, statements and claims that can be showcased in Twitter headlines or status messages that appear on Twitter just below the headline. A more interesting finding in the research may be the rate of headline modification with coverage of schools and education, which were consistent only 30% of the time. This means that 70% of the tweets about issues impacting schools and education had been significantly changed from the website articles. This finding suggests that newspapers may be placing more emphasis on controversial issues that pertain to schools or may be highlighting the most polarizing details on social media. More research into this specific typology of coverage is needed to explore this approach to news.

RQ4 was answered through content analysis. Similar to RQ2, this question sought to compare Twitter news headlines with the linked articles published on the newspapers' websites. However, rather than examining only the headlines, RQ4 considered how accurately Twitter news headlines represented the full content and context of the online articles. The results revealed that in more than 72% of tweets, the headline accurately represented the articles and reflected the full breadth of content. However, this means that nearly 28% of viral Twitter news

headlines portray an inconsistent message or representation of the facts and scope of the full coverage. Notably, it can be concluded that while nearly half of viral news headlines may be modified for Twitter news consumers, it is less common that the modifications are inaccurate or misleading. Yet, news managers and journalists who strive for accuracy may want to revisit the practice of Twitter headline manipulation to improve accuracy beyond 72%.

RQ5 aimed to determine which typologies of Twitter news headlines provided an accurate representation of the articles published online. To answer RQ5, data from RQ1 and RQ4 was integrated through a statistical comparison. By comparing typologies to headline-article consistency, it was revealed that coverage of consumer news was the most consistent, followed by coverage of the economy. More than 90% of the Twitter headlines were consistent with the full content included in the linked articles. These results indicate that even when headlines are modified, the Twitter headlines still provide a complete presentation of the articles. Twitter headlines about the environment, international news, and disasters were consistent with the full articles more than 80% of the time. Coverage of entertainment and crime had a consistency rate of between 70% and 80% when Twitter headlines were compared to the articles. This indicates that nearly one-third of these Twitter headlines had been manipulated in a manner that coders considered inconsistent or potentially misleading. An example of this would include a Twitter headline about a scandal that is overly sensationalized to attract audiences, or that left out key details found in the article. Another example would be a Twitter headline about a crime that is manipulated to elicit fear by leaving out mitigating details. The data revealed a significant decline in consistency for coverage of schools and education (less than 59%), health and medical news (55%), politics (46%), and opinion (41%). Such low consistency ratings indicate that Twitter headlines are commonly manipulated in a way that may deceive Twitter users. This

raises serious ethical questions for journalists. Since research shows that Twitter users often engage with headlines by commenting, liking, or sharing them and do not read the linked articles, headlines that are misleading or incomplete in presentation increase the risk of viral misinformation and may put journalistic credibility at risk.

RQ6 was also answered through content analysis to assess the overall credibility of each Twitter news headline, based on the four key components of source credibility: competence, character, care, and commonality. Detailed definitions of these components can be found in Chapter Two and in the codebook (Appendix 2). The analysis revealed that nearly 88% of the tweets demonstrated competence, 82% demonstrated character, 77% demonstrated commonality, and 10% demonstrated care. An overall credibility score was derived from these results and used for further quantitative analysis. While it is not surprising that competence ranked highest for credibility, the finding should raise an alarm among traditional journalists who strive for 100% competence and perceive it as a component primarily based on factual accuracy and absence of errors, such as misquotes or misattributions. Character is the component based primarily on tone and intent. Sensational or inflammatory language would be characteristics that negatively influence perceptions of character. Thus, a character rating of 82% indicates that 18% of the tweets analyzed included language that did not represent quality character in news coverage. A relatively low rate for care (10%) is less surprising, given that care is defined by content that is particularly useful or represents a critical need or advocacy on the part of news consumers. Care goes beyond the traditional standard of basic journalism that is accurate and balanced.

The result of this analysis that should most concern journalists is that 77% of the Twitter headlines demonstrated commonality, meaning they were representative of a common interest. Commonality was essentially defined as content that is neutral, fair, balanced, impartial, and

unbiased. While it may not come as a surprise that Twitter headlines labeled as opinion might not score high for commonality, it should be noted that only 9% of the Twitter headlines were categorized for the typology of opinion and 23% of tweets did not meet the standard for commonality. These results suggest that news managers and journalists should review editorial practices to ensure their Twitter headlines do not reflect a bias or one-sidedness.

RQ7, RQ8, and RQ9 specifically addressed credibility and were answered by integrating data from RQ6. Credibility was first considered in relation to typologies of Twitter news headlines by determining which were most and least credible. Next, it was considered by examining how headline modification impacts credibility. RQ7 asked coders to consider the overall credibility of Twitter news headlines in relation to the four key components of credibility: competence, character, care, and commonality. Based on data from the qualitative content analysis conducted for RQ6, each tweet was assigned a numeric credibility score, which was then cross-referenced by typology, which was identified for RQ1. The integrated results revealed a significant ranking of credibility for Twitter headlines based on topic.

Twitter headlines about schools and education were ranked most credible, followed by news of the environment, disasters, and consumer matters, respectively. The typologies of economy, international news, crime, entertainment, and health/medical fell into the mid-range of credibility. Politics and opinion were the typologies of Twitter news headlines that demonstrated the least credibility. Given that opinion news and editorials are typically one-sided and controversial, it is not surprising this typology would rank the lowest in credibility, particularly on the key components of commonality and character. Likewise, while political coverage is often polarizing, these results indicate that journalists may be emphasizing polarizing details over objective facts to drive engagement. Regarding the typologies deemed most credible in Twitter

headlines, this study revealed that, although the headlines may be modified, journalists who covered schools and education presented their coverage credibly on Twitter. Similarly, journalists who created Twitter headlines about the environment, disasters, and consumer news consistently did so credibly, demonstrating high levels of competence, character, commonality, and care. These topics provide key opportunities for credibility-building and perhaps advocacy.

RQ8 aimed to examine the impact of headline modification on credibility. This analysis was conducted through a statistical comparison of data from RQ2 and RQ6. Based on credibility scores of Twitter headlines, which were derived from RQ6, a comparison was conducted using the results of RQ2, which identified headlines that were significantly modified from website headlines. The integrated results of RQ2 and RQ6 made it possible to answer RQ8 by comparing the credibility scores of Twitter headlines that were modified with those that were unchanged. The integrated data revealed that headline modification is a factor in assessment of credibility. Unmodified headlines had an average credibility score of 2.93 (0.0–4.0), whereas modified headlines had an average credibility score of 2.15 (0.0–4.0). These results indicate that modified Twitter headlines are significantly less credible than unmodified Twitter headlines. In other words, headline modification or manipulation to attract the attention of Twitter users frequently comes with a tradeoff in reduced credibility. Similarly, when comparing the credibility of Twitter headlines that were assessed for representation of the complete content in linked articles (RQ9), there is empirical evidence that representation matters.

RQ9 was answered by integrating the results of RQ4 and RQ6. Tweets that accurately and consistently represented the website articles had an average credibility score of 2.92 (0.0–4.0), whereas tweets that were inconsistent in representation had an average credibility score of just 1.66 (0.0–4.0). These results indicate that Twitter headlines inconsistent in representation of

the full content of linked articles are significantly less credible than those that are consistent. As such, it is evident that Twitter headlines that fail to represent the full content of linked articles may be modified in a manner designed to draw attention, however they fall short on the scale of credibility. Thus, journalists concerned about upholding the traditional ideal of credibility must ensure that Twitter headlines do not mislead readers, but rather are carefully crafted to represent the complete scope of their articles, lest they leave readers feeling deceived or duped.

Implications

This study has significant theoretical and practical implications. By synthesizing the literature on SCT, a model was created for analyzing credibility based on the four key components of competence, character, commonality, and care. This model serves as a lens for qualitative examination, such as content analysis. Moreover, the model also serves as a framework for quantitative analysis. Each credibility component can be used as a basic measure for quantitative examination of credibility. For this study, a credibility score was determined by giving equal consideration to each component. However, any individual component could be weighted depending upon desired application. This provides a practical instrument for future researchers who wish to use SCT as a lens for examining credibility. This study also provides a framework for integrating qualitative and quantitative methods. The results of the study offer practical guidance for journalists, which is discussed later in this chapter.

Theoretical Implications

Chapter Two included an overview of how Carl Hovland's (1953) SCT, which was originally developed during WWII as an assessment of propaganda, has since been modified and applied more broadly as a framework to examine credibility as a universal concept or perception, specifically in relation to news. Early scholars of the theory attempted to define credibility as a

construct of dimensions or components, based on concepts such as expertise, trustworthiness, or goodwill (Hovland et al., 1953). Some researchers created metrics for measuring credibility based on its dimensions or components (Berlo et al., 1969). Other researchers took a more qualitative approach by developing scales for assessing credibility through content analyses or conducting interviews about perceptions (McCroskey & Teven, 1999). Kohring and Matthes (2007) further extended such scales and metrics to specifically apply to trust in news media, recognizing that traditional journalistic values and practices are consistent with the components of credibility.

This present study is groundbreaking in that it synthesized several decades of research into SCT, along with research into ideal standards of journalism. Concepts such as trustworthiness, expertise, usefulness, benevolence, accuracy, concern, intent or motive, and shared values were used to develop a more modern application of SCT. The result was a framework of four components, referred to as the four Cs of credibility, including competence, character, care, and commonality. Competence encompasses notions of expertise, accuracy, and training. Character includes concepts of trustworthiness, intent, and motive. Care represents perceptions of goodwill, benevolence, and usefulness. Commonality is associated with relatability, similarity, agreement, or representing a common good. These components provide a guide for researchers to further examine credibility through qualitative assessment. Moreover, this study has significant theoretical applications in that it has offered a method for quantitative assessment by creating a credibility score. The score is based on these four components for measuring credibility, using a scale of 0–4. Collectively, these approaches served as the basis for this mixed methods study to empirically examine credibility of modern news practices, as well as extend to a broader application.

Practical Implications

The results of this study should serve as a call to action for journalists who find themselves torn between the need to attract and commodify social media news consumers, while also maintaining credibility, which is the currency of journalism. While clickbait strategies may boost Twitter engagement, news managers and editors must consider the cost. The data from this study has illuminated how headline modification and manipulation impacts credibility.

To maintain credibility, journalists should consider creating protocols to review Twitter headlines to ensure consistency and proper representation of their linked articles. When it is necessary for headlines to be modified, perhaps for brevity, journalists must consider whether credibility is being harmed. Careful consideration should be given to the typologies of opinion, politics, health and medicine, and entertainment. This study found that Twitter news headlines about these topics were among the least consistent when compared to website headlines and articles, and were also among the lowest in credibility. Regarding these topics, journalists need to examine whether their approaches to coverage, or their creation of Twitter headlines, are contributing to the erosion of credibility. While inflammatory language, one-sidedness, sensationalized details, an incomplete presentation, or a focus on divisiveness may lure Twitter users and lead to increased virality, these methods may be simultaneously reducing perceptions of credibility. Moreover, if Twitter users engage with headlines without clicking onto the linked articles, they may unknowingly be less informed or misled. These consequences are serious enough that professional journalism organizations should advocate for tighter controls on clickbait strategies and enhanced monitoring of Twitter headlines.

This study also underscored areas of opportunity for journalists to boost credibility. By using the four key components of credibility, journalists can improve and maintain credibility

among Twitter news coverage. The data revealed that while nearly 88% of viral Twitter news headlines demonstrated competence and 82% demonstrated good character, less than 77% demonstrated commonality, which was defined as a common interest based on objectivity, fairness, and balance. Furthermore, there is significant room for improvement in the credibility component of care. Surprisingly, only 10% of the tweets went beyond basic coverage to advocate for news consumers, provide a more in-depth understanding, or provide useful information that directly benefited the news consumers. Journalists who wish to boost credibility can tailor coverage and presentation of Twitter news to focus on beneficence.

Limitations

The fluid and organic nature of Twitter make it an ideal space for studying media consumption and behaviors. Yet, researchers face challenges when establishing the parameters of studies. One critical challenge is sampling. This study was limited in its sample size of 639 Twitter headlines and linked articles. They represented the top 25% of Twitter headlines in terms of virality and engagement, which is determined by comments, likes, and retweets. Data collection was also limited to ten days over a duration of ten weeks, representing only a fraction of Twitter news headlines posted over the course of a year, or even a month. Moreover, the limited duration allowed the data to be potentially skewed by one of two major news events that dominated headlines for an extended period of time. In this case, there were three major news stories that garnered much attention from all five newspapers. These stories included a significant international event, the Russian invasion of Ukraine. Other dominant news stories included a landmark U.S. Supreme Court decision on abortion and continuing coverage of a global pandemic. Therefore, it is likely that international news, politics, and health and medical stories were disproportionately represented in the sample.

Other limits to the study included the number of coders and the number of newspapers considered. Two coders analyzed the same sample of 639 tweets and articles. Despite a high rate of agreement, a greater number of coders may have yielded different results in assessment of typology, headline consistency, and headline representation of linked articles. Just five traditional newspapers were analyzed, which were selected based on Twitter following and reach. While Twitter provides a widespread channel for distribution, each newspaper may differ in its prioritizing of news typologies. For example, a newspaper based in New York may prioritize coverage of finances and stock market investing, a newspaper based in Washington D.C. may focus more on politics, and a newspaper based in California may emphasize celebrity news. In this study, no consideration was given to differences of typology by newspaper. This study was also limited in its scope of social media platforms and digital elements. Analysis included only text and did not consider images or video, which may influence perceptions of credibility. Twitter was the only digital source considered. Future research should consider other social media platforms, as they may yield different results.

It is also important to note that following data collection and analysis, Twitter was sold. No longer a publicly traded company, Twitter now has a sole owner, Elon Musk, who has made significant changes to policy and protocols, including a partial rebrand of the platform under the label X (Dinesh & Odabas, 2023). This study was based solely on data gathered prior to completion of the sale. Access and visibility to Twitter headlines may have changed. Business practices, such as paid advertising, checkmarks, or symbols to identify authenticity of Twitter accounts, have also been subject to change. While the sale of Twitter had no bearing on the integrity of this study, it does underscore the ever-evolving nature of social media, which supplicates the need for further examination and fresh approaches.

Recommendations for Future Research

This study serves as a launching pad for future research into social media news headlines and credibility. A similar study in the future may provide key insights into how journalistic practices of social media headline creation and modification evolves. Extending the scope of the study to a larger sample, greater number of coders, and longer duration of news coverage may further contribute to the body of knowledge on the topic.

As the growth of social media platforms, such as Twitter, coincides with the proliferation of more social platforms, researchers face new challenges and new opportunities. While traditional news organizations, including newspapers, television, and radio fight to stay relevant in a digital news environment, journalists must continue to adapt to new platforms. Today's news consumer can find access to news on Twitter, Facebook, Instagram, and TikTok, just to name a few. This study considered only Twitter as a platform for news, but the study provides a framework for applying a mixed methods approach to examining news headlines and credibility on other social media platforms as well. New research is needed to explore how journalism practices and credibility vary on social media platforms, and whether one platform may be more credible than others.

Future research may also determine if other traditional news sources, including broadcast news, follow a similar pattern of headline modification and manipulation, or if they are credible. More research is also needed to examine images and video as essential elements of social media news headlines, however that would require a new scale for visual credibility based on the key components of credibility, which were derived from SCT. Additionally, Twitter users' comments on tweets may be analyzed in future research to assess their potential impact on credibility.

Summary

With nearly 46% of the viral Twitter headlines analyzed in this study significantly modified from the newspapers' website headlines, this study contributes to the body of knowledge about the practice of headline modification and manipulation among traditional news sources. Moreover, this study found that 28% of viral Twitter news headlines were inconsistent with the full content of linked articles, indicating they did not accurately and completely represent the facts and scope of coverage. The study also found that headline manipulation occurs more frequently among certain typologies of news. The research further indicates that these phenomena significantly influence the credibility of Twitter news headlines.

This study is groundbreaking in that it went beyond the quantifiable metrics of a common journalistic practice and included a qualitative assessment of credibility. Synthesizing these data provided a unique and more thorough understanding of how modern news practices and presentation on social media conflicts with traditional journalistic standards, the highest and most crucial of which is credibility. This research provided key insights and has practical implications for journalists who strive to maintain credibility in their quest to attract and commodify Twitter news consumers. Clickbait strategies, such as headline manipulation, may be profitable in the short-term, but at a significant and long-term cost to credibility. Combatting the erosion of news credibility begins with addressing the construct of news headlines before they go viral.

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Appendix A

Data Collection Chart

DAY	NEW YORK TIMES	WASHINGTON POST	WALL STREET JOURNAL	USA TODAY	LA TIMES
	Tweets/Archived	Tweets/Archived	Tweets/Archived	Tweets/Archived	Tweets/Archived
MON March 21	50/12	52/13	49/12	54/14	52/13
TUES March 29	50/12	52/13	49/12	54/14	52/13
WED April 6	51/13	52/13	50/13	49/12	52/13
THUR April 14	51/13	52/13	49/12	49/12	52/13
FRI April 22	51/13	52/13	49/12	51/13	51/13
MON April 25	51/13	52/13	49/12	52/13	52/13
TUES May 3	51/13	52/13	51/13	49/12	52/13
WED May 11	51/13	51/13	50/13	49/12	51/13
THUR May 19	50/12	52/13	50/13	51/13	52/13
FRI May 27	51/13	52/13	49/12	52/13	52/13
TOTAL	490/127	519/130	495/124	510/128	518/130
Tweets/Archived					

*Total tweets in 24-hour period. Top 25% based on total number of primary engagements (sum of likes, retweets/shares, and comments on the original tweet) were collected for examination.

Appendix B

Coding Instructions for “Traditional Newspapers’ Twitter Headlines and Credibility”

Study

This study is examining the credibility of news headlines posted to the Twitter accounts of five traditional newspapers: the New York Times, Washington Post, Wall Street Journal, Los Angeles Times, and USA Today. Coding will take place in multiple steps. For each Twitter headline, coders will first identify the typology of news coverage based on 11 categories (listed below). Coders will then compare the Twitter headline to the headline published on newspapers’ websites. Next, coders will read the website article and code whether the Twitter headline consistently represents the full content of the article. Finally, coders will determine whether the Twitter headline represents each of the four components of source credibility (listed below).

Unit of data collection

The unit of data collection is one tweet and one accompanying news article. Each tweet selected for coding features a news headline posted to the Twitter account belonging to one of the newspapers included in the study and a link that directs Twitter users to the newspaper’s website.

Coding instructions

1. For each tweet, you will first read the headline and then code which category (or categories) of news coverage the headline represents. There are 11 categories to choose from (listed below). You may select as many categories as you like, but you must select at least one. You will then move on to Step 2.
2. You will read and compare the Twitter headline and the headline from the accompanying website article. You will then code whether the headlines are consistent or inconsistent. (More detailed instructions are provided below.) You will then move on to Step 3.

3. You will read the website article and then select whether the Twitter headline adequately and consistently represents the full content of the article. (More detailed instructions are provided below.) You will then move on to Step 4.
4. You will consider the four components of credibility (listed below) and code whether the headline represents each of the components. (More detailed instructions are provided below.)
5. Your coding should not be based on factors such as likes, retweets, or comments.
6. Your coding should not be based on personal knowledge of a news article or topic.
7. Your coding should not be based on personal opinion of a news article or topic.
8. Your coding should not be based on perceptions or opinions of a news source.
9. When considering Twitter headlines, the social status message, which is located directly above the linked headline, should be considered as part of the headline. The social status message may include a summary, quote, question, or another element that references the linked headline.

***If at any time you are uncertain of how to code for a specific variable, you should refer to these instructions and then use your best judgment.**

***A code sheet with blank examples has been provided to you in the form of a .pdf containing columns and tables for each variable.**

Tweet ID

You have been given a digital list of numbered links to tweets. You will click onto the links (or copy and paste it into your web browser) to access each tweet. You will complete all four steps in the coding process before moving onto the next link provided in this list.

1. News Content Categories

After reading the Twitter headline only, you will indicate which category or categories are represented by the headline.

The categories, including explanatory descriptions, are as follows:

1. Entertainment/Leisure: Topics including art, music, theater, games, fashion, food, trends, celebrities, hobbies, travel, culture, social media, and entertainment technology.
2. Crime/Justice: Topics including criminal activity, such as shootings, robberies, fraud, and trials.
3. Consumer/Personal Finance: Topics including product recalls, product shortages, shopping, and personal taxes, debt, and investments.
4. Economy: News stories about the national debt, inflation, unemployment, and the stock market.
5. Schools/Education: Topics such as school policies and curriculum, school choice, student behavior, school safety, classroom trends, classroom technologies, teacher salaries and labor issues, student test scores, school rankings, school buses, and busing. (This includes news stories about public and private schools impacting kindergarten through 12th grade, as well as college.)
6. Health/Medical: Content that focuses on diseases, viruses, vaccinations, medical treatments, diagnoses, warning signs, medications, hospitals, hospital staffing, and human science.
7. Politics: News stories about political issues, politicians, candidates, campaigns, political parties, political conflict, political platforms, and legislative action.

8. Disaster: Coverage focused on major accidents, crashes, fires, severe weather, and thwarted disasters.
9. Environment: Topics including climate change, pollution, sustainability, severe weather, and weather patterns.
10. International: News coverage focused on foreign interests, foreign affairs, foreign conflicts, and foreign culture, as well as any major news event taking place in a country other than the United States of America.
11. Opinion: Any headline labeled as opinion or an editorial, as well as content that demonstrates a clear subjective argument, perspective, or analysis with the purpose of influencing or swaying the reader's opinion.

To code a Twitter headline for a specific category, enter a code of 1. Unselected categories should be coded with 0.

Some Twitter news headlines may reflect more than one category. For example, a news headline about schools enacting a new policy on vaccinations may be coded as Schools/Education and Health/Medical. Similarly, a headline about a politician challenging that policy may also be coded as Politics.

2. Headline Comparison

For this phase of coding, you will click onto the linked article and then compare the Twitter news headline with the headline published on the website article. You will determine if the two

headlines are consistent/similar or inconsistent/dissimilar. Consistent/similar headlines should be coded with 1. Inconsistent/dissimilar headlines should be coded with 0.

Consistent/Similar: The two headlines either match verbatim, or are substantially similar in language, information, and tone. The Twitter headline does not appear to be substantially modified from the website headline.

Inconsistent/Dissimilar: If the headlines feature different quotes, names, images, or facts, they should be characterized as inconsistent/dissimilar. If the two headlines differ in terms of information or perspective emphasized, they should be characterized as inconsistent/dissimilar. The Twitter headline appears to be substantially modified from the website headline.

3. Twitter Headline/Website Article Comparison

For this phase of coding, you will read the newspaper article and consider its full content. Then consider the Twitter headline. Does the Twitter headline consistently portray the full content of the article? Your answer should be YES or NO. Yes is coded as 1. No is coded as 0.

YES: The Twitter headline effectively summarizes the article. It consistently represents a factual, balanced, and complete summary of the article.

NO: The Twitter headlines is misleading, incorrect, biased, or unbalanced (references only one side of the story or one perspective), or it appears to be taken out of context. Therefore, it is inconsistent with the full content of the website article.

4. Components of credibility

In this final phase of coding, you will consider the Twitter headline in relation to four specific components of credibility. Please read the definition of each component provided below before coding:

1. **Competence:** Is the Twitter headline accurate in that the information is factually correct and derived from the article? Errors, such as misquotes or misattribution, would indicate the headline is incompetent. If the Twitter headline appears to be competent, code with 1. If it is incompetent, code with 0.
2. **Character:** Is the Twitter headline of good character in terms of tone and intent? Language that is inflammatory, aggressive, sensationalized, or intended to scare the reader would NOT represent good character. If the headline demonstrates neutral or good character, you will code with 1. If the Twitter headline does not demonstrate good character, you will code with 0.
3. **Care:** Does the Twitter headline demonstrate care for the reader in terms of usefulness, goodwill, or advocacy? A Twitter headline that includes helpful or beneficial information should be coded with 1. Otherwise, code with 0.
4. **Commonality:** Does the Twitter headline represent a common interest of all readers? A Twitter headline that is neutral, fair, balanced, impartial, and unbiased should be coded with 1. A Twitter headline that demonstrates bias, partisanship, or one-sidedness should be coded with 0.

Appendix C

Examples of Typologies

ENTERTAINMENT



CRIME/JUSTICE



CONSUMER/PERSONAL FINANCE


The Wall Street Journal 🌟
 @WSJ

Shampoos and shower gels contain up to 95% water—and lots of other products are mostly water. Manufacturers, spurred in part by sustainability concerns, are removing the water in shampoos and lotions, and selling them as powders.



wsj.com
Hair-Care and Skin-Care Products Are Going Dry

7:50 PM · 5/27/22

34 Retweets 10 Quotes 100 Likes


The Wall Street Journal 🌟
 @WSJ

ECONOMY


The Wall Street Journal 🌟
 @WSJ

These people were part of the big job switch. Now they have big regrets. “The grass isn’t always greener on the other side.”




wsj.com
These People Who Quit Jobs During the Pandemic Say They Have Regrets

5:45 PM · 4/25/22

67 Retweets 187 Quotes 232 Likes



The Washington Post 🌟
 @washingtonpost

SCHOOLS/EDUCATION


The Wall Street Journal

@WSJ


She applied to five Ivy League schools, plus Stanford and Berkeley, with a 1550 on her SAT. None accepted her.



wsj.com
To Get Into the Ivy League, 'Extraordinary' Isn't Always Enough These Days


7:15 PM · 4/22/22

64 Retweets 36 Quotes 275 Likes


The Wall Street Journal

@WSJ

Duke University student Priya Parkash said she's "mortified and embarrassed" after the university's student newspaper reported that her commencement speech included passages similar to those in a Harvard University graduation speech years ago




wsj.com
Duke Commencement Speaker Is 'Mortified and Embarrassed' After Similarities in Speech Spark...

4:55 PM · 5/11/22


36 Retweets 24 Quotes 173 Likes

HEALTH/MEDICAL


USA TODAY

@USATODAY


FDA authorizes second COVID-19 booster shot for Americans 50 and older



usatoday.com
Federal agencies authorize second COVID-19 booster shot for Americans 50 and older


10:45 AM · 3/29/22

37 Retweets 8 Quotes 51 Likes


Los Angeles Times

@latimes

L.A. coronavirus hospitalizations rise, outbreaks increase



latimes.com
L.A. County coronavirus cases rise to new risk level, sparking concern

6:20 PM · 5/19/22

10 Retweets 4 Quotes 14 Likes

POLITICS


The Washington Post 🌟
 @washingtonpost

The Senate Judiciary Committee has begun four days of hearings on the nomination of Judge Ketanji Brown Jackson.

Here's how the confirmation process works for a Supreme Court nominee: wapo.st/3N7JiLV



11:45 AM · 3/21/22

99 Retweets 16 Quotes 290 Likes


USA TODAY 🌟
 @USATODAY

The Disney-DeSantis dust-up marks a sharp escalation in the GOP push to get corporations to stop mixing politics and business.



usatoday.com
 Why is DeSantis fighting Disney? It's a warning to 'woke' big business to stay out of culture wars

6:58 PM · 4/22/22

6 Retweets 7 Quotes 31 Likes

DISASTER


The Washington Post 🌟
 @washingtonpost

Two oceanfront homes on the North Carolina Outer Banks were lost to the sea Tuesday from the same storm that unleashed tornadoes in Texas and Oklahoma, as well as flooding in the Mid-South and Mid-Atlantic, over the past week. wapo.st/3ssNfSM



61.6K views

3:29 PM · 5/11/22

108 Retweets 33 Quotes 191 Likes


The Wall Street Journal 🌟
 @WSJ

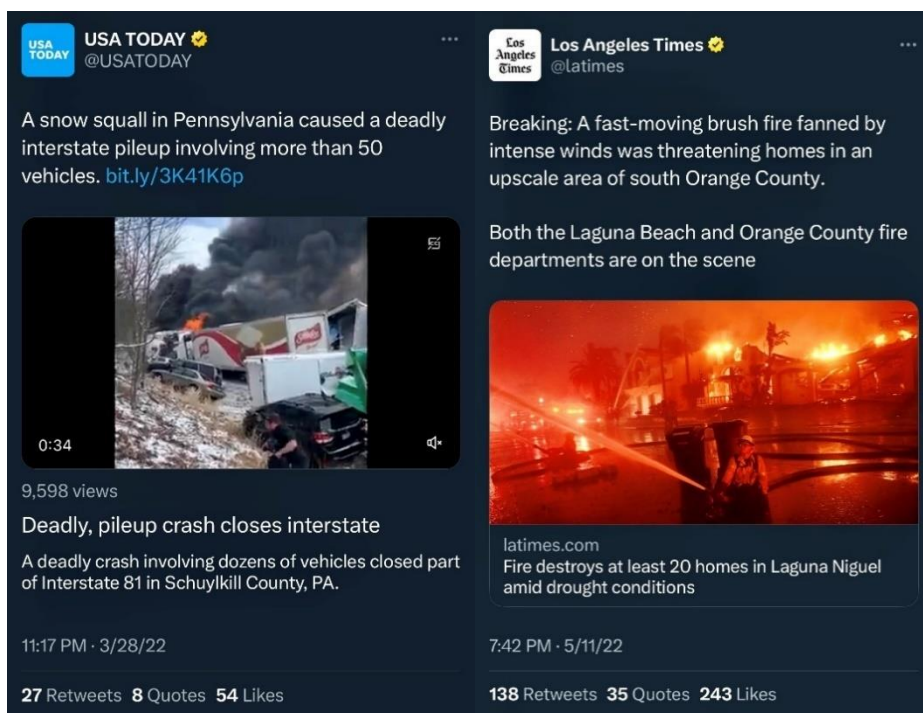
Breaking: Victims of the Surfside, Fla., condo collapse reached a \$997 million settlement with insurers and other defendants over the disaster that killed 98 last year



wsj.com
 Victims of Surfside Condo Collapse Reach \$997 Million Settlement

3:49 PM · 5/11/22

49 Retweets 9 Quotes 97 Likes



ENVIRONMENT



INTERNATIONAL

The Washington Post @washingtonpost

Ukraine war protesters in kayaks and a rubber dinghy have chained themselves to an oil tanker in Norway to prevent what they say is the delivery of nearly 100,000 metric tons of Russian oil, Greenpeace said Monday.



washingtonpost.com
Ukraine war protesters in kayaks chain themselves to Russian oil tanker

12:33 PM · 4/25/22

170 Retweets 9 Quotes 499 Likes

USA TODAY @USATODAY

Face-to-face peace talks between Ukraine and Russia have started in Turkey.



Ukraine and Russia began face-to-face peace talks in Turkey.

Ukraine and Russia begin peace talks in-person

Turkish President Recep Tayyip Erdogan has called for the two countries to negotiate a cease-fire.

2:12 PM · 3/29/22

68 Retweets 10 Quotes 163 Likes

The New York Times @nytimes

"This is my third war," said Raisa Nazarchuk, 84, at a shelter in Lviv, Ukraine, on Tuesday. "Do you know when it will be over?"

A child in World War II, she also survived the war with Russian-backed separatist forces that broke out in 2014. nyti.ms/37hhl4k



Finbarr O'Reilly for The New York Times

OPINION

 **The Wall Street Journal** 🌟
@WSJ

From @WSJopinion: Biden pivots left again, with a 20% tax on unrealized asset gains. A tax increase of this magnitude is never desirable, but the timing now is especially bad.



[wsj.com](https://www.wsj.com)
Opinion | Biden's Big New Wealth Tax

1:15 PM · 3/29/22

28 Retweets 26 Quotes 104 Likes

 **The Washington Post** 🌟
@washingtonpost

Opinion by Greg Sargent: In another bid for the "Worse than Watergate" files, it turns out there is a seven-hour gap in Donald Trump's phone logs on the day of the insurrection attempt.



[washingtonpost.com](https://www.washingtonpost.com)
Opinion | Three big takeaways from Trump's missing Jan. 6 phone logs

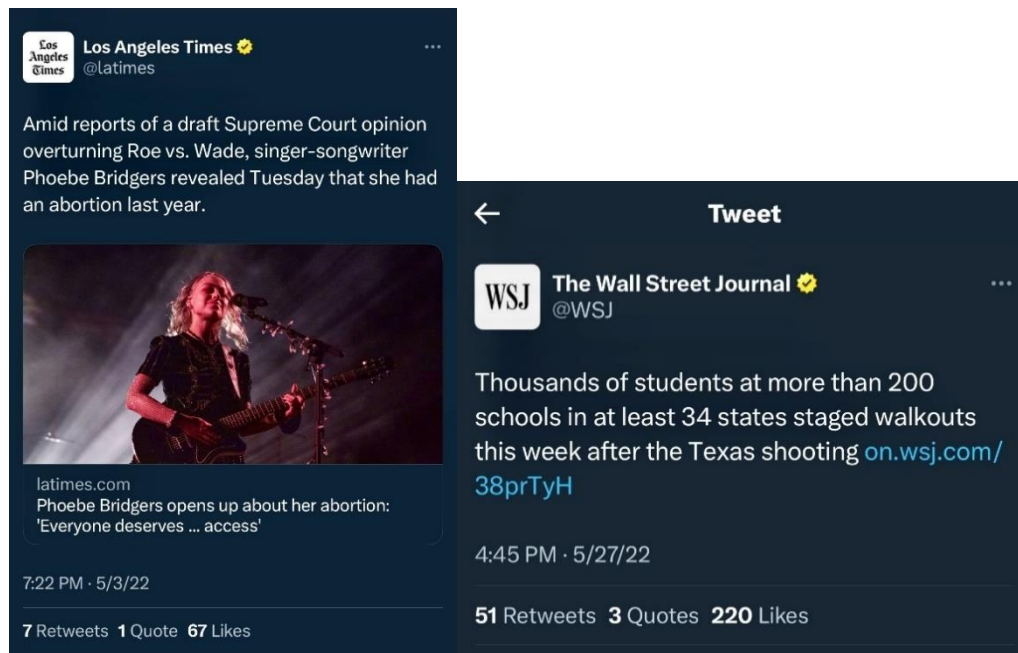
12:31 PM · 3/29/22

216 Retweets 21 Quotes 675 Likes

Appendix D

Examples of Tweets Coded for Multiple Typologies

CODED FOR TWO TYPOLOGIES





CODED FOR THREE OR MORE TYPOLOGIES



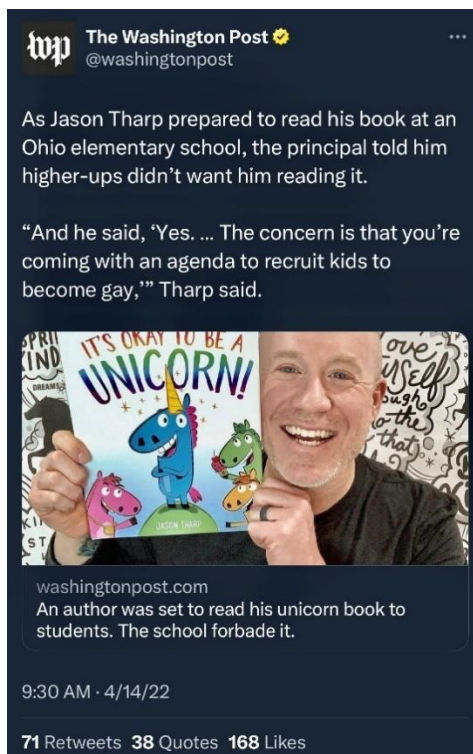
Appendix E

Examples of Tweets With Matching Headlines



Appendix F

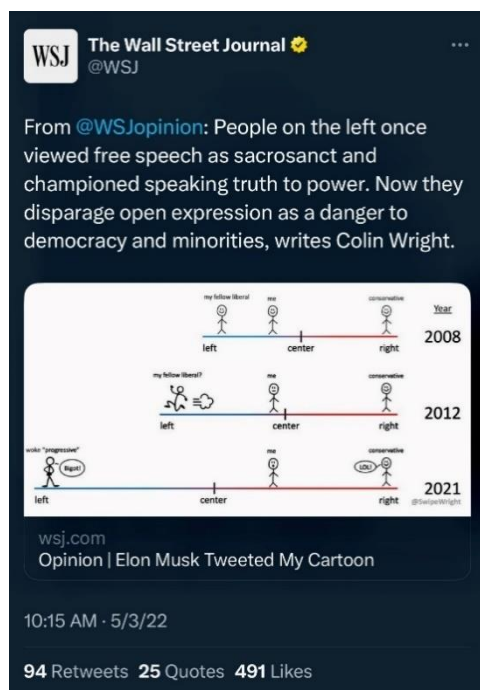
Examples of Tweets with Headlines that Do Not Match

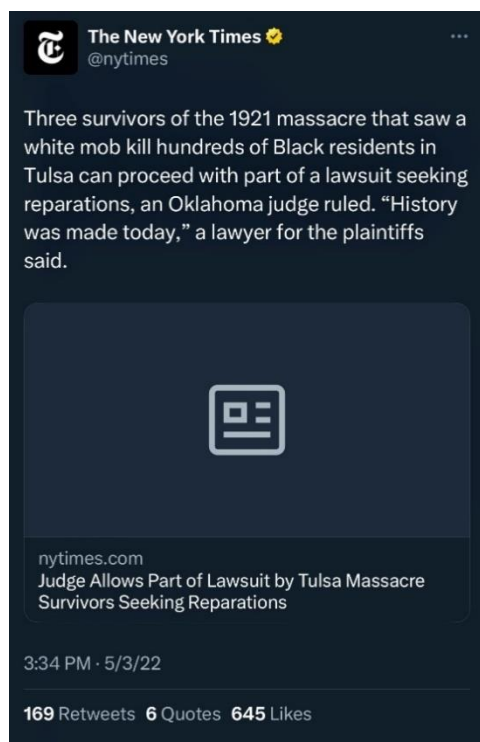




Appendix G

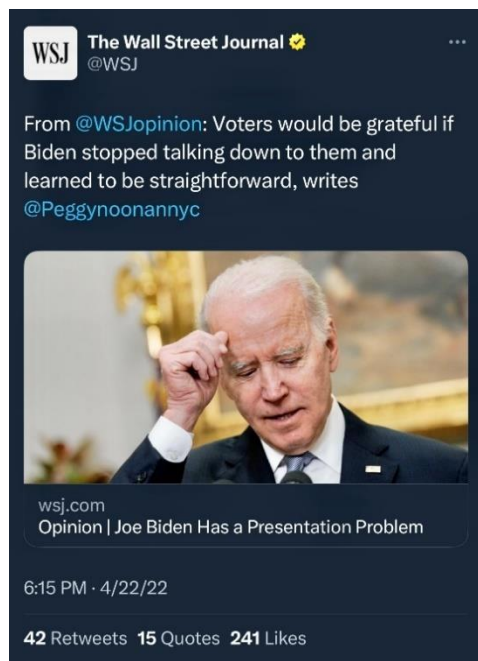
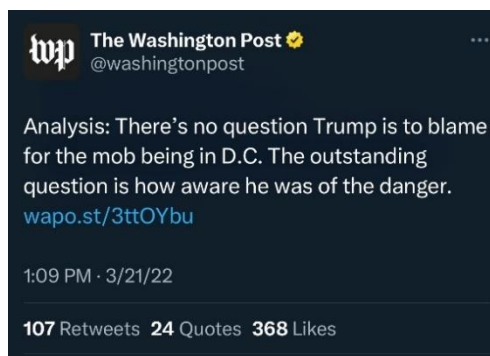
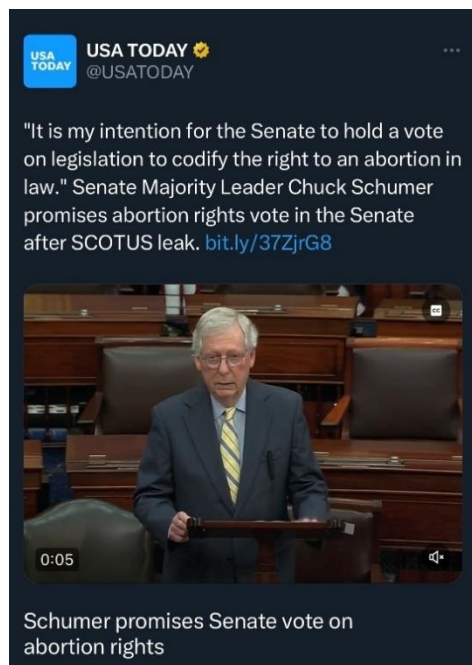
Examples of Headings that Do Not Match the Content of Article





Appendix H

Examples of Twitter Headlines Demonstrating a Lack of Competence



Los Angeles Times @latimes

Constituents overwhelmingly say the prelate was wrong to deny Holy Communion to the House speaker.

If San Francisco voters were asked to choose between the prelate and the politician, it's clear that Pelosi would win in a landslide, writes [@markzbarabak](#).



latimes.com
Column: 'It's really none of his business.' On abortion, San Francisco sides with Pelosi over...

Los Angeles Times @latimes

Police in Texas admitted mistakes in the handling of a gunman who killed 21 people in a classroom Tuesday.

Authorities waited more than an hour before entering the classroom.

Read the detailed timeline, including when 911 calls were made, at [latimes.com/world-nation/S...](#)

Timeline of Texas school mass shooting

- 11:28 a.m.: Gunman crashes vehicle outside school.
- 11:33 a.m.: Gunman enters school and begins shooting into a classroom.
- 11:35 a.m.: Three police officers enter school through the same door used by gunman. Later, four more law enforcement officers arrive.
- 11:37 - 11:44 a.m.: Sixteen shots are fired. Officials didn't specify by whom.
- 11:51 a.m.: More law enforcement officers arrive at

The New York Times @nytimes

Here's what the typical abortion patient looks like in the U.S., according to data from December 2021, the most recent available. [nyti.ms/3y8jSZp](#)

Who Gets Abortions in America?

THE TYPICAL PATIENT ..

- Is Already a Mother.
- Is 20-29 Years Old.
- Has Attended Some College.
- Has a Low Income.
- Is Unmarried.
- Is in the First Trimester.
- Has Not Had a Previous Abortion.
- Lives in a Blue State.

Appendix I

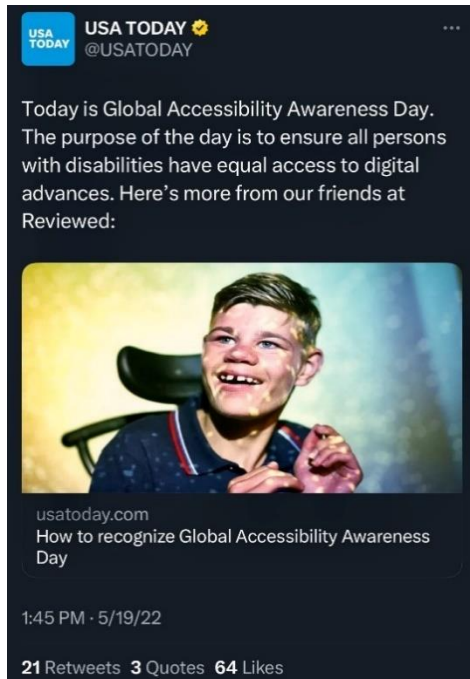
Examples of Twitter Headlines Demonstrating Lack of Character



Appendix J

Examples of Twitter Headlines Demonstrating Care





Appendix K

Examples of Twitter Headlines Demonstrating Lack of Commonality

