

What we tweet about in chaos: Framing, Twitter, and the 2012 Aurora massacre

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CHAPTER I

INTRODUCTION

On July 20, 2012, a few minutes into a midnight premiere screening of *The Dark Knight Rises*, gunman James Holmes released tear gas and opened fire on the theater of unsuspecting people in Aurora, Colorado. He ultimately killed 12 people and injured 58 more before being arrested. Even while this massacre was occurring, people in the theater were tweeting about it — and the news spread like wildfire on Twitter. Like Columbine and Virginia Tech before it, the Aurora massacre immediately became huge news across the nation. Information, both fact and rumor (and primarily user-generated), began popping up everywhere.

Since Twitter's inception in 2006, numerous catastrophes have made heavy use of Twitter — indeed, several of these events have helped define the microblogging website, among these the 2009 H1N1 flu pandemic (Chew & Eysenbach, 2010), the 2011 revolution in Egypt and Libya (Choudhary, Hendrix, Lee, Palsetia, & Liao, 2012), Osama bin Laden's death, and the crash of U.S. Airways Flight 1549 into the Hudson River in 2009 (Brooks, 2012). Many media analysts "credit social media with helping [these events] achieve critical mass" (Choudhary et al., 2012, p. 74). The flight crashing into the Hudson, in particular, was a decisive moment for Twitter. A picture and notice of the accident appeared on the site a good 15 minutes before traditional news media even picked up the story (Naughton, 2013). There can be little doubt that Twitter's role in society has become so salient, with tweets representing a wide-ranging and unfiltered picture of events from

multiple perspectives, as well as a chance to characterize the events and emotions of a particular crisis.

Social media in general, and Twitter in particular, bridge the gap between traditional media and user-generated discussion on the Web, a phenomenon that can be clearly observed in times of crisis. As Chyi and McCombs (2004), and later Kwon and Moon (2009), outlined, space — anywhere from an individual focus to a national or international focus — is one of the most important dimensions in the coverage of news events. Not only does it stress the salience of any given issue, but also it tells us whether the issue is viewed by society on a small or large level.

Chyi and McCombs (2004) adapted the space frame and applied it to Twitter coverage of the Aurora shootings in just this way, in order to analyze how the issue was viewed, whether as an individual, community, regional, societal, or international crisis. However, they neglected to study just *what* was being said about specific events, a dimension particularly important on social media sites, where user-generated news is becoming more important than ever. For this study, I reviewed existing research on Twitter and crises in the media, as well as existing framing research.

The purpose of this study is to build upon existing framing research of crises in the media to understand how individuals and organizations use social media, particularly Twitter, to communicate during and make sense of a major crisis. Through a content analysis of more than 2,000 tweets, this study examines what individuals and organizations said about the Aurora massacre on Twitter, focusing on what and who were mentioned and how the crisis was framed. With social media

becoming as, if not more, important than traditional news sources in times of crisis, it is critical to understand exactly what role they play in crisis communication. Because individuals have been found to place more trust in social media in times of crisis (Austin, Liu, & Jin, 2012), more study needs to be done on how individuals are using this new medium and what they choose to communicate. By examining one single chaotic event out of many in the past two decades and how news and opinions of this crisis spread via Twitter, a relatively new social medium, this study contributes to previous literature in the field of crisis communication and social media studies. According to Brooks (2012), “social media has grown so quickly and generated so much excitement [in recent years] because it ... allow[s] us to send to a core network of people random and trivial messages ... [and plays upon] the very powerful concept of ‘virality’” (p. 54), a concept explaining how information spreads so rapidly across the Internet. Both of these concepts being unique to social media, study of this new medium is vital to society in much the same way that study of newspapers, radio, and television were before it: understanding social media is a step toward understanding the modern world, how humans learn and interact.

CHAPTER II

LITERATURE REVIEW

With the ever-increasing use of social media in today's society, it is vital to understand social media uses (i.e. opinions, behavioral responses, and spread of information) in different situations. Use during social crises such as the Aurora and Virginia Tech massacres is especially important because content analysis in particular allows us to monitor public responses to the crisis and thus understand better how to deal with communication for future such events. Framing, as can be seen from previous research, is an exceptionally effective way to objectively study online crisis communication.

Framing

Framing is a broad communications theory and as such is interpreted many different ways. Nowhere is there a statement that sums up what framing theory is in regards to communications research in general. Indeed, framing encompasses many different types of research, qualitative and quantitative, and thus is one of the more adaptable research theories out there. Birkland and Lawrence (2009) define framing as a "communicative process of highlighting and focusing on certain aspects of reality" (p. 1406). Entman (1993) builds upon this, stating that to frame is "to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described" (p. 52). Basically, he writes that no matter its specific use, framing

describes the importance and power of a text. Framing also involves salience — making something more noticeable and meaningful — and selection; it “stresses certain aspects of reality and pushes others into the background” (Lecheler, de Vreese, & Slothuus, 2009, p. 401). Depending on what is framed as salient, and how, a framework helps audiences perceive the message, process it, and store it in memory. So then, what makes a particular piece of information salient? According to Entman (1993), salience can be determined by repetition, placement, association, or, most commonly, relation to existing ideas in the receiver’s belief system. Salience is a result of the interaction between the text and each individual receiver, which means that not all frameworks will necessarily affect audiences in the same way (Entman, 1993).

A broad definition or understanding of framing could, according to Entman (1993), “help constitute framing as a *research paradigm* ... [or] a general theory that informs most scholarship on the operation and outcomes of any particular system of thought and action” (p. 56). A common definition of framing could be applied with similar effects in political science, psychology, sociology, and mass communication, to name a few, due to several key points: audience autonomy, objectivity, content analysis, and public opinion. This study, of course, uses content analysis to identify and describe frames. As Entman (1993) discusses, a study of framing using content analysis avoids analyzing all messages, positive and negative, as equally important; rather, it measures the level of salience in order to gauge relationships between message and audience.

According to Goffman (1974), every event has a primary framework, the purpose of which is “rendering what would otherwise be a meaningless aspect of the scene into something that is meaningful” (p. 21). Essentially, a primary framework allows an individual to analyze an event and find within it a number of concrete occurrences. Although any one event is likely to employ more than one frame, the primary frame is, obviously, the most relevant and answers the question, “What’s going on here?” Everyone, not merely researchers, uses frames when observing texts. All an individual must do is glance at a text, and already he or she has applied some sort of framework, thereby assuming antecedents and possible effects (Goffman, 1974). Thus framing theory is shown to be not only one of the widest-reaching media theories, but also one of the most accessible. Although Goffman’s (1974) interpretation of framing theory leans more toward the qualitative end of the spectrum than does this study, the basis of his definition — that frames describe an event by making specific parts more salient than others — holds true for any type of framing research, be it qualitative or quantitative.

Entman (1993), too, describes the theory of framing in a much more qualitative — yet still fitting — way. He begins his interpretation by saying “that framing is often defined casually, with much left to an assumed tacit understanding of reader and researcher” (Entman, 1993, p. 52). Essentially, framing tends to rely heavily on connotation and more abstract connections. Of course, with quantitative research, these abstract connections are operationalized in such a way that little disagreement may be found between coders in regards to frame. Still, that

understanding between reader and researcher remains vital, as even the most operational of frames require mild assumptions and societal understanding.

Of course, one must take into account context regarding framework. According to Goffman (1974), “context can be defined as immediately available events which are compatible with one frame understanding and incompatible with others” (p. 441). The frames compiled for this particular study are meant for the discussion of social crises on the social networking site Twitter; an event such as the presidential election would naturally turn up different results. While it is naturally important to understand and keep in mind differing contexts, the beauty of content analysis and frame theory is its external validity, whereby the frames used for this study can be applied to future social crises.

Even operationally, one message may be framed in multiple different ways. As Kahneman and Tversky (1984) discovered, messages are perceived either as positive or negative according to what is emphasized as “normal.” For example, they conducted an experiment studying gambling statements that either ensured individuals winning a small amount of money or gave them only a 25% chance of winning much more money (versus winning none). A significant majority (83%) selected the first option — simply because it was framed as a definite gain. Interestingly, when that same message was changed to either ensure a loss of some money or give a 75% chance of losing even more, participants overwhelmingly (87%) chose the latter. Although both statements worked out to the same monetary value, the frames placed on them stressed certain aspects more than others, thus making them appear more salient.

The salience of framing, of course, goes both ways. Just as frames direct attention toward certain parts of a message by making them more salient, so they also direct attention away from other parts of that message. To use Kahneman and Tversky's (1984) experiment once more, the researchers asked participants the following:

Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows: If Program A is adopted, 200 people will be saved. If Program B is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved. Which of the two programs would you favor? (p. 343)

As with the previously mentioned gambling example, there was a significant difference between who chose Program A (72%) and those who chose Program B (28%). The description of Program A pointedly leaves out that, although 200 people will be saved, 400 people will die. Once again, by framing the option in terms of lives saved, the experimenters direct attention away from the more negative aspects of such a choice.

D'Angelo (2002) outlines four empirical goals of framing research: (a) to identify framing units; (b) to investigate antecedent conditions that produce frames; (c) to examine how frames affect an individual's interpretations and decision making based on prior knowledge; and (d) to study how framing shapes public opinion and policy. Similarly, Entman (1993) suggests that frames define problems, diagnose causes, make moral judgments, and suggest remedies. In other words, because the purpose of frames is to define, analyze, and suggest solutions to

problems, framing research must study why frames are used as they are and how they affect individuals and society. Texts with multiple sentences or divisions may fulfill more than one of these purposes, only some, or even none of them. For this study, the focus is not on effects, and so the frames analyzed here include only some of these functions: namely, the first three.

Entman (1993) offers four locations of frames in the communication process: the communicator, the text, the receiver, and the culture. The communicators, or the individuals tweeting, make framing judgments in deciding what to say. The text, or tweets, contains frames. The receivers, or those reading the tweets, pull conclusions from the tweets that may or may not reflect the communicators' intentions. The culture refers to commonly invoked frames. For this study, the blame versus sympathy frame and the space frame constitute the culture, as they have been used in previous studies (Chyi & McCombs, 2004; Kwon & Moon, 2009; Sellnow, Tyma, & Sellnow, 2010).

Chyi and McCombs (2004) applied framing to media coverage of the Columbine school shootings. They used "time" and "space" frames, as these are considered two of the most important dimensions in media coverage of news events. The space frame indicated a message that considered the event from either an individual, community, regional, societal, or international level. The time frame concerned messages discussing the event in the past, present, or future. These frames are generalizable because time "corresponds to the 'when' in the five W's of journalism and space refers to 'where' and may also include the 'who,' the 'what,' and even the 'why'" (Chyi & McCombs, 2004, p. 25). Results showed that media

coverage of Columbine primarily concerned the event on a societal, or national, level and in the present. As seen with other devastating events, including 9/11, Hurricane Katrina, and Virginia Tech, United States citizens tend to band together in times of crisis, as if to say the nation is stronger as a whole, thus showing just how important social media is in uniting people when necessary. As such, the majority of messages in this study were expected to have a national frame.

H1: Messages will primarily be framed on a national level.

This study used Chyi and McCombs' space frame, but not the time frame. A different aspect of time — days since the shooting — was measured in this study in order to examine whether message frames change as more time passes: Essentially, does content differ over time? According to Chyi and McCombs (2004), over the life span of an event, the event, or crisis, is usually reframed in order to keep it salient in the eyes of the public. This reframing has been shown in past studies to be predictable; however, as little research has delved into crisis communication via social media, assumptions about predictability cannot be made — that is, in fact, one of the purposes of this particular study. Not only is it important to understand what content is being shared on Twitter, it is also important to examine the natural progression of this content over an event's life span.

RQ1: Does message frame change in relation to days passed since the shooting?

Media framing matters. It can bring order to otherwise confusing and overwhelming events (Birkland & Lawrence, 2009; Sellnow et al., 2010). Framing of these events becomes especially important on social media sites because such sites

are where people turn to express their grief and restore a sense of meaning (Sellnow et al., 2010).

As Birkland and Lawrence (2009) discovered with Columbine, the Aurora massacre is primarily a “focusing event;” its framing has more of an effect on the volume of attention paid to the event than on actual solutions. Part of this has to do with Downs’ (1972) issue-attention cycle, whereby “the media and the public move from one intense interest to another” (as cited in Birkland & Lawrence, 2009, p. 1410). So much happens and is covered in the media every day that most events, disastrous though they may be, are soon replaced in the public eye by another. According to Birkland and Lawrence (2009), the life of Columbine in the media was about a month. For the Aurora shootings it was about two weeks, at least for the bulk of the coverage. Because of the issue-attention cycle and the fact that so many events enter the public eye, the attention paid to an event will often focus on previous or simultaneous crises, from Columbine to conflict in the Middle East.

RQ2: Are previous tragedies mentioned in these messages?

Media Dependency and Uses and Gratifications

Because framing encompasses such a wide range of definitions (as discussed), other theories inevitably overlap, most significant among these media dependency theory and uses and gratifications. According to Lyu (2012), “during periods of crisis, the public become more dependent on mass media since it faces ambiguous situations where it does not know what had happened and what the people can do to protect themselves” (p. 799). Media dependency theory indicates the salience of the mass media in a society, particularly in times of crisis, when

typically very little information derives from non-media sources. As shown in Gordon's (2009) study on Hurricanes Katrina and Gustav, the majority of respondents (78%) gleaned information from television, radio, or the Internet — all primary mass media. In the aftermath of a crisis, media shape the public's reality, thus increasing their dependence on said media.

Obviously, trust in the mass media is vital at these times (Jakob, 2010), and dependency affects a society's attitudes toward an issue (Lowrey, 2004). According to Jakob (2010), the media dependency theory states "mass media are most powerful in times when the mainstream media system either controls information resources that are not otherwise available to the public or when alternative media are missing" (p. 591). Trust enables media effects by determining media use and the relationship between users and content.

Different factors determine individuals' media dependency. Lowrey (2004), for instance, found that degree of perceived threat and age were the key predictors, while Gordon (2009) discovered that socioeconomic status and social vulnerability were most important. Sun, Rubin, and Haridakis (2008), on the other hand, found that motivation contributed to Internet dependency significantly more than did demographics. Lyu (2012) found that social understanding and social play, or interaction, were the common goals motivating media dependency. Whatever the factors contributing to media dependency, social crises make it important for individuals to receive and make sense of information, roles best filled by mass media due to their speed and connectedness.

Uses and gratifications theory is also particularly salient during a crisis. At such times, media, especially electronic media (i.e., the Internet), are used to preserve a feeling of community and to fulfill a variety of needs, whether cognitive, political, or social (Lev-On, 2011; Khan & Khan, 2011). These include entertainment, social interaction, escape, information, and expressing support, to name a few (Sun et al., 2008; Lev-On, 2011). The uses and gratifications approach toward media study places importance on individuals' choices by examining their reasons for said choice, as well as the gratifications obtained from it (Khan & Khan, 2011).

Both media dependency and uses and gratifications stress the relationship between users and mass media. Like framing, these two theories show not effects, but rather issue salience and power (Sun et al., 2008). Specifically, uses and gratifications theory focuses on audience needs, and media dependency focuses on audience goals (Gordon, 2009). In other words, while both theories address the question of what people do with media, uses and gratifications focuses on where exactly an individual goes to satisfy his or her needs, and media dependency focuses on *why* that individual uses a particular medium. Aside from this key distinction between the two theories, media dependency is often considered an extension of uses and gratifications. As Sun et al. (2008) put it, "It is reasonable to define Internet dependency as a relation reflecting one's reliance on the Internet to achieve goals" (p. 412).

Although both of these theories — media dependency and uses and gratifications — are highly important in times of crisis such as the Aurora massacre, the focus of this study is the content of posted messages and what they tell us about

society, not audience needs or goals (media effects). As such, framing theory was used to analyze the sampled messages.

Twitter

Generally, “social media refers to the expansion of the World Wide Web (Web 2.0) to allow for more interactivity, as well as more media that is generated and controlled by average netizens (everyday citizens who use the Internet)” (Sellnow et al., 2010, p. 6). According to Brooks (2012), social media is essentially “a web-based platform through which the general public can create and discuss the information it contains, in contrast to websites that retain exclusive control over the content being published and simply display it for consumption by its users” (p. 54). Simply put, social media sites allow users to interact with both the content being shared and one another, while simultaneously allowing them to share that information (and their own opinions and thoughts) with others.

With more than 500 million registered users, Twitter is one of the most-used social media sites on the Internet (Dugan, 2012). With that many users, Twitter is a source of fast-spreading information to individuals and organizations all around the world, particularly in times of major crisis. Twitter is what is known as a microblogging website. According to Schmierbach and Oeldorf-Hirsch (2012), “microblogging is a hybrid of blogging and instant messaging in which updates form a feed, similar to a blog, and users can quickly reply to or re-post others’ updates” (p. 318-319). It is most commonly used for news reporting and information sharing among individuals.

The microblogging service began in 2006 and has been the focus of much scholarly research since that time. Among the smorgasbord of research topics covered is disaster and crisis coverage, from the 2008 San Diego fire (Hughes, Palen, Sutton, Liu, & Vieweg, 2008; Sutton, Palen, & Shklovski, 2008), to the Virginia Tech shootings (Sellnow et al., 2010; Palen, Vieweg, Liu, & Hughes, 2009; Vicary & Fraley, 2010; Vieweg, Palen, Liu, Hughes, & Sutton, 2008; Wigley & Fontenot, 2010), to the 2010 Haitian earthquake (Yates & Paquette, 2011; Muralidharan, Rasmussen, Patterson, & Shin, 2011).

Crises and Social Media

The 1999 Columbine massacre was, according to Birkland and Lawrence (2009), “the bloodiest school violence incident in the 1990s, creating a particularly strong urge to determine what caused it — an urge heightened by the fact that the public experienced the event vicariously via live coverage on television” (p. 1406). Following events such as these, mass media, because of either a lack of factual information or too much space and time to fill, often find connections between possible causes and effects, thus giving audiences distorted perceptions of the event. Despite this, the mass media are, for the most part, the only connection audiences have to crises like Columbine and Aurora. Therefore, understanding what the media say about these events, as well as how they say it, is a vital part in understanding public perception of such events.

According to Austin et al. (2012), audiences — primarily community members and those with personal attachments to victims — seek out online media for both immediate and in-depth information in times of crisis. Social media use

increases during these times (Pew Internet & American Life Project, 2006; Currie, 2010), and they are often perceived as more credible than traditional media during national crises (Procopio & Procopio, 2007), primarily because of the trust users place in the shared network of friends, contacts, and organizations (Crowe, 2010). They can also be used to counteract framing by traditional media, as individuals directly involved in the event can go to social media to contest traditional media framing and drum up support (Sanderson, 2010).

Social media sites such as Twitter and Facebook are primarily used for gathering insider information, as news is up on these sites before it is released by traditional media, and for checking in with friends and family (Austin et al., 2012; Palen et al., 2009; Hughes et al., 2008). Individuals have also used social media to compile the names of the victims of crises. One of the biggest dangers of social media during these times is the large amount of unverified information traveling around the world within moments of the event (Currie, 2010). Although the lists of victims differed in terms of how the information was collected, specifically who the sources were, they were never incorrect and were created before traditional media distributed the official lists (Palen et al., 2009). This study examined tweets not only for mentions of victims, but for any individuals or organizations surrounding the shootings, whether that is the shooter himself or Christian Bale and other *Batman* actors.

RQ3: Who is mentioned in these messages?

Even organizations such as Booz Allen Hamilton Inc. (Currie, 2010) and the Center for Disease Control and Prevention have conducted market research on

social media and times of crisis, attempting to understand how individuals use this new medium during emergencies, as well as how companies can use it most effectively. Overwhelmingly, the keys to social media use during a crisis are sending out a unified message, rather than several differing messages per medium, and allowing for public input (Currie, 2010). Social media is, after all, about communication among people. As noted earlier, large networks of people get things done, usually correctly (Palen et al., 2009). During recent disastrous hurricanes, in fact, the American Red Cross used “social media to empower clients and supporters to get or give help during a disaster” (Currie, 2010, p. 4).

Sellnow et al. (2010) identified 10 themes of Facebook messages following a crisis, including sympathy, backlash, and attack the shooter. Interestingly, these posts expressed very little negativity; attacks were countered by sympathy and focus on the future. Schwarz (2012), too, found that only 34% of social media postings placed blame during a crisis, whether on the attacker(s), authority figures, or society as a whole. Kendra and Wachtendorf (2003) identified seven types of online individuals following a crisis, from mourners and supporters to exploiters. They discovered, however, that the majority of these individuals overwhelmingly used social media to spread positive, informative messages. Because positive messages were found in these studies to be more widely shared, it suggests that a similar phenomenon will occur in this situation.

H2: Messages of hope and caring will be retweeted more often than those of anger and blame.

CHAPTER III

METHOD

This study uses content analysis to answer the research questions and hypotheses regarding framing and the dissemination of news about the Aurora massacre on Twitter. Content analysis has been used in a number of other studies that examined the framing of crises in the media (Chyi & McCombs, 2004; Birkland & Lawrence, 2009; Kwon & Moon, 2009; Chew & Eysenbach, 2010; Sanderson, 2010; Muralidharan et al., 2011).

The use of content analysis to study social media, especially a large number of messages as with this study, can be highly effective — indeed, arguably just as much as survey data for gathering information and opinions. Longitudinal tracking of an event on Twitter, whereby one analyzes the brief (less than 140 characters) messages, allows us to identify changes in the public's opinions and behavioral responses over time (Chew & Eysenbach, 2010). This is especially important in the case of a social crisis such as the Aurora massacre, the H1N1 outbreak, or Virginia Tech, for example. Real-time content analysis can be conducted, enabling us to monitor online public responses during times of crisis and learn how to handle future communications in similar events.

Sample

Tweets about the Aurora shootings were selected from a 12-day time period — July 20 through July 31, 2012. Because the shootings occurred early on the morning of July 20, and James Holmes first appeared in court on July 30, an extra

day was added to allow for spillover of discussion about the proceedings. Therefore, these 12 days were selected because they encompassed the majority of the buzz surrounding the shootings and effects.

The Internet archive site Topsy (topsy.com) was used to collect the messages used in this study. This website was selected because it allows individuals to conduct a real-time search of a chosen site (e.g., Twitter) for specific words or phrases in a certain time period, a function limited on other archive sites. SnapBird, for example, allows individuals to search using key words, but rather than searching all of Twitter, it only searches a specific user's wall, as does TwimeMachine. At the time the messages for this study were gathered, Topsy was one of the few websites available to the public that allowed a search through all of Twitter since its inception in 2006.

For the purposes of this study, the terms "Theater Shooting," "Dark Knight Massacre," "Aurora Shooting," "Aurora Massacre," "Dark Knight Shooting," and "Aurora" were employed in a search of Twitter. This is not an exhaustive list by any means; tweets about this event contained many other key words, but these six were selected and considered to be sufficient because they cover a wide spectrum, encompassing the town, venue, and event in which the crisis occurred.

Using Topsy, 2,282 messages were gathered: 117 (5.13%) for "theater shooting," 147 (6.44%) for "Dark Knight massacre," 650 (28.49%) for "Aurora shooting," 373 (16.34%) for "Aurora massacre," 344 (15.07%) for "Dark Knight shooting," and 651 (28.53%) for "Aurora." All 2,282 messages in this census were coded. For the purposes of this study, the population refers to all tweets on Topsy

between July 20 and July 31 containing the above six search terms, which justifies the use of the term “census” rather than “sample.”

Variables

The unit of analysis for this study is the individual Twitter message, or tweet. A tweet cannot contain more than 140 characters (spaces and hyperlinks included). Because Twitter messages have a length constraint on them, this unit was sufficiently small enough to examine the issue. All messages were coded for six variables: number of times retweeted, days since the tragedy occurred, frame, mentions of people, references to previous tragedies, and space.

Number of times retweeted. The number of times retweeted is a ratio variable that was recorded as an open-ended response. The Topsy archives allow users to see the number of times the message was retweeted. This number was transcribed on the coding sheet.

Days since the event. This, too, is a ratio variable recorded as an open-ended response. Messages were written any time between 0 (the day of the shootings) and 12 days after. This number was transcribed on the coding sheet.

Frame. Frames include blame/anger, hope/caring, neutral, and other and is a nominal variable recorded as a value of 0 (neutral), 1 (blame/anger), 2 (hope/caring), or 3 (other). Because some messages contain more than one of these frames, they were coded for the dominant frame. A blame/anger frame is a message of attack, whether directed toward Holmes, those connected with *Batman*, the theater, or others. They might accuse James Holmes or theater security for causing the attack or express indignation that such a thing could happen. Messages with a

hope/caring frame include those offering sympathy (whether religious or secular) or support for victims, friends, families, or others (Sellnow et al., 2010). Messages might mention the writer's thoughts or prayers being with the victims or others involved. A message may also have a neutral frame (i.e. simply state relevant news) or other (i.e. none of the above three frames) (see Table 3.1).

Table 3.1

Examples of Tweets Using Primary Frameworks

Frame	Example tweets
Blame/Anger	@IanRennie: To anyone who says the aurora shooting wouldn't have happened if the audience was armed: fuck off. Keep fucking off. Never stop fucking off.
Hope/Caring	@ChadJohnson: My prayers and condolences to the victims and their families in Aurora, Colorado affected by this terrible tragedy...
Neutral	@HuffingtonPost: WATCH: Witness accounts of the Aurora movie theater shooting http://t.co/mukup31T
Other	@HuffingtonPost: On the blog: Stop wondering why there were young children at the Aurora theater http://t.co/Mr99Am8T #theatershooting

Mention of individuals. Messages that mention people referenced one of the following: James Holmes, people involved with *The Dark Knight Rises*, the theater, victims, friends or family of victims or shooter, celebrities (other than those involved with *Batman*), politicians, other, or none. The mention of individuals is a nominal variable recorded as a value of 0 through 9, whereby 0 is no mentions of anyone, 1 is the shooter, 2 is those involved in *The Dark Knight Rises*, 3 is the theater, 4 is victims, 5 is friends, 6 is family, 7 is celebrities, 8 is politicians, and 9 is other. Messages referencing James Holmes refer to him either by name or as "the shooter." People involved with *The Dark Knight Rises* include star Christian Bale, other actors, director Christopher Nolan, or Warner Bros. Pictures, to name the most

common. Messages can also reference the theater — Century 16 — or employees of the theater; friends or family of either the victims or the shooter; or celebrities not involved with *The Dark Knight Rises*. A celebrity is a famous or well-known person that the average individual would recognize. These might include movie stars (not lesser-known actors or extras), musicians, or sports stars. Messages may reference politicians, such as President Barack Obama or the governor of Colorado, for example. Messages may also be coded as other, meaning they reference individuals not listed above, or as including no references to people.

Previous tragedies. Messages were further coded for references to previous tragedies or crises, a nominal variable recorded as a value of 0 (no) or 1 (yes). Previous tragedies include other massacres, such as the 1999 Columbine shootings or the Toronto mall shooting in June 2012, just a month before the Aurora tragedy. Other crises may also be referenced, such as turmoil in the Middle East, for instance.

Space. The space frame, borrowed from Chyi and McCombs (2004), includes individual, community, regional, national, and international levels. It is a nominal variable that was recorded as a value of 1-6. A message framed on the individual level is limited to individuals involved in the event (e.g., James Holmes, victims). A message framed on the community level notes the event's significance to the entire community (i.e., the city of Aurora and/or Denver). A regionally framed message notes relevance to the entire state of Colorado. Messages framed on the national level note the event's importance to the United States. Finally, an international frame discusses the event from an international perspective (e.g., compares the shootings to conflict in the Middle East).

Coders and Coder Training

One additional coder received training prior to the beginning of this study. Five tweets including each search term (30 total tweets) were coded as practice, and reliability was assessed. Because *alpha* was unsatisfactory at that point, the coding scheme was slightly revised: More explanation was given to the space frame, particularly regional versus community, the primary frame, and the mention of individuals (several more categories were included, and friends and family as well as celebrities and politicians were split in to their own categories).

Once the coding scheme had been revised satisfactorily, the researcher and the additional coder coded 210 randomly selected tweets (9.2%) from the population of 2,282 tweets collected. According to Riffe, Lacy & Fico (2008), 210 units from a population of 2,282 is sufficient for determining intercoder reliability based on a 95% confidence level.

Krippendorff's *alpha* was used to assess reliability, as it accounts for chance (Riffe et al., 2008). Agreement was found to be perfect (1.00) on three variables: retweets, days since, and mention of previous tragedies. *Alpha* was acceptable for the other three variables: frame (.907), mention of individuals (.915), and space (.807).

The researcher coded the remaining tweets (more than 2,000) for analysis in this study.

CHAPTER IV

RESULTS

As mentioned, the website Topsy.com was used to search for tweets about the shootings. A total of 2,282 were collected using specific search terms, and the hypotheses and research questions were answered using the coding scheme and statistical analysis. Table 4.1 shows the quantities of tweets per variable. Statistically significant differences can be seen in space, frame, previous tragedies, and individuals.

In general, there were significantly more messages framed as neutral than either blame/anger or hope/caring, suggesting that Twitter, still in its infancy, retains connections to traditional news media in what is reported. As for the number of retweets by days since the shootings, as expected the first 24 hours showed the largest number of retweets, as the event was new and loomed large in the news. During days 1 and 2, the number of retweets dropped, but they picked up again for days 3 through 12 ($F(2,2279) = 4.852, p < .008$). This was most probably because more information was released about the victims and Holmes; also, Holmes' court date revitalized public interest in the topic.

Table 4.1

Quantities of Tweets per Variable

Variable	<i>n</i>	%
Space		
Individual	1,099	48.1
Community	114	5
Regional	66	2.9
National	874	38.3
International	21	.9
Other	108	4.7
Frame		
Blame/Anger	330	14.5
Hope/Caring	566	24.8
Neutral	1,320	57.8
Other	66	2.9
Previous Tragedies		
Yes	55	2.4
No	2,227	97.6
Individuals		
Shooter	317	13.9
Involved with <i>The Dark Knight Rises</i>	215	9.4
Theater	21	.9
Victims	632	27.7
Friends	7	.3
Family	169	7.4
Celebrities	135	5.9
Politicians	221	9.7
Other	228	10
None	337	14.7

Hypothesis 1

Hypothesis 1 examined the space frames (see Table 4.2) and stated that messages will primarily be framed on a national level. Even though there were statistically significant differences in the counts across the categories, individual frames were the highest recorded, not the national frame (see Table 4.1). Messages were primarily framed on an individual level (48.1%), followed by national (38.3%).

Frames on the community, regional, international, and other levels were significantly less common, at 5%, 2.9%, .9%, and 4.7%, respectively. As victims were the most frequently mentioned individuals, the messages were primarily focused on the massacre as a personal event, one that affected individual people more than the nation as a whole. The hypothesis that frequencies are equal across all categories is rejected, $\chi^2(5) = 441.938, p < .001$. Therefore, the first hypothesis is shown to be incorrect.

Table 4.2

Examples of Space Frames

Category	Example tweets
Individual	@BreakingNews: Names of remaining victims in Aurora, CO, shooting are released – @denverpost
Community	@DJDRAMA: My prayers to those in aurora, co. So tragic.
Regional	@LordSugar: Gun sales in Colorado go up 43% following the Aurora killings. Amazing http://t.co/AdsBi6PR
National	@PiersMorgan: Do Americans rush for guns after massacres like #Aurora (41% spike in Colorado gun requests) from fear or aggression? @MMFlint CNN 9pmET
International	@YousefMunayyer: Holmes fired more bullets in a few minutes in #Aurora theater massacre than entire German police force fired in 2011. Think about that.
Other	@JohnKatsilometes: Great photo by @denisetruscello from Aurora, Colo. tribute

Hypothesis 2

Hypothesis 2 examined frames and stated that messages of hope and caring will be retweeted more often than those of anger and blame. The results of a single-factor ANOVA indicate that frame is not significantly related to number of retweets ($F(3,2278) = 2.169, p < .09$). Although there were mean differences in frames of hope/caring ($M = 126.62, SD = 287.32$), frames of blame/anger ($M = 43.95, SD =$

109.70), and neutral frames ($M = 102.73, SD = 587.72$), these were not statistically significant (see Table 4.3). Hypothesis 2 was not supported.

Table 4.3

Number of Retweets by Frame

Frame	<i>n</i>	Mean	<i>SD</i>
Neutral	1324	102.73	587.72
Blame/anger	334	43.95	109.70
Hope/caring	559	126.62	287.32
Other	65	101.75	473.34
Total	2282	99.95	473.34

Research Question 1

Research question 1 asked if message frame changed in relation to days passed since the shooting. In order to answer the question, the number of days passed was changed from a ratio measure to categorical — 0 to 1 day, 1 to 2 days, and 3+ days. A chi-square test indicated that there were statistically significant different differences in the distributions among days since the shooting and type of frame, $\chi^2(6) = 117.475, p < .001$.

By far, the highest frame category was neutral, accounting for 58% of the retweets, and the other frame had the lowest number of retweets with 2.8% of the total. When looking at Table 4.4, the interesting pattern was the number of neutral and blame/anger frame retweets increased as time progressed and the number of hope/caring frame retweets decreased over time. The number of retweets related to the blame/anger frame started at 11% within the first 24 hours after the shooting and increased to 17.5% of the tweets 3+ days after the shooting. The hope/caring frame decreased from representing almost 36% of the retweets during the first day

to only 16.4% of the retweets day 3 and afterwards. The neutral frame also increased by 10% from 52.4% in the first 24 hours to 62.1% of the retweets day 3 and afterwards.

Table 4.4

Days Since Shooting by Frame Type

Frame	0-24 hours	1-2 days	3+ days	Total
Neutral	450	359	515	1,324
Blame/anger	94	95	145	334
Hope/caring	308	115	136	559
Other	6	26	33	65
Total	858	595	829	2,282

Research Question 2

Research question 2 asked if previous tragedies are mentioned in these messages (see Table 4.5). An overwhelming majority of messages (97.6%) did not include references to previous tragedies when discussing the Aurora shootings (see Table 4.1).

Table 4.5

Examples of Tweets Mentioning Previous Crises

Category	Example tweets
Mention	@JonPassantino: The Columbine High School massacre left 13 people dead in 1999. Today's Aurora theater death toll is already at 14.
No mention	@KevinSmith: Heartbreaking to read witnesses in Aurora say they first thought the shooting and gas was an elaborate, in-theater extension of the movie.

Research Question 3

Research question 3 asked who is mentioned in the messages (see Table 4.6). Of the individuals mentioned in these messages, the victims appeared most often

(27.7%), followed by none (14.7%), the shooter (13.9%), other (10%), politicians (9.7%), people involved with *The Dark Knight Rises* (9.4%), family members of the victims (7.4%), celebrities (5.9%), the theater (.9%), and friends of the victims (.3%) (see Table 4.1).

Table 4.6

Examples of Tweets Mentioning Individuals

Category	Example tweets
Shooter	@NBCNews: Aurora, CO #theatershooting suspect James Holmes will have first appearance in court on Monday at 9:30am MT - @9News
Involved with <i>The Dark Knight Rises</i>	@IGN: The Dark Knight Rises' Christian Bale visits survivors of the Aurora theater shooting http://t.co/JFWRsfK1
Theater	@BryanFischer: In wake of Aurora shooting, theaters banning masks as security risk. Should ban burqas for same reason
Victims	@AngelaYee: Front page news: 14 people killed and at least 20 injured at Batman movie in Aurora, CO
Friends	@Peoplemagazine: More on Dark Knight shooting victim #RIPJessica - her boyfriend @Jay_Meloff speaks out http://t.co/LO4y8zlj
Family	@MichaelaConlin: My heart breaks for the families in Aurora. Prayers for all of you.
Celebrities	@JoyH: On the Aurora Shootings Jason Alexander really gets to the absolute heart of the matter http://t.co/HRPPByXa via @JasonAlexander
Politicians	@FoxNews: President Barack Obama said Friday he was "shocked and saddened" by deadly shooting at #Aurora, Denver movie theater
Other	@God: The evangelicals who say the non-Christian victims of Aurora are going to hell, are SOOOO going to hell.
None	@LordSugar: Gun sales in Colorado go up 43% following the Aurora killings. Amazing http://t.co/AdsBi6PR

CHAPTER V

DISCUSSION

The 2,282 total messages analyzed for this study kept the Aurora shootings alive online for two weeks (and beyond) and highlighted the most salient aspects of the event. Salience, according to Chyi and McCombs (2004), “is the cumulative volume of coverage that [an issue] has received in the news during the preceding month” (p. 30) — or, as is the case here, during the preceding 12 days.

Message content displayed a prominent focus on the individuals involved in the event. Interestingly, unlike past research (Chyi & McCombs, 2004), these results show that Americans viewed the Aurora massacre as less of a problem for society as a whole and more as a problem for the victims, who needed their sympathy and caring. This disparity between previous findings and results of this study can be explained, however, by the medium being examined. Chyi and McCombs (2004) used newspaper articles, while this study used Twitter postings. The latter containing more user-generated content than the former, tweets naturally were written on a more personal level, as opposed to newspaper articles, which are typically written in an unbiased manner in order to reach as many people as possible. Columbine and Aurora are compared here because of the similarities in the events of both. Had this study examined newspaper articles using the space frame, results would likely have been much the same.

There were differences between frames of hope/caring, frames of blame/anger, and neutral frames. However, as the differences were not statistically

significant, past research on this phenomenon cannot be substantiated (Kendra & Wachtendorf, 2003; Sellnow et al., 2010; Schwarz, 2012). Still, although Twitter was used by some as a place for hateful comments, more individuals overall chose to share positive messages. These findings suggest that perhaps Twitter, unlike more traditional mass media, is a platform for a range of tones — from anger/blame to hope/caring — that do not necessarily slant one way or the other.

The primary frame of the message did in fact change significantly over time. Interestingly, this suggests that the public's attitude toward the shootings, or at least toward Holmes, changed as the days progressed. As days passed, and particularly as Holmes' court date approached, tweets became increasingly negative. What can be inferred from this is that individuals' initial attitudes and opinions about an event are, like any opinions, swayed as time passes and more thought and media coverage are given to the event.

Rather than dwelling on the past, the majority of individuals focused on the present situation. Although ties to Columbine, Virginia Tech, and other mass shootings were made, they were rare, and most individuals seemed to take it for granted that others would remember those tragedies without being reminded. Events covered in the media are, with a few exceptions, fleeting and ever-changing. Sadly, new crises, new shootings, occur commonly and earn their own, albeit brief coverage by the media. Rather than digging up the skeletons of past shootings and crises, individuals use social media to examine and understand the present situation and thus move forward.

Going along with the focus on the individual within the messages, the majority of tweets mentioned either the victims or the shooter. This suggests that, whether the message contained a hope/caring frame or an anger/blame frame, most attention was placed on individuals directly involved in the shootings. This makes sense, given that the primary frames were in fact focused on blaming (the shooter) or offering hopeful messages (for the victims).

As Goffman (1974) argued, frames occur not only in an individual's mind, but also "correspond in some sense to the way in which an aspect of the activity itself is organized — especially activity directly involving social agents" (p. 247). Essentially, an individual, given his or her understanding of an event, fits his or her actions to that understanding and generally find those actions supported — thus going full circle to show the framework. This argument certainly can be applied here, in that individuals likely responded to others' posts on Twitter by forming similar opinions (e.g., they were more likely to post positive, caring messages because others had already done the same) and thus using similar primary frameworks. The idea of Twitter as a true "social" networking site is seen clearly here; users pay attention to others' opinions and postings before forming, and finally sharing, their own opinions.

Aurora, as a single event, was less influential than one might think. Enough spree shootings have occurred in the past few decades (i.e. Columbine, 9/11, Virginia Tech) that Aurora cannot be isolated as a particular turning point or landmark in the use of social media. Indeed, since this study was begun, multiple other spree killings have taken place around the country. There is nothing

inherently unique about Aurora in itself. However, as previously noted, framing theory, and content analysis in general, has external validity; thus the coding scheme used here (Appendix A) can be applied to all of those aforementioned events, both the ones proceeding and those following Aurora. The true purpose of this study is to understand how individuals make use of Twitter in the aftermath of a social crisis, with Aurora being here simply a vehicle for this particular study.

It is important to note that while results of this study may be applied to social crises in the years to come, social networking sites such as Twitter are likely to change, or perhaps disappear entirely. Case in point: Twitter had yet to leap into existence when Columbine, 9/11, or even Virginia Tech, only eight years ago, occurred. Who's to say that in another eight years Twitter won't have been replaced? As with similar coding schemes used in previous studies (Chyi & McCombs, 2004; Birkland & Lawrence, 2009), the frameworks devised for this study will naturally have to be adapted to the times and technology. However, little work will have to occur to prepare this coding scheme for understanding social media use following a social crisis, as framing theory allows for great generalizability.

Limitations

The messages in this study were gathered after the two-week time period they covered, using Topsy. As of yet, no Twitter archive makes available all tweets posted during any time period. As such, the messages gathered for this study may not give an entirely accurate depiction of the Aurora shootings and the following dissemination of information. The best way to fix this limitation would be to collect

the messages while the event was unfolding, or at the very least within a 24-hour time period.

Another limitation of this study is that it only analyzes message content and not message effects. While media content analysis is very important, and the purpose of this study, future studies should examine the effects certain media content has on individuals or society.

Conclusion

The primary purpose of this study is not to focus specifically on the Aurora massacre as a single event, but rather to apply different aspects of framing theory to Twitter in such a way that the coding scheme and findings may be applied to other similar crises. Framing looks primarily at the most salient characteristics of an event or text, not the minute details. After all, media coverage of crises, whether Aurora, Columbine, or the Virginia Tech shootings, changes very little from event to event, at least framing-wise. As Chyi and McCombs (2004) describe it, journalistic practice is akin to using a cookie cutter: what this study has done is identify a new set of cookie cutters (frames) to use in future social media research. Media framing theory has been used in so many different ways, for many different types of research studies, enabling it to be applied to any number of topics. However, for this study, the broad umbrella of framing is narrowed down to how individuals and organizations make use of social media to communicate during and make sense of a crisis like the Aurora massacre.

According to Coombs and Holladay (2010), "online postings provide real-time, unobtrusive feedback. The results suggest this type of data set holds promise

for future investigations” (as cited in Schwarz, 2012, p. 437). Sampling strategies and frameworks should be refined for future studies on the subject, as understanding message effects remains as important as message content and characteristics. This study showed that, in the aftermath of a social crisis, individuals tend to use social media to spread positive messages primarily focused on the individual level — particularly the perpetrator and victims — and rarely on similar crises in the past.

Although previous research on crisis communication has turned up differing results, only a handful of studies have been conducted on the use of *Twitter* following a social crisis (Sellnow et al., 2010; Palen et al., 2009; Vicary & Fraley, 2010; Vieweg et al., 2008; Wigley & Fontenot, 2010). It is important to understand this, as Twitter differs in at least one significant way from other major social networking sites: Rather than banding together for comfort and reassurance, individuals use Twitter primarily to gather news and share their own opinions on the subject — hence the disconnect between results of this study and, for instance, those of Chyi and McCombs (2004) or Birkland and Lawrence (2009). Any comfort and reassurance gathered from Twitter tends to come from reminders that we are not alone in any given crisis, reminders that we share (i.e. “retweet”) with others in our social network. This is precisely why future research should focus on the use of more than one social networking site; a comparison of several different ones would give an altogether clearer picture of the role social media plays in crisis communication. As Brooks (2012) showed with his comparison of Facebook, Twitter, and LinkedIn, every social networking site has different primary functions

with several basic underlying similarities. This study focuses on Twitter and its specific functions in the aftermath of a crisis; however, results would very likely have differed if the coding scheme had been applied to Facebook or Google+, for example.

With use of social networking sites such as Twitter increasing, their role in all aspects of contemporary society, including social crises, becomes more important than ever; indeed, in many ways these sites, while not replacing traditional media, are certainly right up there with them in news coverage and communication. The industry, as well as the academy, should, in the future, focus more exclusively on crisis communication (or indeed, any type of communication) conducted via social networking sites, as was done in the past for newspapers, radio, and television. Along with these three major media, social media has quickly become a core means by which news and other major publications distribute information. According to Brooks (2012), “social media websites have become the most efficient and comprehensive means of staying current with respect to the broad range of ... events, and thus social media competency is clearly fundamental to our professional skill set” (p. 57). Further, Twitter is, in late 2013, going public in the New York Stock Exchange, a bold move by a young company that has yet to turn a profit. The change will mean exponential growth for the site, as well as a deluge of ads for those wishing to keep using the service for free (Naughton, 2013). This should, however, do little to deter current Twitter users and has the potential to make Twitter the biggest social networking site out there. That is why

understanding this new major medium and how it is used in different events is vital to the progression of the media industry.

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APPENDIX

CODEBOOK

Introduction

This study is aimed at assessing framing of the Aurora, Colorado, massacre on the social media website Twitter. It examines this issue by looking at messages from individuals and organizations between July 20 and July 31, 2012.

Unit of Analysis

The unit of analysis is each individual message (tweet) on Twitter. A tweet cannot contain more than 140 characters, spaces included. The tweets were collected using the Internet archive Topsy, a site that allows one to search specific websites using keywords or phrases. For this study, a search of Twitter was done using the following phrases: "Theater Shooting," "Dark Knight Massacre," "Aurora Shooting," "Aurora Massacre," "Dark Knight Shooting," and "Aurora." Each message will be assessed for the following variables:

V1. Retweets

How many times was the message retweeted? A retweet refers to a reposting of the original message. Topsy includes the number of retweets below each message.

V2. Days since

How many days after the shooting was the message written? This value can range from 0 (the same day as the shooting) to 12.

V3. Frame

What is the dominant frame of the message?

- Blame/anger: a message of attack, whether directed toward Holmes, those connected with *The Dark Knight Rises*, the theater, or others. Messages might accuse James Holmes or theater security for causing the attack or express indignation that such a thing could happen.
- Hope/caring: includes messages offering sympathy (whether religious or secular) or support for victims, friends, families, or others. Messages might mention the writer's thoughts or prayers being with the victims.
- Neutral: simply states relevant news
- Other: none of the above three frames

V4. Individuals

Does the message mention any of the following individuals or companies?

- James Holmes: may refer to him either by name or as “the shooter”
- Those involved in *The Dark Knight Rises*: stars Christian Bale, Tom Hardy, Anne Hathaway, Michael Caine, Gary Oldman, Marion Cotillard, Joseph Gordon-Levitt, or Morgan Freeman; director Christopher Nolan; co-writer Jonathan Nolan; or Warner Bros. Pictures
- Theater: Century 16 in Aurora, or employees and the owner of the theater
- Victims: Those injured, killed, or directly involved (i.e. in the theater during the shooting)
- Friends: of victims or shooter
- Family: of victims or shooter
- Celebrities: those not involved with *The Dark Knight Rises*. A celebrity is a famous or well-known person that the average individual would recognize, including but not limited to movie stars (not lesser-known actors or extras), musicians, and sports stars
- Politicians: anyone elected in politics, such as President Obama or the governor of Colorado
- Other: refer to individuals not listed above
- None: do not refer to people at all

For messages mentioning individuals in more than one of these categories, code for the dominant one. For example, a message about actor Christian Bale visiting Aurora victims would be coded for “those involved in *The Dark Knight Rises*” because the emphasis of the message is on Bale’s actions.

V5. Previous tragedies

Does the message include references to previous tragedies? These can include other massacres, such as the 1999 Columbine shootings or the Toronto mall shootings in June 2012, only a month before the Aurora massacre. Other crises might include, for instance, turmoil in the Middle East. Messages are coded for the presence or absence of previous tragedies.

V6. Space

Is the message framed on an individual, community, regional, national, international, or other level?

- Individual: limited to individuals involved in the event (e.g., shooter, victims)
- Community: notes the event’s significance to the entire community, whether the city of Aurora or the Denver Metropolitan Area (of which Aurora is a part)
- Regional: notes relevance to the state of Colorado
- National: notes importance to the United States

- International: discusses the event from an international perspective (e.g., compares the shootings to conflict in the Middle East)
- Other: none of the above

Messages should be coded at the most inclusive level. For example, a message discussing gun reform laws in the United States and specifically mentioning a spike in gun requests in Colorado should be coded as national.

Message #: _____

Coder #: _____

Search term: _____

Retweets: _____

Days since event: ____

Frame:

___ Blame/anger

___ Hope/caring

___ Neutral

___ Other

Individuals:

___ James Holmes/shooter

___ Family

___ People involved with *Dark*

___ Celebrities

Knight Rises

___ Politicians

___ Theater

___ None

___ Victims

___ Other

___ Friends

Previous tragedies:

___ Yes

___ No

Space:

___ Individual

___ Community

___ Regional

___ National

___ International

___ Other