MASS MEDIA EFFECTS ON FLASHBULB MEMORIES:

VIVID MEMORIES OF SEPTEMBER 11TH

A Thesis

Presented

to the Faculty of

California State University, Chico

In Partial Fulfillment

of the Requirement for the Degree

Master of Arts

in

Interdisciplinary Studies

Mass Communication

by

Stephanie Elise Bor

Spring 2010
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ABSTRACT

MASS MEDIA EFFECTS ON FLASHBULB MEMORIES:
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by

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Spring 2010

The purpose of this study was to examine the influence of television images and commentary on vivid memory recall for the September 11th terrorist attacks that occurred in 2001. This research used the theory of flashbulb memories to explain why people possess vivid and long lasting memories pertaining to the exact moment they learned about a surprising and/or consequential event. The theory was first used to explain the clarity in which people could recall the moment they learned about the death of President John F. Kennedy in 1963. Individuals claimed to remember precise details including their exact location, ongoing activity, the person or medium that informed them, their personal reaction, and other specifics pertaining to the moment they learned of the assassination. The present research discovered that the flashbulb memory theory could also be used to explain vivid memories associated with the September 11th terrorist attacks.
When examining this disaster it was also evident that the formation of memories were heavily influenced by exposure to content featured on television. In reference to initial content viewed, images and commentary appeared to improve respondents’ understanding of the attacks and cause them to become more emotionally distressed. Exposure to television content also increased realism and assisted viewers in comprehending the magnitude of the crisis. Viewing subsequent news coverage since 2001 has also assisted to reinforce, modify, or maintain vivid memories of September 11th. According to the results, exposure to television news has continued to increase distress for viewers by causing them to become more angry, fearful, sad, and suspicious. Television has also increased contempt with the American government over time.
CHAPTER I

INTRODUCTION

The most vivid image I recall was watching the plane fly into the building. They [television news media] showed that image over and over that day. I will never forget sitting in my living room with all my friends after they shut down campus and watching the news, horrified, worried, fearful, and thankful (selfishly) to be alive and with loved ones. (Subject 295)

Humans remember particular news events more vividly than others. Events such as the assassination of President Kennedy, the death of Princess Diana, the attack on Pearl Harbor, and the September 11th terrorist attacks are all examples of news events that people claim to vividly recall years or even decades after their occurrence. When individuals are invited to share their memories of important news events, they often include critical details such as their precise location, initial thoughts and emotions, unconscious impulsive reactions, as well as other minute details. The clarity through which people retell these stories makes them distinct from less significant memories of daily news events. For instance, why is it that a person may not recall stories featured on the news an hour ago, but they do remember that on November 22, 1963, at 1:40 P.M. CBS News anchorman Walter Cronkite broke into *As the World Turns* and announced, “In Dallas, Texas, three shots were fired at President Kennedy’s motorcade in downtown Dallas…” (Doherty, n.d.). Considering this cognitive discrepancy is unarguably fascinating and certainly worthy of examination.
This research investigates the vivid memory phenomenon as it pertains to the September 11, 2001, terrorist attacks. Previous communication scholars have examined possible variables that contribute to vivid memory such as unexpectedness (Brown & Kulik, 1977; Christianson, 1989; Cohen, Conway, & Maylor, 1994; Finkenauer et al., 1998; Luminet et al., 2004; Pezdek, 2003; Talarico & Rubin, 2007;), consequentiality (Brown & Kulik, 1977; Cohen et al., 1994; Conway et al., 1994; Neisser et al., 1996; Luminet et al. 2004; Curci & Luminet, 2006), and rehearsal (Brown & Kulik, 1977; Neisser et al., 1996). Few studies have been conducted that explicitly look at the effects of television news on vivid memory formation and maintenance.

Television News Media

Before the invention of the Internet, television alerted the world of the explosion of the Challenger space shuttle. And before television it was the radio that announced the bombing on Pearl Harbor (Weaver, Beam, Brownlee, Voakes, & Wilhoit, 2007). In modern broadcasting the media capitalizes on these news events and supplies viewers with a constant flow of information pertaining to the event. The way the media covers unexpected events like September 11th and the Challenger space shuttle explosion make it easy for viewers to detect their importance. The event’s emergence in the media is often monopolistic in that all channels choose to suspend their regularly scheduled programming in order to televise the special event. In an attempt to conceptualize these types of broadcasts, Dayan and Katz (1992) suggest that media events demand a distinct genre apart from existing television genres. The authors claim that the events are defined by their ability to intervene in the normal flow of broadcasting and “propose exceptional
things to think about, to witness, and to do” (p. 5). The events are typically broadcast live which inevitably opens up the possibility of unpredictable actions to unfold.

The media events that Dayan and Katz (1992) discuss mainly include those that are meticulously planned and publicized well in advance. Such events include the Olympics, the wedding of Charles and Diana, the American President’s annual State of the Union address, the Watergate hearings, and the inauguration of President Obama. Skillfully executed publicity allows viewers to create an occasion of these broadcasts as viewers intentionally plan to gather around the television prior to the scheduled starting time of the event. But what about other media events that are not as carefully planned and are completely unexpected by both the viewers as well as news stations? While planned events such as the funeral of Princess Diana are surely prone to strong memory, they differentiate from unplanned events such as her unexpected death. Memories of viewing the historically famous Kennedy/Nixon debates during the 1960 election are different from memories of hearing the news that Kennedy was assassinated. The question remains as to what effect these unexpected media announcements have on the viewer? How does the media influence the construction of human memory and work to maintain and modify it as time passes?

Vivid Memory

One reason for the lack of research pertaining to viewer perceptions of television news during moments of unexpected crisis is that it is very difficult to collect data at the exact moment the crisis occurs. The time it takes to create a solid research study based on existing literature is simply not available—much less the possibility of
conducting a controlled experiment in a laboratory-like setting. Moments of unexpected crisis are often characterized by chaos and therefore it is difficult to collect meaningful data. As a result, analysis of people’s memories of their thoughts and behaviors during the moment of crisis serves as a more practical method of data collection (Steinfatt, Gantz, Seibold, Miller, 1973; Brown & Kulik, 1977).

Researcher reliance on human memory exposes itself to the problem of inaccurate and unreliable retelling of actual events. Studies of vivid memory have reported evidence that humans appear to have exceptional recollection abilities during moments of unexpected and consequential crisis (Brown & Kulik, 1977; Talarico & Rubin, 2007; C. A. Weaver, 1993). In 2002, the Pew Research Center for the People and Press conducted a study of perceptions of September 11th and found that 97% of respondents could remember exactly where they were or what they were doing the moment they heard about the attacks. The ability to recall certain events with such vivid clarity has been studied since the late 1970s and is often referred to as a “flashbulb memory” because of its similarity to a photograph that indiscriminately preserves a moment in time (Brown & Kulik, 1977, p. 73). More specifically, flashbulb memory was defined as “memories for the circumstances in which one first learned of a very surprising and consequential (or emotionally arousing) event” (p. 73).

According to previous studies (Brown & Kulik, 1977; Cohen et al., 1994; Curci & Luminet, 2006; Finkenauer et al., 1998) there are variables such as unexpectedness and consequentiality that appear to characterize the incidence of a vivid memory formation. These variables have been examined in various flashbulb studies and will be discussed in more detail in Chapter II. Chapter II will also discuss the
consideration of television news as a factor in flashbulb memory formation and maintenance.

Problem Statement

When an important public news event like September 11th occurs, the variety of content that is usually offered by diverse television stations becomes limited. Every channel abandons their routine programming to broadcast similar images of the same event. This uniformity alerts viewers that something important is happening and they tune in to the television to obtain information. At times of extremely high viewership it is important for scholars to examine the content that is being disseminated and the effect it may have on those who are watching (Dayan & Katz, 1992).

In live television, the content projected is unpredictable and viewers are subject to startling graphic images and sounds. The reporting journalist’s commentary may be deemed by viewers as inaccurate, inappropriate, or down right erroneous in retrospect (Gillmor, 2006). Reporters may also express nonverbal reactions to news content that would cause the viewer to become emotionally stimulated (Mullen et al., 1986). According to Mullen et al. (1986) newscasters facial expressions have been demonstrated to be “powerful and informative social stimuli” (p. 291) and cause biases in television news. As a result, the content and mannerisms conveyed by television networks during a moment of crisis are not typical of the carefully crafted messages that audiences are used to. And while there has been valuable research published pertaining to viewer perceptions of premeditated media messages featured in sitcoms, films,
commercials, newscasts, etc., there has been minimal research conducted that specifically examines viewer perceptions of live, unedited news reports of unexpected crisis events.

The Present Study

The primary objective of the present study is to examine the impact of the television news medium as an informant and stimulant for vivid memory. Using the September 11th terrorist attacks as a news event that will generate flashbulb memories, the researcher will examine what type of media content (images, commentary, etc.) is most influential on the public during the moment of crisis as well as in the days and years following the event.

The body of this thesis is organized into five chapters. Chapter II reviews important literature pertaining to vivid memory research. Flashbulb memory theory is used as a theoretical framework to examine how previous researchers have included and excluded the media as a contributor of memory construction and maintenance. Chapter III outlines the method used in this thesis to study television’s influence on vivid memory and Chapter IV presents the results of the data analysis. The final chapter presents the discussion and conclusions. Chapter V also provides some limitations of the study and presents suggestions for further research. Effects of Subsequent Television News (Question 30)
CHAPTER II

LITERATURE REVIEW

On September 11, 2001, a group of terrorists hijacked four commercial airplanes on U.S. soil. The first two planes cashed into the World Trade Center in New York City, the third hit the Pentagon in Washington D.C., and the final plane that was headed for the White House crashed into a field in Pennsylvania. The shock and horror of this crisis spread rapidly around the world through news outlets that worked to alert and update viewers of the devastation. Various media including radio, television, and the World Wide Web reported information live with actual images and sounds broadcast directly from all four locations of the crisis. One particularly vivid image was the live television broadcast of the second commercial airplane crashing into the South Tower of the World Trade Center at 9:03 A.M. EST.

Since 2001 there have been studies conducted in a multitude of disciplines that attempt to more closely examine the events of September 11th from diverse perspectives. The primary goal of the present study is to examine the effects of television news on constructing vivid memories of September 11th. Additionally, the study will attempt to discover whether watching subsequent television news stories about September 11th in the past decade have affected viewer’s initial perceptions of the attacks.
It is important to begin this literature review with a discussion of a pilot study conducted by Bor (2009) because the results produced a significant foundation that became the basis for the purpose and design of the present study. Following a description of Bor’s pilot, this literature review will describe the theory of flashbulb memories. Within this theoretical construct the researcher will provide evidence that certain characteristics have been proven to affect vivid memory. These characteristics include: surprise, consequentiality, and prior knowledge. Finally, research regarding the association between vivid memory and the mass media will be discussed. The role of television as both the informant and facilitator of subsequent information regarding the September 11th terrorist attacks will be proposed in two research questions.

Pilot Study

In 2009, Bor conducted a study to explore the relationship between vivid memory and social interaction. More specifically, she wanted to discover if the presence of others affected an individual’s initial interpretation when learning about an unexpected and consequential news event. Unexpectedness was noted when subjects reported that an event was surprising, shocking, or unprecedented. Consequentiality was considered prevalent when a subject reported that the event had subsequent effects on his or her personal life or society as a whole. A second research question in Bor’s pilot study addressed the potential for subsequent social interaction, observed as interpersonal and group communication, in days, months, or years following the news event to modify initial perceptions of the event.
In her method, Bor conducted interviews and encouraged respondents to share their most vivid recollection of a news event that occurred at some point in their lifetime. Among the many events discussed including the bombing of Pearl Harbor, the death of Princess Diana, and the verdict announcement of the 1995 O.J. Simpson murder trial 43% of respondents confirmed that their most vivid memory of a news event was the September 11th terrorist attacks. This was by far the most frequently reported event from subjects of all demographics. Other flashbulb research pertaining to September 11th supports the evidence that the event successfully stimulates the formation of flashbulb memories not only in the United States, but also on an international level (Luminet et al., 2004; Curci & Luminet, 2006). Luminet et al. (2004) went as far as to compare the announcement of attacks with “the shot heard round the world” during the American Revolution (p. 215). From the September 11th data collected in Bor’s pilot, there were three important results that emerged which are vital to discuss because of their pertinence to the present research.

First, the subjects who claimed to hold vivid and long-lasting memories of the attacks on September 11th also reported memory characteristics that were consistent with previous studies of flashbulb memories (Bohannon & Symons, 1992; Brown & Kulik, 1977; Crurci et. al, 2001; Neisser & Harsch, 1992; Schmolck Buffalo, & Squire, 2000). Subjects consistently reported remembering their exact location, their informant, and the activity they were engaged in at the precise moment they learned the news of the event. Additionally subjects claimed to recall their own reaction, the reaction of those around them, and the actions that transpired within the immediate aftermath of the announcement. Bor also reported that high levels of surprise, emotional arousal, and
consequentiality characterized this particular event. Based on these results, September 11th appears to adequately trigger the vivid memory phenomenon that is described in previous studies of flashbulb memory (Brown & Kulik, 1977; Christianson, 1989).

Second, every subject who claimed to hold a vivid memory pertaining to September 11th also mentioned the television news media as a critical source of information during the initial moments they were learning about the event. Many subjects remembered specific content they saw on television and reported that it had affected the way they remember initially perceiving the crisis event. For example, one subject interviewed in Bor’s pilot reported the following: “I thought it was a joke at first until I went to the television and saw it on the news… I remember all of the videos of the dust coming toward the camera and the people jumping out of windows…” (Bor, 2009).

Other subjects recalled images of “burning buildings,” “the plane crashing into the World Trade Center,” and “all the people crying.” (Bor, 2009)

Finally, results of this study pilot also established that viewing subsequent news media in days, months, and years following the initial terrorist attacks had strong effects on the viewer. Respondents claimed that their initial perceptions changed over time as a result of viewing over-exaggerated and dramatized follow-up news stories. A number of respondents claimed that their faith and trust in the government declined as a result of commentary and follow-up information pertaining to September 11th. Bor discovered that participant’s initial feelings of “fear and uncertainty” shifted to feelings of “cynicism and anger” as a result of media reports (2009). Because of the exploratory nature of the pilot study, the ad hoc results pertaining to the influence of the news media stimulated more specific questions that are addressed in the present study.
Flashbulb Memories

Brown and Kulik (1977) were the first to conceive a theoretical model of flashbulb memories. In their study, Brown and Kulik were initially intrigued with the perpetual clarity in which people could recall the moment they learned of the assassination of President John F. Kennedy in 1963. In their study, an astonishing ninety-nine percent of the participants could recall vivid details about the moment they learned of the assassination including: where they were, how they learned about the assassination, and what they were doing when they were first informed of the event. Additionally, subjects recalled how other people reacted upon hearing the news, their own emotional reaction, and what they did immediately after hearing the news. Using this extremely salient news event as a “prototype” (p. 5), Brown and Kulik wanted to know if other events could be recalled with the same vividness as the Kennedy assassination.

While designing their experiment, Brown and Kulik (1977) acknowledged that participants could potentially report two distinct types of events that would trigger flashbulb memories- public events and private events. Public events predominantly consisted of assassinations of civil rights activists including John F. Kennedy, Martin Luther King, Malcolm “X”, Robert F. Kennedy, and Medgar Evers. The attempted assassinations of George Wallace and Gerald Ford were also included as well as the deaths of Robert Kennedy and General Francisco Franco. To address the memory of private events, subjects were asked to recall a “personal, unexpected shock, such as a death of a friend or relative, serious accident, diagnosis of a deadly disease, etc.” (p. 79).

To collect data 80 subjects were asked to describe their most detailed memories from the moment they learned about each of the ten events selected by Brown
and Kulik. Participants were also asked to rate the consequentiality the event had for them as well as the frequency with which they had discussed it. Brown and Kulik concluded that two principal determinants of vivid memory were: high levels of surprise and high levels of consequentiality. They also acknowledged that emotional arousal was a possible determinant of flashbulb memories. Outside variables such as ethnic group membership also emerged as possible determinants of flashbulb memory incidence. Examples of this were evident when evaluating memories of the assassinations of John F. Kennedy and Martin Luther King Jr. When comparing demographic information, researchers found that race was a definite factor in emotional attachment to the event that led to differences in flashbulb memory incidence.

Brown and Kulik’s study undoubtedly produced several important, if not intriguing postulations (1977). They established that participants who attained high levels of surprise, consequentiality, and/or emotional arousal also reported a high frequency of rehearsal as well as a more elaborated narrative. However, their methodology contains one fault that left researchers unconvinced of the accuracy and permanence of flashbulb memories (McCloskey, Wible, & Cohen, 1988; Neisser & Harsch, 1992). Because of the exploratory nature of their research, Brown and Kulik’s (1977) study data collection was cross-sectional so there was no way to prove that memory was consistent or accurate over time. This weakness allowed a number of scholars to scrutinize the flashbulb memory phenomena and demonstrate that the memorial process often includes errors (Curci, Luminet, Finkenauer & Gisle, 2001; Neisser & Harsch, 1992; Schmolck et al., 2000; C. A. Weaver, 1993).
When analyzing memories of both the Challenger space shuttle explosion and the Reagan assassination attempt, McCloskey et al. (1988) concluded that, “flashbulb memories are neither uniformly accurate nor immune to forgetting” (p. 177). They suggested that flashbulb memories were similar to regular memories because of the decline in memory recall they observed for subjects learning the circumstances about a surprising and consequential event. Talarico and Rubin (2007) found similar results in their comparison of flashbulb memories (FBMs) and everyday memories (EDMs). Memories from the moment subjects learned of the September 11th terrorist attacks were categorized as FBMs while memories from the preceding weekend were EDMs. In their results Talarico and Rubin (2007) indicated that in both cases recall declined over the years. In a comparison of public and personal memories, C. A. Weaver (1993) concluded that memory was less accurate following a three-month delay, but there was relatively little change from three months to one year. Following a comparative analysis of three sets of data collected from a panel of subjects, Weaver reported both types “fall off” in an Ebbinghaus-like pattern (this pattern reflects an exponential curve illustrating how fast people tend to forget the information they learn). Kvavilashvili, Mirani, Schlagman, Foley, and Kornbrot (2009) observed a similar drop in flashbulb memory consistency over long delay periods of two and three years for the memory of September 11th.

In response to criticism that flashbulb memories lack permanence, scholars have claimed that it is the subject’s confidence that prevails over the accuracy of their memory (Neisser & Harsch 1992; Talarico & Rubin, 2003, 2007; C. A. Weaver, 1993). Neisser and Harsch (1992) conducted a panel study surveying recollections of the Challenger space shuttle disaster in 1986. They distributed questionnaires to the same set
of subjects on two separate occasions: the morning after the shuttle explosion (January 29, 1986) as well as three years later (1989). The two questionnaires were identical with the exception of an additional item included in the follow-up questionnaire asking subjects to rate their confidence in each aspect of their memory. The researchers discovered that despite high confidence levels, many of the subject’s memory errors were not small but instead “the subjects were dead wrong” (Neisser, 1997, p. 1699).

“The true mystery, then, is not why flashbulb memories are so accurate for so long, as Brown and Kulik (1977) thought, but why people are so confident for so long in the accuracy of their flashbulb memories” (Talarico & Rubin, 2003, p. 460). Following this statement Talarico and Rubin published a follow-up study in 2007 where they once again concluded that flashbulb memories are unique and “special” due to people’s extraordinary confidence and phenomenology rather than extraordinary accuracy (p. 557). They reported that participants “believed” that their flashbulb memories were more vivid and consistent than their everyday memories, even though this was not so (p. 564). Subject’s excessive self-confidence was further demonstrated because most people claimed to be “the exception” to having astonishingly accurate memories of certain crisis events (p. 557).

Despite disagreement pertaining to the consistency and longevity of flashbulb memories, there remains a great amount of research that supports the significance of the vivid memory phenomena (Christianson, 1989; Christianson & Engelberg, 1999; Curci & Luminet, 2006; Kvavilashivili et al., 2009). Even after finding decreased accuracy in flashbulb memories over time, C. A. Weaver concluded his discussion by stating that flashbulb memories should continue to be studied “for obvious and interesting reasons”
Although this topic was not studied very much in the late 1990s, the unexpected attacks on September 11th, 2001 stimulated new interest in the subject. Several communication scholars in the past decade have revisited the flashbulb memory theory to explain human reactions to the news (Kvavilashvili, et al., 2009; Luminet et al., 2004; Pezdek, 2003).

This study will now discuss important characteristics that have been identified and conceptualized in previous flashbulb studies as important factors that contribute to vivid memory construction and maintenance. Each variable’s pertinence to the present study will be discussed to justify their inclusion in hypotheses and research questions. For organizational purposes, characteristics have been organized into distinct categories: 1) surprise 2) consequentiality and 3) prior knowledge. But it is important to remember that in most cases the variable’s effects are symbiotic rather than mutually exclusive.

**Surprise**

According to Brown and Kulik’s theoretical model of flashbulb formation and maintenance, the first step in the creation of a vivid memory is a person’s appraisal of novelty (1977). Surprise is an emotional reaction to the novel event. Bohannon, Gratz, and Symons Cross (2007) conceptualized surprise as the cognitive result of arousal in which “concurrently active information is stored in association with the shocking fact” (p. 1024). Brown and Kulik assert that in order to stimulate a sufficient level of surprise that is required to register a flashbulb memory, an event must be considered unordinary and unexpected. As a result, planned events such as presidential inaugurations or wedding ceremonies would not be categorized as flashbulb memories even though individuals may be able to vividly recall their proceedings. Other events that do not come
into consideration are everyday memories of parties, sporting events, or studying because they do not produce vivid recall that parallel the incidence of flashbulb memories (Talarico & Rubin, 2007). However, the unexpected assassination of President John F. Kennedy has been described as the prototypical flashbulb memory (Brown & Kulik, 1977). They claimed that the event “bowled over” just about everybody because of the level of surprise and consequentiality associated with it (p. 86).

In the past three decades studies have supported Brown and Kulik’s hypothesis that surprise is an important characteristic that strengthens the incidence of a flashbulb memory (Christianson, 1989; Cohen et. al, 1994; Finkenauer et. al, 1998; Luminet et. al, 2004; Talarico & Rubin, 2007). Brown and Kulik’s original study from 1977 was scrutinized because it “reasonably assumes” that a level of surprise directly influences flashbulb memories (Finkenauer et al., 1998, p. 518). Because they used a diverse sample and surveyed ten different events, levels of surprise could have potentially varied. Conway et al. (1994) also criticized researchers including McCloskey et al. (1988), Neisser & Harsch (1992) and Bohannon (1988) because they assumed levels of surprise and consequentiality associated with the Challenger space shuttle explosion rather than collecting an explicit measurement. Conway et al. (1994) identified this lack of measurement as the reason for the relatively low levels of flashbulb incidence found in these three studies.

Finding a level of shock in other studies proved to be a valuable determinant of flashbulb memories (Christianson, 1989). In response to the news of the assassination of Swedish Prime Minister Olaf Palme, Christianson had his subjects rate their level of surprise. He concluded that subjects who were most surprised were reliably more
accurate and detailed in their memory reports in comparison to those who were less surprised. Bohannon et al. (2007) measured surprise as “emotional reaction” and allowed subjects to rate their response on a five-point scale in which subjects could range from “could not care less” to “stunned speechless” (p. 1026). They concluded that affective response did indeed influence the extent of flashbulb memories of September 11th.

Similar findings were reported by Cohen et al. (1994) who discovered that a high level of surprise was an important determinant of flashbulb memories for the resignation of British Prime Minister Margaret Thatcher in 1990. In their study of age differences and memory recall they found that an elder group of subjects had a sufficiently lower incidence of flashbulb memories (45%) in comparison to a younger group of subjects (90%). Surprise was the main variable they attributed to this difference because the younger group reported finding the news of Thatcher’s resignation to be significantly more unexpected. Cohen et al. suggested that the elder group’s inability to produce endocrine responsiveness prevented them from experiencing enough surprise and arousal to form a flashbulb memory.

A sufficient level of surprise appears to be a necessary characteristic required to formulate a flashbulb memory. However an international study by Luminet et al. (2004) surveyed flashbulb memories for the September 11th terrorist attacks and reported different results. Although subjects reported unanimously high levels of memory reception in all nations, subjects from Turkey reported particularly low levels of novelty, surprise, and emotional-feeling states. Luminet et al. attributed this variation to the frequent terrorist attacks and serious earthquake that occurred in Turkey around the same time as the September 11th terrorist attacks in the United States. Although the Turk’s did
not consider the news of September 11th predictable, it was easier for them to imagine a crisis of this magnitude.

In addition to including people from the United States and Turkey, Luminet et al.’s (2004) data collection included subjects from Belgium, France, Italy, Japan, Romania, Switzerland, and The Netherlands. Consistent with other studies that survey vivid memory of the terrorist attacks on September 11th (Bor, 2009; Curci & Luminet, 2006; Pew Research Center for the People and the Press, 2002; Pezdek, 2003; Talarico & Rubin, 2007) Luminet et al. (2004) reported high levels of surprise for the majority of their 3,665 subjects (with the exception of the Turks). In the present study, the researcher conceptualizes surprise as an emotional reaction to an event that a subject considers unpredictable and unforeseeable. As a result, the present study presents a first hypothesis:

- H1: There is a positive correlation between the incidence of a flashbulb memory and surprise.

Consequentiality. Although Brown and Kulik (1977) did not measure the element of surprise they did deem it necessary to explicitly assess the perceived consequentiality of news events through a 5-point Consequentiality Scale. In an attempt to define consequentiality for their subjects they asked them to consider personal consequences as well as effect on “relatives, friends, admired persons and others” (p. 82). They asked their subjects to consider “what consequences for my life, both direct and indirect, has this event had?” (p. 82). Brown and Kulik concluded that high consequentiality was associated with a comparatively high incidence of flashbulb memories.

Brown and Kulik (1977) also included a second measure of consequentiality that concerned the race of the subject (Black or White) in relation to the historical event.
Researchers reported that the mean consequentiality scores for the civil rights leaders, Medger Evers, Malcolm X, and Martin Luther King was higher for Blacks. Additionally, all subjects reported high consequentiality scores for personal events in comparison to national events with the exception of Blacks reported a higher consequentiality rating only for the death of Martin Luther King. After a thorough review of flashbulb memory research it appears that the association between race and consequentiality have rarely been discussed since Brown and Kulik. This may be the result of using less racially diverse samples or the researcher’s decision to only survey a single event, which results in fewer opportunities to comparatively analyze. However, results pertaining to racial differences in Brown and Kulik’s study contributed to their conclusion that personal consequentiality is a critical determinant of flashbulb memory formation.

When surveying politically motivated events such as the September 11th terrorist attacks and news related to national leaders it appears that citizenship can help predict the existence of a flashbulb memory. For example, Conway et al. (1994) conducted a study surveying the unexpected resignation of the British Prime Minister Margaret Thatcher. Although they predicted that subjects sampled from the United Kingdom would find this news surprising and consequential, Conway et al. wanted to know if citizens living in other nations would also hold flashbulb memories of the event. Based on a questionnaire derived from Pillemer (1984), Conway et al. (1994) administered a test-retest experimental design to assess the formation and permanence of flashbulb memories. They found that while 86% of the U.K. subjects had flashbulb memories one year following the resignation, only 29% of the non-U.K. subjects reported memories with parallel vividness. Conway et al. concluded that the formation of flashbulb memories in
U.K. subjects was primarily associated with the level of importance attached to the event as well as the level of affective response to the event.

In a different study of national group membership, Curci et al. (2001) examined flashbulb memories for the death announcement of former French president Francois Mitterrand. After interviewing subjects living in two countries (France and Belgium), Curci et al. reported that the French showed higher levels of recall for flashbulb memory attributes and their determinants than Belgian people. Consistent with Conway et al. (1994), this study supported evidence that flashbulb memories of political events are affected by national membership because citizens who are more affected by the event report a higher level of consequentiality.

Studies discussed thus far (Brown & Kulik, 1977; Conway et al., 1994; Curci et al., 2001) do not differentiate between subjects who heard of the news through informants and those who experienced the event first-hand. However, Luminet and Curci (2009) explain that consequentiality of these two types of memory “differs in fundamental ways” (p. 128). People who experience the news of an unexpected event from a distance may rate it as highly important, but not perceive it as highly consequential. Alternatively someone who is directly involved with an event will allow their first-hand experience to “inform future behaviors and decisions” resulting in higher consequentiality (p. 131).

Luminet and Curci’s hypothesis is supported in a survey report published by Pew Research Center for the People and the Press (2002) that compared experiences, recollections, and attitudes regarding September 11th. Researchers established that all Americans are connected by recollections of the experience because “97% can remember exactly where they were or what they were doing the moment they heard about the
attacks.” However, compared to people living elsewhere, the survey concluded that New Yorkers and Washingtonians reported more direct life consequences in the year following the terrorist attacks. Residents of these areas have adopted “defensive and preventive behaviors” more than people living elsewhere. According to Luminet and Curci’s (2009) explanation of the relationship between direct experience and consequentiality, New Yorkers and Washingtonians first-hand experience influenced future behaviors and decisions. Pew Research also reported that people who live in these areas continue to experience personal impact and emotional consequences in comparison to Americans living in other parts of the country.

Direct involvement in flashbulb memories has also been shown to produce better memory recall (Pezdek, 2003). Pezdek suggested that people living in New York at the time of the attacks were inclined, it not obligated to monitor the events that transpired more carefully because they were more immediately threatened, thus resulting in better event memory. In her method, she collected data from three diverse locations: New York (Manhattan specifically), California, and Hawaii. She concluded that event memory was most accurate in the New York sample where subjects were also most involved and distressed by the events.

Similar results were reported in Neisser et al.’s (1996) examination of flashbulb memory incidence for the 1989 Loma Prieta earthquake. Like Pezdek (2003), Neisser et al. (1996) distributed questionnaires to subjects from three locations that differed in their distance from the event. One of the three groups was located at the epicenter of the earthquake and had suffered severe damage. The other two groups had been exposed to the news of the earthquake through word of mouth and media outlets but had not directly
experienced the natural disaster. Their method utilized a test-retest design (developed by Neisser & Harsch, 1992) and participants answered several questions regarding their own participation and their relationship with people who were affected by the disaster. Results indicated that subjects who indirectly experienced the earthquake (through hearing about it via broadcast news or word of mouth) had less vivid flashbulb memories than those who were directly affected by the disaster. Neisser et al. reported that rehearsal played a significant role in improving memory recall for participants directly affected by the earthquake and concluded that “experiencing events as a participant (rather than as a mere observer) improves the accuracy of recall” (1996, p. 337).

Research has provided evidence that consequentiality can be an important determinant of vivid memory for both people who are directly involved with an event as well as those who hear the event from a distance. In the present study, consequentiality will be addressed through examining personal importance as well as the subject’s perception of importance to others. Based on previous literature pertaining to consequentiality the following hypotheses are proposed:

- H2: There is a positive correlation between the incidence of a flashbulb memory and consequentiality.

**Prior Knowledge.** A viewer that has prior knowledge of politics as well as an orientation to the event will perceive an unexpected and consequential news story differently than someone who does not possess similar background knowledge (Luminet & Curci, 2009). Due to cognitive processes prior knowledge is predicted to “facilitate the organization and assimilation of the incoming information, thereby leading to a more detailed and consistent flashbulb memory” (Finkenauer et al., 1998, p. 518). Background
knowledge of a news event has been proven to improve memory recall (Price & Zaller, 1993) and inspire further information seeking and discussion of the news story (Conway et al., 1994; Curci & Luminet, 2006; Finkenauer et al., 1998).

Conway et al.’s (1994) study of flashbulb memories for the resignation of British Prime Minister Margaret Thatcher suggested there is a strong relationship between prior knowledge and vivid memory formation. They conceptualized prior knowledge as a combination of subject’s knowledge and interest in politics. Conway et al. concluded that knowledge of Thatcher’s government as well as sufficient interest in politics was associated with the incidence of flashbulb memories. Additionally they found that subjects with greater prior knowledge were more likely to think and talk about the resignation and more likely to participate in media rehearsal by following news reports of the resignation.

In their study of September 11th Curci and Luminet (2006) confirmed Conway et al.’s (1994) correlation between prior knowledge and rehearsal from a different perspective. Through analysis of national group comparisons they found that subjects who had poor background knowledge of the attacks also reported very low rehearsal rates through mass media exposure. For example, the subsample of Romanian citizens reported having lower prior knowledge of American society in comparison to U.S. and Western European subsamples from Italy and the Netherlands. The Romanian’s also exhibited very poor rehearsal through the mass media while American, Belgian, and Dutch subjects did not. Despite the correlation between rehearsal and prior knowledge, there was no association made between prior knowledge and flashbulb memories.
Unlike the two studies just described (Conway et al., 1994; Curci & Luminet, 2006) prior knowledge has also been positively related memory recall. Price and Zaller investigated patterns of audience reception of 16 news stories that received “prominent media coverage” in the second half of 1989 (1993, p. 133). Their study was based on research that suggests that people’s awareness of news events is related to the general level of attention to public affairs. Variables that were measured included: news media use (assessed by questioning exposure to local television news, local newspaper news, radio news, and talk radio), interpersonal communication (frequency of political discussion), and current news reception. General political knowledge was also measured through a series of questions that addressed the current state of affairs. For example, one question asked subjects to identify “the name of at least one congressional candidate running” in the respondent’s district (p. 162). Results indicated that respondents’ background level of political knowledge was the strongest and most consistent predictor of news story recall.

In the present study prior knowledge will be conceptualized as background knowledge of domestic and international politics. The variable media rehearsal will be conceptualized as attending to media coverage that specifically relates to September 11th. Based on previous conclusions relating to prior knowledge and media rehearsal, a fourth and fifth hypothesis are presented:

- H3: There is a positive correlation between prior knowledge of domestic and international politics and flashbulb memory incidence.
- H4: There is a positive correlation between prior knowledge of domestic and international politics and media rehearsal.
Mass Media and Vivid Memory

Many researchers have acknowledged that one primary problem with flashbulb memory research is that scholars must rely on subject’s confidence that their recollection is an accurate depiction of what actually happened (McCloskey et al., 1988; Neisser & Harsch, 1992; Talarico & Rubin, 2003). Bohannon et al. (2007) admitted that all of their responses may have been “total fabrication” (p. 1032). In their longitudinal study of the Challenger space shuttle explosion, Neisser and Harsch (1992) found significant inconsistencies when subjects were asked to recall their source of information. Twelve out of 42 respondents incorrectly claimed that they were informed by television. The authors use the term “TV priority” to explain this distinct type of error in which people believe that they first heard about an event from television when this was not actually the case (p. 25). They argue that “TV priority” is the result of subsequent television viewing that is “more strongly rehearsed, more unique, [and] more compatible with a societal script than the actual occasions of first contact” (p. 30). These findings are just one example of how characteristics of mass media can affect vivid memory.

The prominence and magnitude of mass media outlets are difficult to ignore when reminiscing about an important public news event (Finkenauer et al., 1998). Satellite relays make it possible for media broadcasts to reach an international level allowing people around the world to participate in viewing (Dayan & Katz, 1992). Because of this it is necessary to consider the importance of mass media as an informant during the moment one learns of an important news event. How does the announcement of shocking news exposed through a mass media outlet affect the way a person processes the news and formulates a flashbulb memory? How is this perception maintained or
altered as a result of exposure to subsequent media exposure? These questions will be addressed in the following discussion of mass media as both a facilitator of initial and subsequent information.

Mass Media as an Informant

Bohannon (1988) suggested that flashbulb memories are significantly affected by the channel through which a shocking event is first heard. To control for differences between humans and the mass media, he exclusively analyzed data from subjects who heard of the Challenger space shuttle explosion from another person. Bohannon reported that factual information relating to the explosion was routinely omitted in flashbulb accounts. In a more recent publication Bohannon et al. (2007) suggested that subjects who heard of a shocking event from another person “usually hear the bare bones of the fact itself (e.g., ‘Princess Diana is dead!’)” (p. 1024). Alternately, the authors said that those who discover the event through the media recall more detailed information about the event itself. In their example they used a media announcement that was loaded with factual information: “At 11:58 this morning the shuttle, Challenger carrying five men and two women, exploded 70 seconds after lift-off from Cape Kennedy” (p. 1025).

The discrepancy of the inclusion and amount of factual information recovered in flashbulb memories led Bohannon et al. to conduct an investigation that specifically compared diverse informant sources in flashbulb memories (2007). They hypothesized that how one receives shocking news will help determine the nature of what is recalled. To test this postulation researchers asked their subjects to report their source of information by selecting one of two categories: media or another person. After comparing the two categories they concluded that people who hear shocking news from the media
remembered “more facts” while people who heard the news from another person recalled their “personal details” better (p. 1034). These results were consistent for four different flashbulb-inspiring events including the bombing of Pearl Harbor, the Challenger space shuttle explosion, the death of Princess Diana, and the American attack in Iraq.

The single event difference Bohannon et al. (2007) reported was in reference to the death of Princess Diana where the two groups differed on the amount of information they were exposed to. Subjects who identified that the media was their source of information reported receiving almost twice the amount of exposure to information about the event. Bohannon et al. attributed this result to the “unrelenting coverage the media devoted to Diana’s death, almost to the exclusion of other programming” (p. 1031).

Although the September 11th terrorist attacks were not included in Bohannon et al.’s (2007) experiment, the present study argues that high media exposure and coverage of the event was comparable if not exceeding that of Princess Diana’s death. It is important to examine this event exclusively to learn how people’s sources of information affect their memories of the event. More specifically this study focuses on television as an informant because it is one of the few flashbulb-triggering events that have been broadcast live for the entire world to see. On September 11th, 2001, network television news allowed the public to watch this crisis unfold in real time before their very eyes. As a result this study will answer the following research question:

- RQ1: How do images and commentary featured on television news affect the way an individual initially interpreted the unexpected news of 9/11?
Media rehearsal. Flashbulb memory scholars have suggested that personal memories and public memories are worthy of equivalent investigation because they can be equally consequential to an individual (Rubin & Kozin, 1983). However, the potential rate of rehearsal an individual engaged in may differ significantly because public memories receive higher exposure through mass media outlets. At one time researchers claimed that speaking face to face and over the telephone was the most popular method of news diffusion (Steinfatt et al., 1973). In a study that surveyed the diffusion of news that President Kennedy was assassinated, Hill and Bonjean (1964) stated that “interpersonal communication becomes the most important single source for news stories of extraordinary significance” (p. 342). But in the new millennium, the media is clearly an important facilitator of event rehearsal.

According to a Pew Project for Excellence in Journalism (2010), “the commentary and discussion aspect of media, which adds analysis, passion and agenda shaping, is growing—in cable, radio, social media, blogs and elsewhere.” While it is important to acknowledge the influence of interpersonal rehearsal on vivid memory (Brown & Kulik, 1977; Finkenauer et al., 1998; Hill & Bonjean, 1964; Neisser et al., 1996; Steinfatt et al., 1973), the present study will primarily consider the impact of the mass media rehearsal because of the number of news media outlets prevalent during the September 11th terrorist attacks.

Mass media rehearsal has been conceptualized as “attending to media reports” that are directly related or associated with the event being surveyed (Conway et al., 1994, p. 334). It has been suggested that when a highly important event occurs, the abundance of media outlets make it virtually impossible to avoid media rehearsal (Finkenauer et al.,
1998). In a study of the news of Belgian King Baudouin’s death, Finkenauer et al. noted that the media was “flooded with information about his death and consequences” (p. 521). As a result of this news coverage, researchers claimed that Belgian citizens could hardly avoid participating in the rehearsal process. In their study Finkenauer, et al. measured rehearsal by rating the frequency in which subjects followed the media (television, radio, and newspapers) as well as the number of times they had casual and specific conversations regarding the event. They reported that the overwhelming rehearsal reported in their data collection strengthened the memory trace of the original event. Additionally, participants who had flashbulb memories followed the media more frequently than participants who did not.

While these scholars have acknowledged the implications of television news media on vivid memory, the influence has been given minimal emphasis in the history of flashbulb memory research. In other instances where it is examined, television news is combined with other mass media outlets such as print news, online news, or radio (Conway et al., 2004; Curci & Luminet, 2006; Finkenauer et al., 1998; Luminet et al., 2004). For Conway et al. (1994), television was included in a measure of mass media rehearsal that was eventually combined with two other types of rehearsal (thinking and speaking about event). The absence of exclusive television measurements may be result of 24-hour news stations emergence after Brown and Kulik’s initial study of flashbulb memories in 1977. CNN (Cable Network News) was launched in 1980 and BBC’s (British Broadcasting Corporation) 24-hour news station followed a decade later in 1991. Flashbulb scholars following Brown and Kulik have acknowledged the prevalence of television news as a variable but it has never examined exclusively.
The present study acknowledges the vast availability and accessibility to television news in modern society. The magnitude of September 11\textsuperscript{th} has been ensued endlessly by television news stations as they have replayed videos and offered a great amount of subsequent commentary in the years following the terrorist attacks. The effect that television news has on memory formation and maintenance over the last decade must be examined more closely. Therefore, the following research question is proposed:

- RQ2: How does viewing subsequent television news coverage since 9/11 affect the way an event is initially interpreted?
CHAPTER III

METHOD

Subjects

The population examined in this study included 1,168 staff members employed at a midsize public university in Northern California during Spring, 2010. From this population 371 people completed a 35-item questionnaire in the ten-day period specified by the researcher. The decision to sample staff members was based on the variety of demographics that were represented in this population. Staff members occupy hundreds of full-time and part-time positions in various departments throughout the university. Additionally staff jobs require a range of educational levels and professional experience that result in an assortment of ages and backgrounds. All subjects in the population were given identical questionnaires about the September 11th terrorist attacks and allotted an equal amount of time to complete the survey. The Institutional Review Board at the university approved this research.

Questionnaire

A 35-item questionnaire was used to collect quantitative data, qualitative data, and demographic information from the subjects. The quantitative section presented specific questions to determine the incidence of a flashbulb memory as well as the subject’s confidence in their memory recall. This section also included items to measure
the four variables (surprise, consequentiality, prior knowledge, and media rehearsal) that were hypothesized to correlate with the incidence of flashbulb memories. Most of the 22 questions from the quantitative section were developed based on previous studies of flashbulb memories (Brown & Kulik, 1977; Curci & Luminet, 2006; Finkenauer et al., 1998).

The qualitative section of the questionnaire attempted to investigate how people’s perceptions of the September 11th terrorist attacks were affected by television news content. Because this topic has not been explicitly addressed in previous research, it was important to use an exploratory method of data collection to allow unknown responses to emerge. Subjects were asked 4 open-ended questions relating to the first research question concerning the potential for images and commentary featured on television news to affect a viewer’s initial interpretation of the event. An additional open-ended question was used to address the second research question pertaining to the ability of subsequent television news content to alter initial interpretations of the event. All qualitative questions were inductively analyzed using the grounded theory analysis developed by Glaser and Strauss (1967).

A third section collected demographic information that was pertinent to the goals of the present study including: gender, age, educational level, and news media usage. (See Appendix A for full questionnaire.)
Quantitative Measures

**Vivid Memory**

Six questions assessed recall of the circumstances in which the subjects first heard about the terrorist attacks. These questions corresponded to the canonical categories used to define flashbulb memories (Brown & Kulik, 1977; Bohannon, 1988; Conway et al., 1994; Finkenauer et al., 1998). Subjects were asked the following questions about when they first heard the news of the attacks: 1) exact location, 2) activity interrupted by the news, 3) source or informant, 4) initial reaction, 5) reaction of others, 6) aftermath of the announcement. These questions were open-ended and the primary research scored the responses. For each item responses received a 1 if the subjects provided an answer and a 0 if the area was left blank or the subject reported not remembering. The six scores for each subject were summed together, with the maximum possible score for the variable being 6.

Because this was not a longitudinal study there was no follow-up questionnaire that checked the consistency of subject’s memories. Therefore, as in all flashbulb studies, the memories reported in the questionnaire were prone to inaccuracies. In an attempt to obtain a potential measure of inaccuracy subjects were asked to rate their level of confidence for each of the 6 memory questions using a 5-point semantic differential scale (1= not confident; 5= extremely confident). A measure of confidence for each subject was attained by calculating the average from all 6 scores with the maximum possible score for confidence being 5. The mean scores of confidence and flashbulb memory incidence were compared to determine the subject’s confidence that their memory was accurate.
**Surprise**

The two items used to measure surprise were based on a questionnaire used by Curci and Luminet (2006). Using a 5-point semantic differential scale (1 = “not at all”; 5 = “extremely”) subjects were asked to rate if the terrorist attacks were 1) foreseeable and 2) predictable. The average of these two scores resulted in a subject’s measurement of surprise. Both items were reverse coded before running statistical analyses. For Curci and Luminet the variable surprise had a Cronbach’s alpha of .773.

**Consequentiality**

Consequentiality was measured using four items developed by Curci and Luminet (2006). Subjects rated the extent that the event was important 1) for themselves, 2) for their country, and 3) at an international level. A fourth item asked subjects to rate whether September 11th had “consequences” for them. All measures were based on a 5-point semantic differential scale (1 = “not at all”; 5 = “very much”). The consequentiality score was computed by averaging the four items related to importance and the single item related to consequences. Curci and Luminet reported that their consequentiality measure had a Cronbach’s alpha of .699.

**Prior Knowledge**

To measure prior knowledge subject’s answered 2 questions asking them to rate their knowledge of: 1) domestic politics prior to September 11th and 2) international politics prior to September 11th. A 5-point semantic differential scale was used where subjects could rate their knowledge level from “1= no knowledge” to “5= extremely knowledgeable.” These two items were specifically developed in the context of the present study.
Media Rehearsal

A single question asked the frequency in which subjects sought information about September 11\textsuperscript{th} (more than once a day, once a day, once a week, once a month, once every six months, less than every six months, or never). The answer choices provided in this question were developed specifically for the present study. Previous flashbulb studies provided different answer categories based on the time increment in which the researcher wanted to examine media rehearsal. For example, Curci and Luminet (2006) assessed how respondents followed the mass media in the month that followed the September 11\textsuperscript{th} terrorist attacks.

Statistical Analysis

The statistical analyses in this study will be conducted using SPSS (Statistical Package for the Social Sciences) software. In order to determine the empirical relationship between the incidence of flashbulb memories and each of the following variables: surprise, consequentiality, and prior knowledge, the researcher will complete a correlation. An additional correlation will be conducted to determine the relationship between prior knowledge and media rehearsal that is proposed in the third hypothesis.

Qualitative Measures

Open-ended Questions

Four questions were used to understand how initial content on television affected perceptions of the event. The questionnaire explicitly instructed subjects to “think about some of the first visual images you saw on television.” Then using two open-ended questions (numbers 26 and 27 on questionnaire) subjects were asked to list
specific vivid images and describe how they affected their initial perception of the event. Next the questionnaire prompted subjects to “think of any commentary about 9/11 you remember viewing on television.” Following this instruction subjects were asked to list specific commentary recalled and describe how it affected their initial perception (numbers 28 and 29 on questionnaire). See Appendix A for precise question wording and order.

A single open-ended question (number 30 on questionnaire) was used to collect data pertaining to subsequent exposure (images and commentary) to television news content pertaining to September 11th. Subjects were encouraged to use approximate dates, channels, names of reporters, etc. to “describe any television news content that significantly changed your initial perception of the events of 9/11.”

Data Coding and Analysis

The qualitative data collected in this study was analyzed using Glaser and Strauss’s grounded theory. This method has been described as a strategic method of comparative analysis used for “generating theory” (Glaser & Strauss, 2008, p. 21). This process is accomplished by organizing subject responses into categories based on similarities and differences. By comparing all responses to each question the researcher can generate properties of categories that “increase the categories generality and explanatory power” (p. 24). Grounded theory was employed in the present study because it is an effective way to inductively evaluate open-ended responses analogous to those collected in this research.

In the present study the researcher separately analyzed five sets of responses to the five open-ended questions included in the questionnaire using the method outlined
by Glaser and Strauss (2008). To begin, the researcher read responses from all subjects and an exhaustive list of x number of categories was created. (The number of categories varied between each question depending on the variety of responses that were prevalent.) These exhaustive categories were then re-read and condensed into a smaller number of categories based on similarities. If deemed necessary, subsequent re-readings were performed in an attempt to appropriately place all responses into one or more comprehensive category. Although most responses were integrated into a category with other responses, the present researcher believed it was important to refrain from suppressing novel categories from emerging, even after certain core categories had self-established. As a result, in some instances a single response made up an entire category.

Research question 1 asked how images and commentary featured on television news affect the way an individual initially interpreted the unexpected news of 9/11? To answer this question the final remaining categories from question 27 (“Did these images affect your perception of the crisis? If so how?”) were combined with the final categories generated by question 29 (“How did the content, tone, or delivery of the commentary effect the way you processed the event?”). The final categories at the end of this process existed as a collection of explanations that help answer the questions posed in the present study.

Research question 2 asked how viewing subsequent television news coverage since 9/11 affected the way an event is initially interpreted? This was answered by analyzing responses from question 30. Using grounded theory the researcher created an exhaustive list of categories and continued to re-read responses until a final list of condensed categories existed.
Procedure

A pretest was conducted where the entire questionnaire was distributed to 16 undergraduate students. These students were relevant to the population being used in the actual study because they represented similar same age groups and educational levels. Additionally these undergraduates were in attendance at the same university that the actual population was drawn from. The purpose of the pretest was to check for potentially ambiguous items and assess the clarity of instructions. Based on feedback from pretest subjects the questionnaire was revised to produce a final draft.

Following the pretest, staff employees at the university were sent an email of informed consent with a link that directed subjects to a secure website (surveymonkey.com) that featured the questionnaire. With the completion of the questionnaire respondents were thanked for their participation and directed to the primary researcher for questions or concerns.
CHAPTER IV

RESULTS

Response Rate

From the 1,168 staff members included in the population, 371 people responded to the questionnaire (32% response rate). Eighteen of these subjects were omitted from final analysis because they did not complete the entire survey within the ten-day time frame allocated. As a result, 353 people were included in final data analysis (95% completion rate of those who started the survey).

Sample Characteristics

As predicted the sample selected represented a variety of demographics. Of the 353 subjects sampled 34% were male and 66% were female. The age of subjects ranged from 21 to 67 with a mean of 46.37 (Median = 44, SD = 11.57). A range of education levels was represented including: current undergraduates (16.8%), people with a Bachelor’s degree (32.6%), Master’s degree (23.5%), and Doctoral degree (24.6%). 2.5% reported having a Professional degree. All subjects but one (99.7%) reported being in the United States on September 11, 2001 and 96.6% reported they were American citizens at the time.

Demographics pertaining to media usage were also collected. Subjects reported their main source of news: television (41.2%), Internet (32.6%), radio (13.2%),
print news (11.6%), and other (1.3%). When asked which type of news is sought most often the top four categories were: U.S. news (33.7%), world news (25.6%), local news (17.5%), and political news (10.2%). The remaining 13% of the sample sought news in several other genres including business, technology, sports, science, health, entertainment, art, and other. When asked how often subjects sought news, the majority of subjects reported that they seek news daily (84.6%). Five percent reported seeking news hourly or more frequently and the remaining 10.7% sought news less frequently than on a daily basis.

Quantitative Results

There were four hypotheses presented in Chapter II that predicted there would be positive correlations between several variables. Three of the four hypotheses were supported. Before proceeding to details of these results, it is first necessary to present the strength and incidence of vivid memories that subjects reported in this study.

Flashbulb Memory Incidence

A high percentage (90.6%) of the respondents recalled the answers to all six questions concerning flashbulb memory attributes. Ninety-six percent could recall at least five of the questions pertaining to the circumstances of learning about September 11th. Only 2.2% of subjects recalled no memory of the trigger incident. The maximum score for flashbulb memory incidence was six and the average score was 5.76 ($N= 373; SD= .98$). (Please see Table 1.) These results confirm previous findings that flashbulb memories remain highly memorable over long periods of time (Finkenauer et al., 1998).
Table 1

*Descriptive Statistics of Variables*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>N</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashbulb Incidence</td>
<td>5.76</td>
<td>0</td>
<td>6</td>
<td>371</td>
<td>0.98</td>
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<tr>
<td>Surprise</td>
<td>4.35</td>
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<td>5</td>
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<td>0.73</td>
</tr>
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<td>Consequentiality</td>
<td>4.35</td>
<td>2</td>
<td>5</td>
<td>371</td>
<td>0.62</td>
</tr>
<tr>
<td>Prior Knowledge</td>
<td>3.1</td>
<td>1</td>
<td>5</td>
<td>367</td>
<td>0.87</td>
</tr>
<tr>
<td>Media Rehearsal</td>
<td>2.32</td>
<td>1</td>
<td>7</td>
<td>359</td>
<td>1.42</td>
</tr>
</tbody>
</table>

A 5-item measure of confidence was calculated for each subject to determine their level of self-assurance in the memory they reported. The confidence measure ranged from 0 (no confidence) to 5 (highly confident). The average confidence level of all subjects was 4.68 (\(N = 362; \ SD = .52\)) demonstrating that subjects were very confident in their memories.

**Surprise**

A measure of surprise for each subject was determined by finding the average of two questionnaire items. Both items had to be reverse-scored prior to statistical analysis. The Cronbach’s alpha for the surprise scale was .792. Most subjects reported a high level of surprise when learning the news of the terrorist attacks. The maximum level of surprise was five and the mean score of all subjects was 4.35 (\(N = 360; \ SD = .73\)).

(Please see Table 1.)
Hypothesis 1 predicted there would be a positive correlation between flashbulb memory incidence and surprise. According to the Pearson correlation, flashbulb memory incidence is positively and significantly correlated to surprise. \(p<.001\) (See Table 2.) Therefore, hypothesis 1 was supported.

Table 2

*Correlations Between Flashbulb Memory Incidence and Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Surprise</th>
<th>Consequentiality</th>
<th>Prior Knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashbulb Memory Incidence</td>
<td>Pearson Correlation</td>
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<td>.115</td>
</tr>
<tr>
<td>Area</td>
<td>Sig. (1-tailed)</td>
<td>.000</td>
<td>.015</td>
</tr>
<tr>
<td>Incidence</td>
<td>(N)</td>
<td>360</td>
<td>359</td>
</tr>
</tbody>
</table>

Consequentiality

A measure of consequentiality for each subject was determined by using a four-item “consequentiality scale” developed by Curci and Luminet (2006). In the present study the Cronbach’s alpha for the scale was .715. Based on a five-point semantic differential scale the average score was 4.35 (\(N=359; SD=.62\)). (See Table 1.) Every subject reported that the terrorist attacks were at least “somewhat consequential” and 81% rated them “highly consequential.”

Hypothesis 2 predicted there would be a positive correlation between a subject’s flashbulb memory incidence and their perceived level of consequentiality. A Pearson correlation was conducted and determined that there was a significant positive
correlation between the two variables ($p < .05$). (See Table 2.) Therefore, hypothesis 2 was supported.

**Prior Knowledge**

A measure of prior knowledge was obtained using a two-item scale developed according to the specific parameters of the present research. The scale appeared to have good reliability and the Cronbach’s alpha was .780. The highest frequency reported for prior knowledge was three (27%) out of a maximum of five. Scores digressed from the mean with the lowest scores being at both the ends of the scale. The average score for prior knowledge was 3.1 ($N = 367$; $SD = .87$). (See Table 1.)

Hypothesis 3 predicted there would be a positive correlation between a subject’s flashbulb memory incidence and their knowledge of politics prior to September 11th. According to the Pearson correlation the relationship was not significant. (See Table 2.) Therefore, hypothesis 3 was not supported.

**Media Rehearsal**

The measurement of media rehearsal was calculated using a single item that was developed specifically for the present study. The question assessed the frequency in which subject’s seek additional news information about the terrorist attacks since the event occurred on September 11, 2001. According to results 86% of the subjects seek news “once every 6 months” or less ($N = 359$; $SD = 1.42$). (See Table 1.) Six percent sought September 11th news at least once a week and the remaining eight percent reported seeking information “once a month.”

Unlike the other variables, media rehearsal was not included as a predictive determinant of flashbulb memory incidence because there was not sufficient literature to
support this prediction. Instead, hypothesis 4 predicted that media rehearsal was positively correlated to subject’s prior level of domestic and international political knowledge. The researcher conducted a Pearson correlation and found the relationship between media rehearsal and prior knowledge to be positive and significant \((p<.05)\). (See Table 3.) Therefore, hypothesis 4 was supported.

Table 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>Media Rehearsal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>.094</td>
</tr>
<tr>
<td>Prior Knowledge</td>
<td>Sig. (1-tailed)</td>
</tr>
<tr>
<td></td>
<td>.038</td>
</tr>
<tr>
<td></td>
<td>(N) 358</td>
</tr>
</tbody>
</table>

Qualitative Results

Five open-ended questions were utilized to answer the two research questions posed in Chapter II. This data was analyzed using Glaser and Strauss’s grounded theory explained in Chapter III.

Research Question 1

The first research question asked how images and commentary featured on television news affected the way an individual initially interpreted the unexpected news of September 11\(^{th}\). This question was answered using four open-ended questions (number 26-29 in Appendix A). Before proceeding to the results of this research question it is first
necessary to report a summary of the images and commentary that subjects recalled
during the initial moment that they learned the news of the terrorist attacks.

**Vivid Imagery.** In reference to vivid imagery the researcher created 38
exhaustive categories that encompassed all 351 responses. For example, one category
was entitled “firefighters” and it included 10 responses in which subjects reported that
among the first images they remember were images of firefighters on television. Many
subjects were placed in more than one category because their response included multiple
images. For example, Subject 183 was counted in eight separate categories because they
their description included, “Planes crashing to the World Trade Center, buildings falls,
people jumping through windows, people running and screaming, fires, people,
emergency personnel.” The most frequent image reported was that of the second plane
hitting the South Tower of the World Trade Center. Out of the 351 respondents that
answered this question, exactly one third of them included a description of the second
plane in their response. Among the least frequent responses were five categories that
contained only one response. These were: childcare center evacuating, dead people,
police, text scrolling on TV, and people looking for friends and family.

The 38 exhaustive categories were condensed into 10 categories that included:
1) planes hitting towers (64%), 2) towers collapsing (34%), 3) atmosphere (40%), 4)
human victims (54%), 5) human workers (7%), 6) scenes outside of New York City
(2%), 7) destruction (5%), 8) features of the television news (1%), and 9) President Bush
(0.5%). The final category number 10 was used to address those subject’s responses that
reported that they did not remember visual images. (Examples of these each of these
categories are available in Table 4.)
Table 4

_Vivid Images (Question 26: “Describe the Most Vivid Images You Recall”)_

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (N= 351)</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planes hitting towers</td>
<td>64%</td>
<td>Subject 39: When I turned on the TV I saw the second plane crashing into the tower.</td>
</tr>
<tr>
<td>Towers collapsing</td>
<td>34%</td>
<td>Subject 106: “Watching video clips of the buildings going down, neat, symmetric, just like a building being demolished…”</td>
</tr>
<tr>
<td>Atmosphere</td>
<td>40%</td>
<td>Subject 260: “Smoke billowing from the towers against the the blue sky…”</td>
</tr>
<tr>
<td>Human Victims</td>
<td>54%</td>
<td>Subject 119: “The most visual images was when the first tower ‘pancaked’ and the picture of the person(s) falling/jumping from the building - one in particular who was upside down with one leg folded and the other straight up.”</td>
</tr>
<tr>
<td>Human Workers</td>
<td>7%</td>
<td>Subject 52: “...Emergency personnel and emergency vehicles all over the place.”</td>
</tr>
<tr>
<td>Scenes outside New York City</td>
<td>2%</td>
<td>Subject 157: “...the initial image of the Pentagon on fire.”</td>
</tr>
<tr>
<td>Destruction</td>
<td>5%</td>
<td>Subject 250: “...massive destruction…”</td>
</tr>
<tr>
<td>Features of the TV news</td>
<td>1%</td>
<td>Subject 12: “...the bar of text scrolling at the bottom of the TV screen, flooded with information and going at warp speed.”</td>
</tr>
<tr>
<td>President Bush</td>
<td>0.50%</td>
<td>Subject 289: “...Bush’s non-reaction.”</td>
</tr>
<tr>
<td>No memory of vivid TV images</td>
<td>0.50%</td>
<td>Subject 59: “I don’t recall what I saw on TV. That is, I can’t separate out what I saw from the images that are now used to tell the story…”</td>
</tr>
</tbody>
</table>
Vivid Commentary. In reference to vivid commentary, 55 exhaustive categories were created to encompass the wide range of responses that people first recalled hearing on television. In the first exhaustive list there were 24 categories that only contained one response. Many of these were responses that contained the name of a specific commentator such as Brian Williams, Tom Brokaw, David Letterman, Dan Rather, Aaron Brown, Paula Zahn, and Jay Leno. During a second reading these individual categories were condensed into one larger category entitled “Named specific politician or commentator.” The second round of condensing left 14 categories. One response from the first exhaustive list was removed from analysis because it was a memory of radio personality Bill Handel. Although it is important to acknowledge this memory, it was not included in analysis because it does not help address the purpose of the present study, which focuses on television news content. After a third and final round of condensing only eight categories remained.

The most popular category entitled “nothing in particular” applied to 41% of the subjects who claimed that there was no television commentary that they specifically recalled from the moment they learned the news of the terrorist attacks. The least popular category that existed on the final list was “optimistic commentary.” This included subject’s who recalled commentary about successful rescue effects and other heroic acts. (For a complete list of the final eight categories with percentages and examples see Table 5.)

Effects of Vivid Imagery and Commentary. According to analysis, television images and commentary that were reported by respondents significantly affected the way subjects formulated initial perceptions of the event. This was discovered by analyzing
Table 5

*Vivid Commentary (Question 28: “What Commentary Do You Remember in Particular?”)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (N= 316)</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing in particular</td>
<td>41%</td>
<td>Subject 244: “The commentary given on TV is inane and irrelevant. TV is for images. Text is for content.”</td>
</tr>
<tr>
<td>Named specific politician or reporter</td>
<td>14%</td>
<td>Subject 27: “I believe it was Matt Lauer (the Today Show) that I was listening to. But I remember Pres. Bush speaking and when he attended church services right after. Also, Mayor Guiliani was very inspiring to me.”</td>
</tr>
<tr>
<td>Description of ongoing event</td>
<td>11%</td>
<td>Subject 248: “I remember commentary on how many other planes were in the air, the FAA trying to figure out where they were and to get them grounded.”</td>
</tr>
<tr>
<td>Optimistic commentary</td>
<td>2%</td>
<td>Subject 219: “I distinctly remember hearing about all of the heroics and amazing things people did to save as many lives as possible.”</td>
</tr>
<tr>
<td>Overall tone in reporter’s voice</td>
<td>11%</td>
<td>Subject 209: “The moment when a commentator was announcing the collapse of the first tower. He was very emotional.”</td>
</tr>
<tr>
<td>Specific statements and background noise</td>
<td>4%</td>
<td>Subject 50: “I remember video shot from an apartment near the towers and the person just kept saying over and over “Shit! Shit! Shit” I’d never heard anything like it on live TV…”</td>
</tr>
<tr>
<td>Repetition</td>
<td>3%</td>
<td>Mostly I remember a lot of repetition. The newscasters didn’t really have information to share so it was all repeated.</td>
</tr>
<tr>
<td>Discussion of antagonist</td>
<td>4%</td>
<td>Subject 199: “Anger towards muslims and towards foreigners, fear and ignorance based politics.”</td>
</tr>
</tbody>
</table>
634 responses to question 27 (337) and question 29 (297). Because the purpose of the study is to investigate vivid memory, the responses where subjects reported that they did not remember were not included in the final analysis.

In reference to the effects of images remembered (question 27), 34 exhaustive categories were condensed into 12 final categories. In reference to the effects of commentary remembered (question 29), 40 exhaustive categories were condensed into 12 final categories. Many of the final categories produced by these two distinct questions were analogous so they were also condensed in a final reading. Categories that were generated through question 27 as well as question 29 were: “Increased consequentiality,” “Increased my distress,” “Made me feel involved,” “Helped me to understand events,” Increased drama,” and “Spurred interest in American politics and abroad.” The category of “No effects” also existed in both questions, but the researcher refrained from combining them in order to determine whether subjects were more affected by images or commentary. The answer to research question 1 exists as a combination of 17 final categories generated by questions 27 and 29. The formation and content of each of the 18 categories will now be described in detail based on order of popularity. (Also see Table 6.)

**Increased Distress.** Thirty-six percent of subjects’ reported that television news content increased their level of distress. The word “distress” was selected because it was an overarching term that could sufficiently encompass the numerous emotional categories that were generated during initial readings. Within this category respondents also reported that images and commentary increased their feeling of panic, shock, disbelief, chaos, confusion, skepticism, sadness, frustration, anger, and anxiety. Subjects
<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (N= 634)</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased distress</td>
<td>36%</td>
<td>Subject 94: “...I think even the commentators were caught unaware and updates were coming in fast and chaotic... the tone was that of uncertainty, the content jumbled and scary and the delivery was somewhat stilted. Everything was in turmoil, so processing the event was even more distressing...”</td>
</tr>
<tr>
<td>Increased consequentiality</td>
<td>13%</td>
<td>Subject 117: “...Hearing the concern in my mother-in-laws voice let me know that something serious was going on, but seeing those surreal images that looked to be coming from a disaster movie really let me know what was going on; the seriousness of it; and how it was going to be a life altering moment.”</td>
</tr>
<tr>
<td>Made event more realistic</td>
<td>9%</td>
<td>Subject 70: “...it made the event feel more real. I couldn’t have come up with an image of the twin towers myself without a visual aid, much less what such a destructive accident would look like. I might have underestimated the severity or magnitude of the disaster.”</td>
</tr>
<tr>
<td>Made me feel involved</td>
<td>8%</td>
<td>Subject 148: “...it gave an intense human element to something that could have been understood as distant.”</td>
</tr>
<tr>
<td>Increased my understanding of event</td>
<td>6%</td>
<td>Subject 118: “It made it much more personal and helped put things in perspective because I couldn’t even imagine what it must have been like to live through something like that.”</td>
</tr>
<tr>
<td>Images had no affect on my perception of the event</td>
<td>6%</td>
<td>Subject 259: “They didn’t have a great impact on me, but then again, I’m an historian, and I study disasters all the time. The loss of 3,000 lives was tragic, of course, but in the region I study (Latin America) that kind of loss of life is not uncommon.”</td>
</tr>
</tbody>
</table>
Table 6 (Continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commentary had no affect on my perception of the event</td>
<td>4%</td>
<td>Subject 41: “Don’t remember anything specific about content, tone, or delivery.”</td>
</tr>
<tr>
<td>Forced me to confront death</td>
<td>3%</td>
<td>Subject 119: “Gut wrenching to see life and death decisions unfolding with little or no chance of survival.”</td>
</tr>
<tr>
<td>Increased drama</td>
<td>3%</td>
<td>Subject 48: “They increased the dramatic/theatrical effect.”</td>
</tr>
<tr>
<td>News was objective</td>
<td>2%</td>
<td>Subject 65: “I was surprised how news personalities remained so calm and collected when such a historical event was happening. I was bothered by their lack of emotion…”</td>
</tr>
<tr>
<td>Made event seem unreal</td>
<td>2%</td>
<td>Subject 265: “Made it seem more awful but also unreal because it was kind of cinematic, reminiscent of disaster films.”</td>
</tr>
<tr>
<td>Experienced a media overload</td>
<td>2%</td>
<td>Subject 160: “I felt overwhelmed by the processing and finally had to turn away from the multimedia over-display.”</td>
</tr>
<tr>
<td>Spurred interest in American and international politics</td>
<td>1%</td>
<td>Subject 16: “...Viewing the amount of destruction and horror was heart wrenching. Spurred my interest in what the US has done to other countries to instill such violence, destruction, and hatred.”</td>
</tr>
<tr>
<td>Made me think of a person who may be involved with event</td>
<td>0.04%</td>
<td>Subject 279: “My son was in the Marines and I was concerned he would be directly involved with the crisis.”</td>
</tr>
<tr>
<td>Made me glad to not be there</td>
<td>0.03%</td>
<td>Subject 43: “I was so glad to live in a remote area and not have to worry about my job or home being a target of terrorism.”</td>
</tr>
</tbody>
</table>
also claimed that content made them feel more vulnerable, horrified, terrible, apprehensive, and concerned. The most popular response embedded in this category was “increased fear.” A reported level of fear varied among the 48 responses that were included in this category. Subject 145 claimed that the commercial news sources were in the business of “repeating over and over disturbing images, and cultivating more fear and anxiety among the masses.” Subject 216 reported that the content viewed “made me fearful that more attacks would take place that day, all over the country.” Subject 97 admitted to not feeling safe in his or her own country. Based on these results it is clear that viewing television content made these viewers significantly more distressed.

**Increased Consequentiality.** The second most popular effect of vivid images and commentary was indicated by the category “Increased consequentiality.” 13% of the subjects reported that television content influenced their perception of the event by escalating the severity or increasing the magnitude of the situation.

In reference to vivid imagery in particular, Subject 117 said:

In a way, they [images] brought it home to me immediately. Hearing the concern in my mother-in-law’s voice let me know that something serious was going on, but seeing those surreal images that looked to be coming from a disaster movie really let me know what was going on; the seriousness of it; and how it was going to be a life altering moment.

In addition to Subject 117, several other also subjects also reported that they would have perceived the event as less consequential had the television news not emphasized the severe consequences of the event not only for the people directly involved but for the entire world.

**Made Event More Realistic.** Contrary to the number of respondents who claimed to experience feelings of “disbelief” (as described in the explanation of the
category “Increased distress”), 9% of subjects claimed that television viewing made the event “more realistic.” This result was especially true for those who reported hearing the news through a mode of communication other than television media such as print news, interpersonal conversation, or the radio. Respondents claimed that television visuals “hit home faster and perhaps in a way it could not have in print” (Subject 115) and they “made the event more real than written words” (Subject 16).

Television news also made the crisis more realistic for people who were not familiar with New York City or the structural magnitude of the World Trade Center.

According to Subject 70:

It made the event feel more real. I couldn’t have come up with an image of the twin towers myself without a visual aid, much less what such a destructive accident would look like. I might have underestimated the severity or magnitude of the disaster.

However, subjects also indicated that it was their familiarization with the Twin Towers that increased their perception of reality. Subject 230 reported that “having been in the lobby of the building years before made it even more real to me.” These results reveal that television viewing assisted subjects to grasp the reality of the ongoing event in diverse ways.

**Made Me Feel Involved.** 8% of subjects reported that exposure to images and commentary on television increased their perceived involvement with the ongoing crisis. This category was generated through combining smaller categories such as: “Made event more intimate,” “Created an attachment,” and “Made event more personal.” One subject stated that the television news “gave an intense human element to something that could have been understood as distant” (Subject 70). Subject 83 recalled that television images
“personalized the situation” because they claimed they “could imagine the people who were in the building and the panic that would be ensuing.” Many other subjects also identified with the victims. Subject 344 wrote, “…I cannot help but wonder what those people were thinking about and what I would do if I were in their place. Would I hope, pray, cry? Call my family? Be heroic or strong? Would I jump?” In reference to witnessing victims in trouble Subject 67 said, “…that could have been any of us.”

Six subjects claimed that the television news was very influential in inspiring a sense of patriotism. One subject reported that instead of feeling distant from terrorism occurring on the East coast they “…felt we were more united as a nation…” (Subject 175). Subjects who indicated that they felt compassion and shared sympathy for the people featured on television were also included in this category. Subject 15 recalled, “I identified with shared grief” and many respondents reported feeling deep empathy for “sobbing family members” (Subject 44).

Increased My Understanding of Event. Although numerous subjects recalled being confused when alerted of the news of the attacks, 6% of the responses identified the television news as an important source of information to clarify uncertainty.

According to Subject 190:

I remember turning on the TV right when I got home from work, and it was then that I understood what all of the customers were trying to tell us. Since I had never been to New York, I couldn’t visualize what the “twin towers” were that my coffee shop customers kept talking about. It didn’t visually make sense to me until I saw the images on TV.

Respondents also reported that the news commentators helped them understand the confusing and disturbing images that were being presented. In some cases
subjects recalled that information being relayed regarding terrorism and the potential
attacks helped them to process the reasoning and rationale for the attack.

Images Had No Effect on My Perception of the Event. Equal to the percentage
of respondents that found the news to increase their understanding of the event, 6% of
subjects reported that the images had no effect of their initial perception of the event
occurring. Many of these responses were extremely brief, but a handful of subjects
provided insight into potential reasoning why they were not affected by the event. Two
subjects claimed that they were not affected as a result of exposure and knowledge of
mass murder that occurred in different circumstances.

For example, Subject 258 claimed to be less impacted due to his occupation as
revealed by the following response:

They [terrorist attacks] didn’t have a great impact on me, but then again, I’m an
historian, and I study disasters all the time. The loss of 3,000 lives was tragic, of
course, but in the region I study (Latin America) that kind of loss of life is not
uncommon.

These results support Luminet et al.’s (2004) finding that people are less
impacted by an event when it is easier for them to imagine a crisis of similar
consequentiality.

Commentary Had No Effect on My Perception of the Event. Four percent of
subjects claimed that television commentary did not affect their perception of September
11th. Five subjects explained that the non-effect of commentary was primarily due to the
extremely high impact of images. Subject 146 explained that commentary was not
influential due to being too “engrossed by the images.” They continued on to insist that
“most of the commentators didn’t really have much information to offer, and they were
just chatting inanely to fill the air space.” The category “Content mirrors my feelings and thoughts” was also considered a non-effect because these respondent’s perceptions were neither intensified nor weakened by exposure to commentary.

In order to compare the non-effects of images and commentary it was necessary for the researcher to complete additional calculations because the total number of respondents differed for each category. Out of the 337 subjects who responded to question 27, 11% of them reported being unaffected by images. In reference to question 29, only 9% of the 297 responses indicated a non-effect of television commentary. As a result, a higher percentage of subjects (proportional to the total number for each category) stated that their perceptions were unaffected by visual images.

**Forced Me to Confront Death.** Three percent of subjects reported that they recalled being forced to confront the realization of death to varying degrees. Several subjects said that they their perception was affected by the “death tolls” being reported (Subject 121) and the accounts of “lost lives” (Subject 204). Some remembered the vivid memories of commentators describing victims “jumping to their death” (Subject 131) and recalling that it was “Gut wrenching to see life and death decisions unfolding with little or no chance of survival” (Subject 119).

According to results the confrontation of death was certainly a long-lasting memory for many people because of its importance to the event as a whole. Subject 128 claimed that the images “made it certain that death was an integral part of 9/11” and Subject 77 believed that “The destruction of these landmarks and the associated deaths were at the core of the crisis.”
Increased Drama. Sixteen subjects (3%) reported that the content they viewed on television increased their perceived level of drama associated with the event. Most of these responses suggested that the intensification of drama had a negative effect on their memory of television news coverage. Subject 70 recalled, “I was sickened and angered by the dramatic black/white and evil/good characterizations. I was afraid of the way the media and the administration were whipping up a frenzy of ethnocentrism.” Other subjects more briefly reported that the news made the event seem “highly dramatic” (Subject 86) and “exaggerated” (Subject 88).

News Was Objective. Two percent of subjects recalled that their initial perception of the event was somehow affected by the objective conveyance of information. Five subjects recalled the news being memorably factual and accurate. Subject 317 recalled being presented with “facts and information” instead of “opinions” and “intemperate rhetoric.” Certain subjects believed that the calm and unemotional demeanor of the news reporters, despite the chaos and tragedy of the event they were discussing, suppressed the potential inclination for reporters to be overly subjective or dramatic. Although Subject 35 recalled the event as highly memorable, they also reported, “the commentator’s tone was relatively unemotional, in the objective manner consistent with news reporting.”

Made Event Seem Unreal. Unlike the 9% of subjects who found the television news to increased realism, 2% reported that the content on television made the event seem unreal. Many of these respondents compared what they were viewing to a movie or “reminiscent of disaster films” (Subject 117). Subject 119 reported, “There was a muted,
denial, that this wasn’t actually happening…” and “These things only happen in movies…”

**Experienced a Media Overload.** Two percent of subjects explained feeling overwhelmed and overloaded with information being disseminated by the media and television especially. Some subjects claimed that the sheer magnitude of information being presented inhibited their ability to process what was happening. For instance, Subject 160 reported feeling “overwhelmed by the processing and finally had to turn away from the multimedia over-display.”

**Spurred Interest in American and International Politics.** A small percentage (2%) of subjects reported that television news stimulated their interest in domestic and international politics. Subject 16 said, “Viewing the amount of destruction and horror was heart wrenching. Spurred my interest in what the US has done to other countries to instill such violence, destruction, and hatred.”

**Made Me Think of a Person Who May Be Involved with Event.** A small number of people (1%) were assigned to this classification. This category contained subjects who reported that upon exposing themselves to television content they were triggered to think of a family member of friend that may be affected or involved as a result of the attacks. For instance Subject 279 reported: “My son was in the Marines and I was concerned he would be directly involved with the crisis.” Subject 269 reported that in reaction to shocking and scary content they became “worried about my family who live on the East coast.”

**Made Me Glad to Not Be There.** Only .03% of the subject’s recollections were classified as this category, but as explained in Chapter III, it was important not to
suppress novel responses. Less than 1% (2 subjects) reported that exposure to television content made them glad to not be at the scene of the disaster. Subject 52 wrote, “I felt for those people because I could see what was going on and was sad for them and glad at the same time that myself and my family were safe.”

**Research Question 2**

The second research question asked how viewing subsequent television news coverage since September 11th changed the way a subject initially perceived the event. Responses from question 30 were analyzed to answer this research question (see Appendix A for precise wording). Responses to this item were unlike the other four open-ended questions (numbers 26-29) because they allowed subjects to report memories from any moment within the time frame of September 11, 2001, to the day they completed the questionnaire in April of 2010.

Because there was only one question used to collect data to answer this question there were only 254 responses analyzed. This is far fewer than the 654 responses analyzed to answer research question 1. Additionally only 168 of these responses were counted in final analysis. There are several reasons for the high number of responses not included in final analysis. First, 22 of the subjects continued to report television content they remembered from the first moment they learned about the terrorist attacks even though the researcher’s intention was to collect memories of content viewed following initial exposure to the event. Second, 24 subjects incorrectly answered the question by reporting other sources of news besides television that affected their initial perception (7%). Among the other sources are: independent films, interpersonal conversation, the Internet, print media, still images, radio, and two major films *World Trade Center* and
One subject reported that visiting Ground Zero years after the event significantly affected the initial perception. Although this data has interesting implications for other research, it was not relevant in the present study. Finally, as with the other open-ended questions the subjects who reported they did not remember subsequent television coverage were also not counted in final analysis.

The 31 exhaustive categories that were generated during an initial reading were condensed into 10 final categories. Each of these categories will now be described in more detail based in order of popularity. (For a complete list of categories, frequencies, and examples, see Table 7.)

**Nothing in Particular Has Changed My Perception.** This was the most popular category containing 31% of the responses. Combining the categories “Television news turned me off” and “Nothing in particular has changed my perception” created this high percentage of responses. Most of the subjects that were categorized in the first category mentioned claimed that it was the over-extensive media coverage that repelled them from television news.

According to Subject 43: “Within a week of the incident, I stopped watching the news because it was so repetitive. One can only view the airplanes crashing and horrible sights so many times… I was disgusted with the constant presenting of real life horror.”

Many of the subjects who claimed that no particular image affected their initial perception attributed this response to the strength and accuracy of their initial perception. Subject 214 claimed that “No matter what Democrats or Republicans, the news media or entertainment industry say or do, nothing can change my perception of
### Table 7

**Effects of Subsequent Television News (Question 30)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing in particular has changed my perception</td>
<td>31%</td>
<td>Subject 105: “...Nothing has changed my perception since I first viewed 9/11. It was a horrendous event, and I don’t think I’ll change my mind on that no matter what reporter I view.”</td>
</tr>
<tr>
<td>Increased understanding</td>
<td>10%</td>
<td>Subject 238: “I think the first significant realization was we were not attacked by another country. It seemed like the puzzle pieces were quickly coming together, days after 9/11. The names of the hijackers, their country of origin, the extent of their planning, etc were being picked up by all the news services.”</td>
</tr>
<tr>
<td>Increased distress</td>
<td>7%</td>
<td>Subject 245: “…I remember being angered at news anchors’ displays of patriotism via flag lapel pins, as representative of the growing effort to frame the attacks as acts of war rather than criminal acts.”</td>
</tr>
<tr>
<td>American government’s previous knowledge of attacks changed initial perception</td>
<td>2%</td>
<td>Subject 148: “Political criticism of the Bush Administration has changed perception because it seems as if there was intelligence that made the events somewhat foreseeable.”</td>
</tr>
<tr>
<td>Reinforced my perception</td>
<td>1%</td>
<td>Subject 290: “As horrific as the event was, I always felt that our arrogance and bullying ways on the world stage played a part in this event. I guess the news that I tuned into simply reinforced my initial perceptions.”</td>
</tr>
<tr>
<td>Late night television made me recognize significance</td>
<td>1%</td>
<td>Subject 214: “…I remember specifically watching David Letterman and Jon Stewart opening their late night shows a few days/weeks later, sharing their feelings and how emotional it was to watch these two comedians not be funny.”</td>
</tr>
</tbody>
</table>
Memorial broadcasts changed perception 1% Subject 370: “…the memorials when they just had the twin beams of light where the buildings were.”

Exposure to Latin American TV changed perception 0.05% Subject 129: “Latin American newspapers and channels had a different perspective.”

TV news decreased my distress 0.05% Subject 285: “I think I watched msnbc mostly that week at a friends house… the newscaster reporting, he has a good calming effect.”

that day.” Many subjects shared this subject’s sentiment and claim to hold an identical perception of the terrorist attacks to the present day.

**Increased Understanding.** Many subjects (10%) reported that viewing news for various increments of time assisted them to better understand the event that transpired. Some subjects described this process as a gradual transition and compared their increased understanding to initial moments of confusion and chaos. Subject 209 described their changing thought processes as follows: “My initial perception was that this was an accident but further media coverage changed this perception when the second tower was hit and the media coverage then began to call it an attack.” Another subject described the introduction of new information as “the puzzle pieces… quickly coming together” (Subject 238, see Table 7 for complete quotation). Nine subjects specifically referred to the channel CNN as their main source of information facilitation. Subject 71 recalled “watching CNN for hours and days for getting the latest and most current
information.” While other news stations such as NBC, CBS, Fox News, and ABC were mentioned, none were mentioned nearly as frequently as CNN.

One subject reported that their initial perception was significantly altered due to increased understanding of what the victims inside the World Trade Center were experiencing during the attacks. In reference to viewing a documentary about September 11th on the Public Broadcasting Station, they explained, “Their stories were situations that I hadn’t thought about or considered…” (Subject 138). For many subjects, information featured on television helped them to understand the complexities of a surprising and consequential event.

**Increased Distress.** According to analysis, 7% of the subjects reported that exposure to television news has increased their distress since the time of the attacks. This category was created by combining the following third round of condensing subcategories: “Television intensified my perception,” “Bush’s previous knowledge of attacks increased sadness,” “Television increased suspicions,” “Television news made me mad,” “Television made it seem worse than it was,” and “Local news brought event closer to home.”

Many of the responses in this category indicated that exposure to a television special or documentary was responsible for increasing their distress about the event. When recalling content from a television special they viewed, Subject 218 explained, “They [camera operators] were right in the buildings with the firemen and you could hear the constant sound of the bodies hitting of people who jumped… That made the horror even more palpable.”
American Government’s Previous Knowledge of Attacks Changed Initial Perception. Several subjects (2%) reported that their initial perception of the event was significantly modified after viewing news reports that the American government may have had previous intelligence of the attacks prior to September 11th. Six out of the seven responses included in this category specifically identified President Bush as someone who could have foreseen the attacks. One subject claimed they were disappointed “when President Bush would not directly acknowledge that there was intelligence predicting this event.”

Reinforced My Initial Perception. Three subjects (1%) indicated that the content they were exposed to changed their perception by reinforcing their original beliefs. This category contained subjects who claimed their initial perception was confirmed and/or enhanced by subsequent exposure to television news. One subject admitted that this outcome was the result of selective exposure. They reported, “…I guess the news that I tuned into simply reinforced my initial perceptions…”

Late Night Television Made Me Recognize Significance. A small number of subjects (1%) explained that late night television affected their initial perception. These subjects claimed that the serious content that was featured on these comedy talk shows helped reveal the significance of the event. According the Subject 96, the guest appearance of journalist Dan Rather on the David Letterman Show “really made me recognize the magnitude of the event.” Subject 214 was impacted by the serious demeanor of the late night hosts and recalled: “… how emotional it was to watch these two comedians not be funny.”
Memorial Broadcasts Changed Perception. A few subjects reported that special television broadcasts on the anniversary of September 11th have changed their initial perception. One response stated that, “Subsequent documentaries that have been shown on the 9/11 anniversaries have shown very graphic material (e.g., bodies crashing to the sidewalk), intensify my initial perception of 9/11…” According to these results the content that is intended to memorialize the event does have an impact of shaping and modifying perceptions.

Exposure to Foreign Language Stations Changed Perception. This category contained just one response, however results are still important to mention due to the possible significance of the implications. According to Subject 129 Latin American newspapers and channels had a different perspective…” that altered their initial perception.

Decreased Distress. This category was also composed of a single response. One subject claimed that the news reporter had a “good calming effect” (Subject 285) that decreased their anxiety.
CHAPTER V

DISCUSSION AND CONCLUSION

The first goal of this research was to demonstrate that people have flashbulb memories for the September 11th terrorist attacks (Curci & Luminet, 2006; Luminet et al., 2004; Pezdek, 2003). The second purpose was to test the effects of variables that have been previously associated with the formation and maintenance of flashbulb memories, i.e., surprise, consequentiality, prior knowledge, and media rehearsal (Bohannon et al., 2007; Conway, et al., 1994; Finkenauer et al., 1998; Price & Zaller, 1993). Third, the present study intended to investigate the role that television news media plays in the development and modification of initial perceptions of a flashbulb event.

Flashbulb memories were defined as vivid memories for specific details of the reception of news context. It was suggested that the incidence of flashbulb memories could be characterized by six questions used in previous studies that assessed recall from the moment one learns of an unexpected and consequential event (Brown & Kulik, 1977; Neisser & Harsch, 1992). These questions pertained to location, ongoing activity, informant, personal reaction, the reaction of others, and the immediate aftermath. Analyses confirmed that subjects across all demographics reported extremely high memory context for learning the news of the September 11th terrorist attacks. These results are significant because they support previous findings regarding the flashbulb
memory phenomena (Brown & Kulik, 1977). They also demonstrate the long-lasting cognitive impact the event had on individuals almost a decade after its occurrence.

With respect to the second goal of this study, it was concluded that both surprise and consequentiality were variables that positively correlated to the incidence of a flashbulb memory. Prior knowledge was the only variable where a significant correlation was not established. Unlike results presented by Price and Zaller (1993), the present study did not find evidence that previous knowledge of domestic and international politics were related to vivid memory. However, a different relationship between prior knowledge and media rehearsal was identified. Results revealed that the two variables were positively correlated to each other. Based on statistical analysis, it was established that an individual’s strength of political knowledge was a significant determinant of the amount of September 11th information they exposed themselves to following the terrorist attacks. Subjects who claimed to have greater knowledge of politics were more likely to seek information about September 11th in comparison to respondents who reported low levels of political knowledge.

Finally, several important conclusions can be drawn regarding the role of the news media in vivid memory recall. In reference to the first research question, it can be concluded that viewing images and commentary featured on television news does affect the way a person originally perceives an event. Primarily, content on the news can cause viewers to become distressed and experience emotions such as sadness, fear, rage, and shock. Due to this response, journalists should be aware of their immediate and long-term influence on viewers and proceed with caution as to the type of reaction they wish to stimulate. Television content can also heighten awareness of an event and increase an
individual’s perception of the importance and consequentiality associated with the incident.

Results revealed that the images and commentary featured on television made the event more realistic for some viewers and less realistic for others. Many subjects reported that the television content provided understanding to an event that seemed unfathomable at first. Others claimed that the visual depiction added a theatrical and unrealistic value to the news. Response analysis also indicate that television increased the drama unfolding and forced viewers to confront the realism of death. Images of citizens being murdered and committing suicide on national television accompanied with the continuous death toll announcements added intensity to the event. These elements projected by the television would be difficult to replicate using other news media.

In reference to the second research question, it appears that exposure to subsequent television news can influence a viewer’s initial perception of September 11th. Results established that prolonged exposure to news pertaining to the terrorist attacks increased viewer’s understanding of the event. However, subjects indicated that in some cases a more comprehensive understanding led to higher levels of distress. It appears that the emergence of additional information made people more frustrated, suspicious, confused, or angry. Less than one percent of viewers reported that viewing subsequent news had a calming effect. Therefore it should be concluded that exposure to subsequent news regarding the crisis was more likely to cause distress than reassurance.

In several specific instances television reports that suggested the United States government had previous knowledge of the attacks significantly changed viewer’s perception of the event. According to responses the fault of the crisis was mainly placed
on President Bush and his Administration. The announcement that the disaster may have been prevented appeared to increase viewer’s contempt with the American government. This finding has significant implications for government trust and allegiance to political leaders. The media’s exposure of corruption in the executive branch can potentially lead to hostility and anti-American sentiments not only on the domestic front, but also on an international level.

Finally, it is imperative to mention that the quantitative results were complementary to qualitative findings. Quantitative analysis produced results pertaining to the variables surprise and consequentiality that were significant, yet not very novel. These findings simply supported previous research. However, the results generated through inductive qualitative analysis helped to explain why subjects reported that the event was surprising and consequential. First, in regards to surprise, qualitative data revealed specific television content that appeared to increase the level of shock that viewers were experiencing. For example, many subjects reported that watching a plane crash into the World Trade Center caused them to become stunned and startled. Similarly, in regards to consequentiality, the qualitative data revealed reasons that subjects considered the terrorist attacks to be of considerable importance to themselves and others. Many respondents claimed that exposure to television news helped them grasp the magnitude of the disaster and therefore increased their perception of consequentiality. Because the influence of television news had not been emphasized in previous flashbulb research it was important to collect descriptive data that would explain television’s important contribution to established flashbulb memory variables such as surprise and consequentiality.
Limitations

One primary limitation to this study was that the research used a cross-sectional design instead of a panel to collect memories of September 11\(^{th}\) day. The accuracy of the recollections reported was assumed rather than checked over an extended period of time. Previous flashbulb studies reported inconsistencies when conducting longitudinal experiments (Neisser & Harsch, 1992) and it would have been beneficial to distribute questionnaires on more than one occasion. This would have strengthened the validity of the flashbulb memory incidence measure. The negative impact of this limitation may be alleviated by the high level of confidence observed in respondents, however, it has been determined that confidence does not necessarily transfer into increased accuracy (Talarico & Rubin, 2003; C. A. Weaver, 1993).

Using a panel of subjects may have also increased the value of the answers pertaining to the research questions. The open-ended questions used to gather data forced subjects to be analytical and identify a change in their perception over time. The use of a longitudinal survey would have allowed the researcher to personally observe a change instead of relying on subjects to self-assess a modification in their thoughts or behaviors. However, as with all flashbulb studies, it is difficult to collect data during the exact moment of crisis.

The sample studied should also be acknowledged as a potential limitation of this study. The population consisted of employees at a University setting and many subjects had advanced degrees. According to demographic information collected in the questionnaire, 99\% of the subjects reported that they had completed some amount of college while one half of the subjects reported having a Master’s degree or higher.
Consequentially, the majority of respondents was very well educated and may have been more critical of the mass media. Many subjects referenced lectures they had attended in college and referred to critical essays or presentations that were required in courses. Some respondents were professors and explained that they actually taught this topic at one point in their careers. The additional analysis that these subjects engaged following September 11th was not typical of most Americans. Therefore, using a sample of less educated people would probably illicit different conclusions.

In regards to research question 1 and the influence of original interpretations, there was also a proportional difference observed between the two categories “Images had no affect on my perception of the event” and “Commentary had no affect on my perception of the event.” According to results there were proportionately more people who claimed to not be affected by initial images in comparison to those who were not affected by initial commentary. However, it is necessary to emphasize that a measurement of affective intensity was not assessed in the questionnaire distributed in this study. Consequently, it is not certain if images or commentary had more impact on individual viewers. The goal of the present study was to observe the effect of television content as a whole. In future research, it would be interesting to investigate the statistical difference between the influence of images and commentary.

In reference to research question 2, it must be acknowledged that the results may have been inhibited by the lack of responses used in final analysis. This discrepancy may have been due to poor wording of the question even though there was no indication from the pretest that subjects misunderstood this item. Subject fatigue may have also led to lack of responses because this question was the fifth in a sequence of five open-ended
questions. It was interesting to observe the high number of subjects who reported that they don’t watch television because many of them were able to sufficiently answer numerous other questions from earlier in the questionnaire that questioned exposure to television content. This result is interesting because it suggests that although certain subjects may not claim to watch television, they did make an exception to seek television news on September 11th.

Implications

The conclusions drawn from this study contain several important implications. First, the ability for the news to increase the consequentiality of the event and make viewers feel involved is important to the topic of civic engagement. Although most subjects in the present study were not directly involved with the terrorist attacks, it appears that communication mediated through television news allowed them to feel an intimate and personal attachment to the ongoing event. Many subjects recalled watching the news when they typically would not and others claimed that they “were just glued to the TV” (Subject 215). In the days following the terrorist attacks, the political apathy that is commonplace in the United States decreased as people made great attempts to increase their knowledge of domestic and world relations. Some subjects in this study explained that they continued to seek updated news in order to hear the government’s response or retaliation and monitor the United State’s role in world politics. This conclusion suggests that the government and the media should take advantage of this critical slice of time to increase civic engagement and knowledge of political affairs. In reference to disaster
events, this time frame may also be the most advantageous for soliciting donations and support to assist victims.

It is significant to note that although subjects continued to monitor the news in days following September 11\textsuperscript{th}, they only reported feelings of involvement or attachment during initial news reports. Additionally, many subjects reported being deterred from television due to the overload of information that was being disseminated at the time. The inaccuracy of initial reports and introduction of conspiracy theories revealed by subsequent documentaries and special reports further discouraged viewers from trusting the news media. The numerous news channels mentioned in recollections of news content emphasizes the diversity of the mass media market and the steep competition that exists. According to results of the present study it is important for news channels to focus on presenting accurate information and refrain from overwhelming their viewers with repetition and subjective commentary.

As mentioned previously, many subjects revealed that specials and documentaries broadcast on television altered or reinforced their initial perception of September 11\textsuperscript{th}. In the present study these programs were considered television news and no distinction was drawn between them and daily news broadcasts. In future research it is important that the affects of these special news presentations are studied exclusively to determine their particular contribution to memory perceptions of vivid news events. It would be interesting to note potential differences between the audience for documentaries and daily news viewers. The documentary audience would most likely elicit different responses as a result of their decision to selectively expose themselves to news in comparison to daily viewers who expect to receive news pertaining to a variety of topics.
In addition to documentaries and broadcast specials, other genres of television news appear to have affected perceptions of the terrorist attacks. According to analysis, late night television programs were instrumental in making viewers understand the significance of the event. The cancellation of many normally scheduled broadcasts was disrupted because of extended news coverage. When the programs finally resumed, hosts such as David Letterman, Jon Stewart, Conan O’Brien, and Jay Leno infused serious commentary that was rare for late night talk shows. In future research on the tone and rhetoric used in these programs during the immediate aftermath of September 11th should be examined as well as viewer interpretations of the content.

The single respondent who reported a discrepancy between Latin American and American news inspired a final suggestion for future research. The subject reported that although content was similar, the two broadcasts provided diverse perspectives. There is evidence that flashbulb memories of September 11th exist throughout the world (Curci & Luminet, 2006), but the affect of television on international interpretations should also be studied. Additionally, research on the population of viewers who watch television news from more than one nation must be examined more closely. Although this population may appear minimal, the extended number of channels offered by television providers has allowed bilingual viewers the option to view diverse news. It is necessary to further investigate the perception of these viewers in comparison to people who only watch news from a single nation.

The findings from this study are important because they demonstrate the significant influence of the mass media on viewer perceptions of highly consequential
events. The media assists to not only shape individual recollections, but also to generate a collective public memory of the event.
REFERENCES


QUESTIONNAIRE

1. What is your main source of news?
   Television News; Radio News; Print News; Online News; Other
2. What type of news do you seek most often?
   World; U.S.; Politics; Local; Business; Technology; Sports; Science; Health; Entertainment; Art; Other
3. How often do you seek news?
   Hourly (or more frequently); Daily; Weekly; Monthly; Less frequently than once a month

4. Rate your knowledge of domestic politics PRIOR to 9/11
   (1= no knowledge... 3= somewhat knowledgeable... 5= extremely knowledgeable)
5. Rate your knowledge of international politics prior to 9/11
   (1= no knowledge... 3= somewhat knowledgeable... 5= extremely knowledgeable)

Please take a moment to reflect on the EXACT MOMENT you learned about the terrorist attacks on September 11, 2001 (9/11). Briefly answer the following questions about your memory of this moment. Also, rate your confidence in your memory. If you do not remember then please leave that area blank.
6. What was your exact location?
7. Rate your confidence in this memory.
   (1= not confident... 5= extremely confident)
8. What were you doing when you learned about the attacks?
9. Rate your confidence in this memory.
   (1= not confident... 5= extremely confident)
10. Who or what (television, radio, Internet, person, etc.) informed you?
11. Rate your confidence in this memory.
    (1= not confident... 5= extremely confident)
12. What was your initial reaction to learning of 9/11?
13. Rate your confidence in this memory.
    (1= not confident... 5= extremely confident)
14. Were the attacks on 9/11 foreseeable to you?
    (1= not foreseeable... 5= extremely foreseeable)
15. Were the attacks on 9/11 predictable to you?
    (1= not predictable... 5= extremely predictable)
16. What was the initial reaction of those around you?
17. Rate your confidence in this memory.
    (1= not confident... 5= extremely confident)
18. What happened just after you learned about 9/11?
19. Rate your confidence in this memory.
    (1= not confident... 5= extremely confident)
20. From what other source(s) did you seek additional information after you learned of the event? (Choose all that apply)
   TV; Internet; Radio; Newspaper; Other People; Other

21. Were the attacks on 9/11 important to you?
   (1= not at all... 5= very much)
22. Were the attacks on 9/11 important to your country?
   (1= not at all... 5= very much)
23. Were the attacks on 9/11 important to the world?
   (1= not at all... 5= very much)
24. Did 9/11 have consequences for you?
   (1= not at all... 5= very much)

25. How often do you seek information about 9/11?
   (Choose the category that is closest)
   More than once a day; Once a day; Once a week; Once a month; Once every 6 months; Less than every 6 months; Never

Think about some of the first visual images you saw on television...
26. Describe the most vivid images you recall.
27. Did these images affect your perception of the crisis? If so, how?

Think of any commentary about 9/11 you recall viewing on television...
28. What commentary do you remember in particular?
29. How did the content, tone, or delivery of the commentary affect the way you processed the event?

Recall particular images or commentary you have viewed in the television news media since the date of the attacks that may have changed your initial perception of 9/11...
30. Describe any television news content that significantly changed your initial perception of the events of 9/11. Please use approximate dates, channels, names of reporters, etc. when appropriate.

Please provide some information about yourself.
31. Were you in the United States on September 11th, 2001?
32. Were you a United States citizen on September 11th, 2001?
33. Gender
34. Current Age
35. Education Level

* Upon completion of the questionnaire subjects were thanked and referred to the primary research for additional comments and questions