IS TWITTER A COUNTER PUBLIC?: COMPARING INDIVIDUAL AND
COMMUNITY FORCES THAT SHAPED LOCAL TWITTER AND NEWSPAPER
COVERAGE OF THE BP OIL SPILL

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ABSTRACT

BRENDAN R. WATSON: Is Twitter a Counter Public?: Comparing Individual and
Community Forces that Shaped Local Twitter and
Newspaper Coverage of the BP Oil Spill
(Under the direction of Daniel Riffe)

If society is to avoid another disaster like the 2010 BP oil spill, the U.S. must

reexamine its future energy policies and government regulations of industry. In the wake

of such disasters, the news media should fulfill a surveillance function and raise these

critical issues. But an analysis of 164 Gulf Coast newspaper reporters' coverage of the

BP oil spill showed that these journalists largely failed to do so. This dissertation

examines individual and community-level variables that prevented the journalists from

raising more critical questions in the aftermath of the oil spill, and compares their

coverage and the forces that shaped it to the Tweets of 240 "most-followed" Gulf Coast

Twitter users. This dissertation seeks to answer whether, in the context of the BP oil spill,

Twitter might have served as a counter-public, which challenged the social, political, and

economic forces that constrained journalists' coverage. This study found a striking degree

of similarity in journalists' and Twitter users' coverage of the oil spill, raising questions

about whether Twitter is an alternative medium, and whether media-centric or more

general sociological theories are most fruitful for understanding the similarities between

these media.

DEDICATION

I have only been successful to the extent that I have made the most out of the lessons, opportunities, and support afforded to me by many important people in my life. This dissertation is dedicated to those individuals who have gotten me this far.

To my parents, who from the beginning gave me access to the best education and patiently helped me excel academically, even when I was not interested in school. They supported my many interests and encouraged me to work hard at pursuing my passions, a drive that has helped propel me when I finally discovered those subjects in school that ignited my interests.

To my wife, Tamara, whose generous support has allowed me to make my studies my primary focus the past several years and whose companionship has kept me sane. It is perhaps unfortunate that my "pet name" for her is Coder 2, but I would not have been able to complete this dissertation and other research projects without her help coding media content and editing my papers. We make a great team.

To the Riffes, who have been extremely generous mentors to both Tamara and I. I owe a good deal of my success to Dr. Riffe, who taught me not only what I needed to do to succeed as a graduate student, but encouraged me to think about how I would like to evolve as a scholar in the future. While he is too humble to use himself as an example, there is no better model than Dr. Riffe for the type of scholar and mentor I hope to be throughout my academic career. And together he and Mrs. Dr. Riffe are a model for the

type of warm, welcoming, and loving family Tamara and I hope to have as we embark on the next stage of our life. The hardest part about leaving Chapel Hill is moving away from such valuable friends.

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CHAPTER 1

INTRODUCTION

On April 20, 2010, a fiery explosion aboard the BP-leased Deep Water Horizon oil rig anchored approximately 50 miles off the Gulf Coast started what became one of the, if not the, worst environmental disasters in United States history (Freudenburg & Gramling, 2011; Lehner & Deans, 2011). Though 115 workers escaped the inferno, 11 workers' bodies were never recovered (Achenbach, 2011). On April 22, 2010, the 40th anniversary of Earth Day, established in the wake of the 1969 Santa Barbara oil disaster, the Deep Water Horizon sank to the sea floor.

The blowout preventer, designed to seal the well in such a scenario, and considered "fail safe" in industry parlance, failed and the Macando well spewed oil for 87 days. Nearly 5 million barrels (200 million gallons) of oil polluted the Gulf waters (Lehner & Deans, 2011). Along with the oil, which contaminated Louisiana's delicate wetlands and beaches along the Gulf Coast, several hundred threatened or endangered sea turtles washed up dead, along with hundreds of mammals, thousands of seabirds, and untold scores of fish (Freudenburg & Gramling, 2011). The oil brought fishing to a halt and put a damper on the summer Gulf tourism season, costing local businesses their livelihoods. The long-term effects of the oil spill are still unknown.

Narratives, Texts, and Publics

This dissertation examines Gulf Coast newspaper journalists' narratives about this disaster. Narratives play an important role in how society makes sense of such incidents.

As sociologist Lee Clarke (2006) wrote: "When things go wrong, especially when they go very badly wrong, we need to find a way to talk about it. We need to make up a story that puts characters in their places, makes sense of the actions, and lets us walk away feeling safer or more superior" (p. 121). There are private narratives that individuals use to make sense of crises in their own minds, and there are shared narratives – including those provided by journalists – that become part of the public discourse that shapes how society responds to public issues, including disasters. Journalists' coverage potentially played a significant role in how Americans made sense of the BP disaster. According to the Pew Research Center's Project for Excellence in Journalism (2010), the BP oil spill was the top news story for 14 weeks following the Deepwater explosion, and the percentage of Americans who said they were closely following the BP disaster remained between 43% and 59%. Thus, evaluating journalists' coverage of the BP oil spill is more than an intellectual exercise.

One reason so many Americans tuned in to coverage of the BP oil spill, is that in a large, complex modern society, the media are the primary arenas in which important public issues are debated, thus playing a central role in the public sphere (Curran, 1991). Habermas (1962/1989) popularized the liberal democratic notion of the public sphere as the forum between the state and civil society where citizens deliberate about public issues. He conceived of the public sphere as influencing the state both through formal elections and via the dynamics of public opinion. As Fraser (1990) argued, there is little disagreement as to the importance of the basic concept of the public sphere to democratic theory and practice. Habermas's public sphere, however, is criticized due to his reading of the bourgeois public sphere on which his ideal of the deliberative public is modeled.

Among other problems with Habermas's interpretation of the bourgeois public sphere is that, according to Fraser (1990), he glosses over the exclusion of some participants based on gender and social and economic status. Thus, there is a gap between Habermas's ideal public sphere and what Fraser called our "actual existing democracy" (Fraser, 1990, p. 57). One can accept, however, the centrality of the concept of a deliberative public to understanding how society makes sense of, and responds to, public issues in a liberal democracy without resolving the tension between the theory and "actual existing democracy." One can also accept that the media play an important role in the public sphere by providing information needed for deliberation, serving as a forum for public debate, and helping to communicate public opinion to state policy makers, while one can remain skeptical of whether "actual existing media" always live up to the democratic ideal (Curran, 1991).

However, to understand the centrality of journalists' narratives of the BP oil spill to the public discourse following the disaster, it is useful to reconsider how a public is formed. According to Warner (2002), most liberal democratic theories posit that the citizenry already exist as "co-present interlocutors," ready to "deliberate and decide" (p. 421). Warner argued, however, that in reality publics are made up of otherwise unknown strangers, who are constituted into a public by their attention to a common public "text," be it a written text, a speech, or a visual text, such as a photograph or movie, etc., which has been addressed to the public – for example, a publically circulated newspaper. When these texts are circulated publically, according to Warner (2002), they say "not only, 'Let a public exist,' but 'Let it have this character, speak this way, see the world in this way'" (p. 422). Thus, these public texts, including journalistic narratives, are an important

object of study for examining a public that forms around an issue and how that public might make sense of that issue. Given the importance of journalists' narratives of the BP disaster, this dissertation seeks not only to describe journalists' coverage, but examine those individual and community level social, economic, and political forces that shaped their coverage.

Causes Of the BP Oil Spill

Before examining these forces, however, one must have at least a rudimentary understanding of the underlying causes of the BP oil spill. BP leased the Deep Water Horizon rig from Transocean at a cost of $525,000 a day. After totaling up operating expenses, BP had a daily operating tab of more than $1 million (Achenbach, 2011). By April 20, 2010, the Macando well project was more than five weeks behind schedule and $20 million over budget (Freudenburg & Gramling, 2011). A series of cost-cutting decisions initiated by BP caused the catastrophe (Achenbach, 2011; Freudenburg & Gramling, 2011; The Bureau of Ocean Energy Management, Regulation and Enforcement, 2011). Among BP executives' fateful decisions was foregoing a critical pressure test, which would have indicated unsafe levels of pressure from dangerous gases building in the well just before the explosion (Freudenburg & Gramling, 2011). That decision was a costly gamble. The test itself would have cost BP $128,000; the company's tab for the Gulf oil spill could reach $60 *billion* (BP was self-insured).

It is natural to want to focus in on BP as the single villain in the disaster, as the government's official report on the causes of the oil spill largely did (it also faulted the BP contractor Haliburton and Transocean, owner of the oil drilling rig) (The Bureau of Ocean energy Management, Regulation and Enforcement, 2011). As Clarke (2006)

wrote, "If we locate the bad guys, the evildoers, or the miscreant then the fix is easy. Just replace the bad guys with good guys. However, if the problem is the system itself – an organization, a technology, a program – then it is harder to fix. Social and technical systems are more complex, so it's harder to map out where the problem is" (p. 123). There are, however, systemic problems that contributed to the BP oil spill, which are overlooked by this single-villain narrative of the disaster.

For example, BP is not alone in wagering safety, environmental sustainability, and sound energy policy to meet the United States' insatiable appetite for oil (Freudenburg & Gramling, 2011; The Bureau of Ocean Energy Management, Regulation and Enforcement, 2011). The U.S. currently consumes more than 18 million barrels of oil daily, more than all European Union Countries combined, and three times more than China, whose oil consumption ranks second in the world (Central Intelligence Agency, 2011; U.S. Energy Information Administration, 2011a). Since oil shortages and calls for "energy independence" started a domestic energy exploration boom in the 1970s, U.S. consumption of foreign oil imports has continued to *increase*, while domestic oil production has steadily *decreased* since its peak in the mid-1980s (it did increase slightly in 2009 and 2010) (U.S. Energy Information Administration, 2011b). One of the problems that domestic oil production is facing is that the country's most accessible oil reserves – on land and in shallow water – were put into production in the 1970s and 1980s. But these reserves are not bottomless. And as those oil fields have yielded less oil, the politically-motivated promise of energy independence (impossible given the United States' level of consumption (Gertz, 2008)) has set the U.S. on a collision course involving increasingly high stake gambles to reach increasingly inaccessible oil reserves.

These gambles included drilling miles below the sea floor in order to access limited reserves of petroleum[1] with minimal regard for the consequences. Americans' energy consumption and the country's energy policies are contributing factors to the BP disaster (Freudenburg & Gramling, 2011).

Journalism's Surveillance Function

What made the oil spill disaster so spectacular was not the fiery inferno that killed the 11 BP workers, or even that the blowout preventer failed. It was BP's and the government's lack of emergency response plans to cope with a drilling accident. Sociologist Karen A. Cerulo (2006) suggested that the lack of planning for disasters is a result of a cultural inability to imagine worst-case scenarios. She blamed cognitive and cultural factors that contribute to "positive asymmetry" in the way individuals view the world. Cognitively, people process information by grouping pieces of information into mental categories based on common characteristics. The brain compares new information to prototypes – existing examples that *best* represent a mental category – and categorizes information against these existing categories. Worst-case examples are not part of the brain's active processing. Culturally, society also "define(s) the best people, places, objects, and events as highly relevant, highly important, and worthy of intense focus," while relegating "the worst to a remote position of little or no importance or relevance" (p. 12). This positive asymmetry, Cerulo (2006) argued, is why society's reaction to disaster is frequently, "I never saw it coming," which may explain the BP and government inability to respond quickly to the disaster.

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[1] In 2009, the Deep Water Horizon oil rig set the record for the deepest underwater oil well: a total of 35,050 feet deep, below 4,132 feet of ocean water (Freudenburg & Gramling, 2011).

In contrast to this positive asymmetry, journalism is often criticized for its *negative* asymmetry. The media tend to focus on bad news, and in some instances create unreasonable fears of potential disasters (Clarke, 2006, p. 104). Some of this criticism is valid, though it is precisely because most people are not going around thinking about the bad things that could happen, the news media in particular do have a role — Lasswell (1948) described it as a surveillance function — in alerting society to potential problems.

There are critical questions that one could ask about how well the media fulfilled their surveillance function prior to the BP oil spill: Did journalists adequately cover BP's abysmal safety record? Should journalists have more aggressively investigated the cozy relationship between the Minerals Management Service (MMS) and the industry it was supposed to be regulating? This dissertation, however, focuses instead on coverage *following* the BP oil spill and whether the media are raising critical questions that might help avoid future accidents.

Freudenburg and Gramling (2011) argue that in order to ensure that an accident similar to the BP disaster does not repeat itself, the BP oil spill should not be understood as an isolated accident. Rather, society must start to ask broad questions about the U.S.'s dependence on increasingly scarce oil; about energy policies that encourage the pursuit of oil in increasingly risky (and environmentally sensitive) locations; about the cultural assumptions that lead us to believe that any such operation could be "fail safe"; and about the regulatory frameworks that are supposed to oversee the oil industry. These are the types of questions the media should raise if they are fulfilling their surveillance function.

Thus, this dissertation examines the extent to which the disaster was treated in journalists' narratives not as an individual, episodic event, but as a thematic story. Did

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the media link their coverage to broader questions, such as critical examination of health, environmental, and economic impacts of the spill; U.S. energy and environmental policy; oil industry corporate responsibility; and government regulation and oversight? The dissertation will also explore the extent to which sources outside of the oil industry and government, who are more likely to be critical of BP and the government response to the disaster, were quoted in the coverage.

Social Forces Framing Disaster

Technological developments have increased many risks. Huge airliners, nuclear power plants, and oil platforms capable of drilling miles below the ocean's surface, have all increased the potential consequences of a system failure (Perrow, 1984). Generally, though, society has embraced technology because it has helped individuals lead longer, more comfortable lives (Clarke, 2006). However, the public still expects that dangers associated with technological development are controlled according to a risk-benefit analysis. "Acceptable risks," are those where the benefits of a particular action outweigh the risks (Clarke, 1989). This risk-benefit analysis assumes that future risks can be known and their probability of occurring can be scientifically calculated. Part of this analysis also assumes that the probability of accidents occurring can be reduced by implementing organizational protocols, having technological redundancies, enacting regulations, and having effective government oversight (Perrow, 1984). Risk analysis also assumes that benefits can be objectively measured.

However, Clarke (2006; 1989) and Perrow (1984) argued that risk analysis is not an objective process. It relies on cultural values that define acceptable benefits and subjective questions, such as "how much is a human life worth?" which are used to

quantify risks. Clarke (2006; 1989) and Perrow (1984) also pointed out that there are inherent social imbalances in this process. Access to risk analysis data is not shared equally, so decision makers can select data that support their preferred position. Additionally, benefits and costs associated with risks are not shared equally – wealthier individuals frequently share in more of the benefits, while poorer individuals shoulder more of the costs (though the *distribution* of costs and benefits is not part of the risk-analysis equation). As a result, risk analyses are not objective calculations. Rather, they reflect cultural values and social relations and structural constraints that shape how risk is defined — and thus, define how society responds to risk.

Though it often purports to be objective, journalism also reveals and mirrors similar underlying social forces. Rather than serving as independent "watchdogs," according to Tichenor, Donohue, and Olien (1980), the media are part of an interdependent social, political, and economic system, and tend to operate as guard dogs for the dominant social structure in which they are embedded (Donohue, Tichenor, and Olien, 1995). In smaller, more heterogeneous communities, social power is more likely to be concentrated among a small group of residents. When problems arise in the community, they are more likely to be dealt with through interpersonal communication, and Tichenor et al.'s (1980) work showed that the media reinforce this social arrangement by downplaying social conflict. But in larger, more heterogeneous communities, social power is more likely to be dispersed among a more diverse set of religious and ethnic groups, trade unions, political factions, etc., and society is more dependent on the media to communicate among and coordinate the competing interests of these diverse groups of people. Tichenor et al. (1980) found that in these communities,

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media are more likely to cover social conflict. In addition to Tichenor et al.'s (1980) work, Griffin and Dunwoody (1995, 1997) have shown that critical framing of polluting industries not only varies according to the *potential* distribution of social power (i.e., structural pluralism) in a community, but that the coverage also varied according to a community's economic reliance on manufacturing (Griffin & Dunwoody, 1995, 1997). Thus, this study focuses on media coverage of the BP oil spill in 65 communities in the five Gulf Coast states, which either have oil drilling off their coasts, or in the case of Florida, where whether to allow oil drilling off the state's coast has been a prominent political issue.

This dissertation examines the influence that these Gulf Cost communities' community structure, specifically their degree of structural pluralism and their economic reliance on the oil industry, had on how media framed the BP disaster. Framing refers to the process by which journalists select some aspects of what they observe and make them more prominent in their coverage, while downplaying or ignoring others (Entman, 1993). Framing is an inevitable process given that journalists are assigned the task of condensing and simplifying complex subjects (Kim, Scheufele, & Shanahan, 2002). It is the central thesis of this dissertation, however, that journalists' judgments about what aspects of an incident should be most prominent are not made based on objective criteria that define newsworthiness. Rather, these decisions are shaped by social, economic, and political factors (Griffin & Dunwoody, 1995, 1997; Patterson & Donsbach, 1996; Tichenor et al., 1980). Thus, this dissertation tests the general hypothesis that newspaper journalists in less pluralistic, more oil-dependent communities in the Gulf Coast states, will be less likely to frame coverage of the BP spill critically (i.e., they will have a less critical tone,

be less likely to use thematic frames, or will use critical unofficial characters) than colleagues in more pluralistic, less oil-dependent communities.

How Does Community Structure Affect the News?

This dissertation also seeks to make a contribution to the community structure literature, complementing content analysis data with data gathered from a survey of journalists. These data are used to test a model exploring how community structure variables enter the newsgathering process — that is, by first influencing journalists' attitudes toward an issue, which in turn influence the stories journalists write. In addition to testing how those attitudes might lead to "structural bias" in journalists' coverage of the BP oil spill, the effects of more commonly studied ideological bias in journalists' coverage of the BP oil spill are also estimated. Typically, it is political ideology that bias researchers are interested in (D'Alessio & Allen, 2000; Entman, 2007; Patterson & Donsbach, 1996), but this study also examines environmental ideology. Americans' attitudes toward the spill were highly partisan and also reflected their environmental attitudes (Pew Research Center for the People & The Press, 2010) and it is hypothesized that journalists' attitudes following the oil spill will reflect similar biases: more conservative, more anthropocentric journalists will hold more favorable attitudes toward the oil industry, which will in turn affect the favorability of their framing of the oil spill.

Of course, based on the literature on the "routinization" of journalistic work, which predicts relatively standard coverage from one newsroom to the next (Tuchman, 1973/1997), the individual-level ideological effects and community-level effects are not expected to be particularly large. However, studying the BP oil spill, when the off-shore oil drilling industry and its government regulators were under the most intense fire and

when future energy and environmental policy was most contested, provides an ideal situation in which to observe how journalists' coverage may be shaped based on variations in local community structure, forces which in more normal times can be obscured by patterns of routine coverage, standardized across communities. As sociologists have noted, periods of conflict are characterized by "an excessiveness which allows us better to perceive the facts than in those places where, although no less essential, they still remain small-scale and involuted" (Marcel Mauss, as cited in Klinenberg, 2002, p. 23).

To explore the effect of community structure variables — structural pluralism and economic dependency — and personal ideology on journalists' coverage of the BP oil spill, this dissertation complements survey data previously collected as part of a study of journalists' attitudes toward the oil industry following the BP disaster (Watson, in press) with a content analysis of respondents' newspaper stories. Watson (in press) revealed that Gulf Coast journalists' attitudes toward the oil industry following the spill were significantly influenced by both journalists' environmental and political ideologies, as well as to a lesser, but still significant extent, by their communities' economic reliance on the oil industry (Watson, in press). That study, in short, measured factors that influenced attitudes. The unanswered question that this dissertation will answer is how effective are journalists at keeping their personal attitudes out of their coverage of the oil spill?

Twitter as a Counter Public

Because of the lack of literature on how community structure might influence online media, Twitter specifically, this dissertation firsts tests hypotheses about newspaper coverage of the BP oil spill. Social media, however, also potentially played an

important role in shaping public understanding of the disaster. According to the Pew Research Center's Project for Excellence in Journalism (2010) the BP disaster was the top social media story for five weeks following the Deepwater Horizon explosion. Thus, this dissertation compares newspaper coverage of the BP oil spill to Twitter, the fastest-growing social networking site in the U.S. in 2010 (Nielson, 2010), and asks whether Tweets about the spill might represent a "counter public," challenging those forces that are hypothesized to limit debate in the mainstream media. Like other online media, Twitter's potential to challenge the economic, social, and political forces that limit debate in the mainstream media come not only from the fact that its users are freed from the professional constraints of mainstream journalism, but that anyone can instantly set up a Twitter account that is instantly available to millions, freeing alternative voices of the prior production constraints of commercial media; social media's networked nature also presents new opportunities for political organizing and action (Dahlberg, 2007a; 2007b; Downey & Fenton, 2003).

Habermas (1962/1989) believed that having a single public sphere was essential so that society could reach consensus on important public issues. Fraser (1990), though, argued that multiple publics were vital to ensuring truly inclusive, democratic deliberation, particularly in stratified societies that are reflected in our "actually existing democracies." That is because, as she wrote, "arrangements that accommodate contestation among a plurality of competing publics better promote the ideal of participatory parity than does a single, comprehensive, overarching public" (p. 66).

Twitter does represent a separate public from the mainstream news media, delineated simply, according to Warner's (2002) text-based approach, by different

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"speech genres, idioms, stylistic markers, address, temporality, *mise en scène*, citational field, interlocutory protocols, lexicon, and so on" (p. 422). A counter public, however, is not simply differentiated by being a different medium, but by *challenging* the monopolizing social, political, and economic forces that limit democratic deliberation in a dominant public (Fraser, 1990; Warner, 2002).

Some have suggested that the Internet generally, and social media in particular, are alternative, perhaps even revolutionary, public spheres (Dahlberg, 2007a; Downey & Fenton, 2003). Dahlberg (2005) asserted, however, that the Internet has been "colonized" by some of those same forces, particularly commercial forces, that limit debate in the mainstream public sphere. The Internet is large and diverse enough that one can likely find evidence to support either hypothesis about the Internet's contribution, or lack thereof, as an alternative public sphere. However, one of these visions is more likely to dominate the online public sphere. According to Wu, Hoffman, Mason, and Watts (2011) a small group of users — only 20,000 — produce the majority of Tweets read on the social network. They also found that these users resemble those who dominate the traditional public sphere — celebrities, media personalities, and large corporations. Thus, this dissertation examines only those Tweets by the most followed Gulf Coast Twitter users, a potentially influential group of users who are most likely to dominate and serve as opinion leaders of discussions of issues on the social networking site.

If Twitter does represent an alternative public sphere or counter public, as Fraser (1990) and Warner (2002) defined it, not only should there be significant differences in the points of view and subjects represented in these authors' Tweets about the oil spill, but they should be more independent of the community-level effects (i.e., structural

pluralism and economic dependence on the oil industry) that shape mainstream newspaper coverage.

This current study also addresses the question of whether or not Twitter is an alternative sphere by matching previously collected survey data of Gulf Coast Twitter users attitudes toward the oil industry following the BP oil spill with a content analysis of their Tweets, and comparing it to the same data on journalists' attitudes and coverage. To ensure that this comparison is based on similar communities, the sample of Twitter users and journalists are drawn from the same list of Gulf Coast communities.

Riffe, Lacy, and Fico (2005) make an argument for the "centrality" of media content — that is, media content can be viewed both in terms of "antecedent conditions," including both individual psychological variables and social, political, and economic contextual factors that shape media messages, as well as in terms of potential media effects. Further, they argue that content analyses that examine media content either in the context of its antecedents or effects have the greatest potential for contributing to theoretical understanding of communication processes. By combining community structure measures and surveys of media producers' attitudes (antecedent conditions) with content analysis data, this dissertation contributes to the theoretical understanding of individual and community-level factors that may shape media content (particularly if some of the forces that have been theorized to shape mainstream media coverage are also found to shape Twitter, a "new" media form). Furthermore, because of the centrality of journalistic narratives to the formation of deliberative publics, this dissertation contributes to understanding the social, economic, and political forces that likely shaped larger energy and environmental policy debates following the BP oil spill.

CHAPTER 2

LITERATURE REVIEW

Journalism & Information Control

Rather than viewing the media as strong, independent watchdogs, i.e., the "fourth estate" (Schultz, 1998), this dissertation builds upon a sociological theory of the media, which holds that they are part of an interdependent social, political, and economic system, and that the media play an important social control function (Beniger, 1986; Janowitz, 1991; Lasswell, 1948; Olien, Donohue, and Tichenor, 1995; Park, 1939/1961; Sapir, 1931/1961). The concept of social control is a matter of some controversy within sociology (Meier, 1982), but generally it does not imply overt coercion. Rather, it refers to the ability of society to maintain functional cohesion through shared norms and social goals (Janowitz, 1991). In small, pastoral communities, norms can be shared through an oral tradition. But in a large, pluralistic urban setting, mass communication helps socialize residents — particularly new residents — into existing social norms and social institutions, including by communicating existing sources of social power and one's relative standing in society. The media, however, also facilitate a process of acculturation, permitting increasingly diverse groups to have some knowledge of one another so that they may arrive at a degree of mutual understanding and accommodation (Park, 1939/1961). While the socialization process largely reinforces existing norms and institutions, the acculturation process serves as a regulatory/feedback mechanism that

allows existing norms and institutions to change gradually over time with shifts in a community's population.

Donohue, Tichenor, and Olien (1973; Tichenor, Donohue, & Olien, 1980; Olien, Donohue, & Tichenor, 1995) theorized that the mass media fulfill these functions primary through two types of information control: *distribution control* (system-maintenance) and *feedback control* (regulation). Distribution control involves the selective dissemination (or withholding) of information, which is often expressed in routine "news judgment" decisions about what should and should not be covered. Feedback control refers to the media's role in covering potentially destabilizing social problems or conflicts, such as labor disputes, social protests, crime, etc., which need to be resolved in order to maintain social order.

It is worth noting, however, that the media rarely cover social problems and conflicts as emblematic of systemic problems — for example, covering the BP oil spill as an outgrowth of the United States' dependence on petroleum. Rather, social problems are typically covered as aberrations involving individual rogue actors (i.e., BP) within the system (Olien et al., 1995). Thus, problems that arise are dealt with primarily by sanctioning individual actors, maintaining the overall social system.

Tichenor et al. (1980) hypothesized that newspapers' control functions vary based on the degree of structural pluralism within a community, which they defined as "the degree of differentiation in the social system along institutional and specialized interest group lines, in a way that determines the *potential* sources of organized power" (p. 16, emphasis added). In smaller, more homogenous communities, power is more likely to be concentrated among a small group of elite actors. Due to the communities' small size and

the concentration of social power, problems can be primarily resolved via interpersonal communication. The community is less reliant on the media's feedback function, and local media instead maintain the local social order by exercising distribution control, downplaying local conflicts in their coverage.

Larger, more pluralistic communities, however, are characterized by the presence of diverse, specialized interest groups — different classes of workers represented by different labor unions, diverse religious groups, greater racial diversity, a greater variety of social and political organizations, etc. — each of which is competing for prestige, influence, and access to limited public resources (Olien et al., 1995). A more pluralistic community is more reliant on media's feedback function to communicate among and coordinate interests among these diverse groups. Thus, conflicts that arise are covered more openly in the press. This coverage serves a pressure release valve function, which allows groups to air grievances (and perhaps they receive nominal concessions), while not threatening the overall social system.

Journalistic Routines: Frames and Sources

Tichenor et al.'s (1980) theory of *local* variance in media coverage, however, is somewhat at odds with what we know about the "routinization" of media work: journalism in particular is defined by professional norms that result in a relatively high degree of standardization of patterns in routine news coverage from one paper to the next (Schudson, 2003; Tuchman, 1973/1997). Donohue, Tichenor, and Olien's (1985) own data support the standardization thesis: they found that as Minnesota's labor force became increasingly specialized and individual communities more interconnected in the late 1960s and early 1970s, the effects of local community structure on news coverage

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diminished. That is, as communities became more interdependent, news coverage was more standardized across the communities.

Thus, before examining the effects of local community structure, it makes sense to make some more general observations about journalists' coverage of issues involving conflict: specifically, how the media tend to frame environmental conflict, and what types of sources most frequently have access to the media in order to define these frames. Both of these elements of the media's coverage illustrate generally how media coverage tends to serve a general system maintenance function.

Framing

Robert Entman (1993) provides perhaps the most relevant definition of framing: "To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to *promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described*" (p. 2). Framing is particularly prominent in journalistic coverage, because journalists are given the task of condensing and simplifying complex subjects so that they have easily comprehended, coherent meaning for their audiences (Kim, Scheufele, & Shanahan, 2002). As Gamson (1989) argued, "Facts have no intrinsic meaning. They take on their meaning by being embedded in a frame or story line that organizes them and gives them coherence, selecting certain ones to emphasize while ignoring others" (p. 157). The story lines the media emphasize are significant because frames can affect audiences' interpretations of social conflicts and policy proposals to resolve those conflicts (Kim et al., 2002; McLeod and Detenber, 1999; Hart, 2010).

A weakness of framing research is that there is no common understanding among

researchers as to the story attributes that define a frame (Entman, 1993). Several articles examining the news media's framing of environmental contamination can illustrate this point, highlighting the diverse story attributes that are used by different researchers to define news frames. MacKendrick (2010), for example, studied Canadian newspapers' coverage of environmental toxins and their effects on human health. She primarily examined whether the newspapers framed toxins as being emblematic of a social problem (e.g., needing stricter regulations on chemicals) or an individual problem (e.g., needing to change one's diet to avoid toxins). The latter dominated coverage, which she suggested detracted from environmental quality as a social issue.

Castelló (2010) examined the Spanish press's coverage of chemical manufacturers, which simultaneously support the local economy, while also contributing to environmental and health problems. He examined the relative use of frames that focused on the industry's positive impacts (e.g., economic benefits) versus those focusing on the industry's negative impacts (e.g., environmental contamination). The latter were much more common in the papers' coverage.

Lastly, Gandy, Kopp, Hands, Frazer, and Phillips (1997) examined American newspapers' use of discrimination frames in reporting on issues of differences between white and black residents' exposure to environmental risks. Specifically, they examined whether newspapers attributed disparities in risk exposure to racism. Only 11.2% of stories used a discrimination frame, which may contribute to the perception that discrimination is not a major factor that affects racial minorities' disproportionate exposure to environmental contaminants, despite strong evidence to the contrary (Brulle and Pellow, 2006; Ringquist, 2005).

Though each of these articles defined frames differently, there are also similarities among them. All three articles focus on attribution of responsibility for the problem of environmental risk, and MacKendrick (2010) and Castelló (2010) focus explicitly on who has access to the media to define media frames (i.e., which sources media favor in their coverage). MacKendrick (2010) found that the Canadian newspapers were most likely to use academic scientists, government scientists, and heads of environmental organizations as sources (these findings are an interesting contrast to studies that have suggested that U.S. journalists rely most heavily on government officials and marginalize university scientists in their coverage (Steele, 1995)). Castelló (2010) on the other hand, found that corporate representatives and government officials collectively constituted 80% of journalists' sources. This focus on what MacKendrick (2010) calls the "primary definers" is implicit in Gandy et al.'s (1997) exploration of racial disparities in framing of environmental risk (i.e., in general, blacks lack status as "definers," which causes their concerns of racial discrimination to be underrepresented in media coverage). This dissertation builds on these thematic commonalities, focusing on those frames that play a role in attributing responsibility for the BP disaster and those sources that had access to the media to define these frames.

Episodic versus thematic frames. Iyengar (1991) demonstrated that episodic and thematic frames result in very different attribution of responsibility. An episodic frame treats a news event as an isolated story; a thematic frame explores larger causes and consequences underlying a particular issue (Iyengar, 1990; 1991; 1996). To illustrate the differences between these frames, an episodic frame of the BP disaster would, for example, focus on those immediate decisions and events that led to the explosion aboard

the Deep Water Horizon oil platform, including the decision to skip the crucial pressure test. A thematic frame, however, would put the disaster in the context of BP's overall safety record, the government's inspection record of the platform, etc. The latter is more likely to raise those critical questions that Freudenburg and Gramling (2011) suggest need to be raised in the aftermath of the BP disaster.

Iyengar's research, which helped define episodic and thematic frames, focused on the framing of social problems, for example, poverty and homelessness (Iyengar, 1990; 1991; 1996). His data showed that not only are the media more likely to use episodic frames in their coverage of social and political issues, but also that episodic and thematic frames result in distinct effects on audiences' attribution of responsibility for these problems. Episodic stories result in responsibility for problems being attributed to individuals featured in that story (for example, blaming individual homeless people for the substance abuse that contributed to their circumstances). Thematic stories, however, result in attribution of societal responsibility (for example, attributing homelessness to the lack of public support for treatment of mental health issues, which often go hand-in-hand with substance abuse in contributing to homelessness). Iyengar (1996) ties the dominance of episodic frames back to the media's system-maintenance function, writing that the ultimate effect of these frames is to "protect elected officials from policy failures or controversies and thus strengthen their legitimacy" (p. 15).

Thematic frames may also influence individuals' willingness to hold industry responsible for environmental problems. Hart (2010) found that experimental participants exposed to thematic framing of climate change's effects on polar bears were more likely to support additional regulations of and taxes on greenhouse gas-emitting industries.

Iyengar's (1990; 1991; 1996) research focused primarily on television framing, but similar patterns have been demonstrated regarding newspaper framing of societal problems, including environmental contamination. Again highlighting the absence of shared frame definitions, Kensicki (2004) does not reference Iyengar's episodic/thematic typology. However, her study of the framing of three social issues — pollution, poverty, and incarceration — in a sample of 300 news articles from 1995 to 2000 also examined the extent to which newspaper coverage focuses attention on the underlying causes and consequences of a given problem. Her study examined the frequency with which newspaper coverage explicitly identified a cause of a given problem; identified those individuals or groups most affected by it; and identified who has responsibility for rectifying the problem.

Kensicki found that whereas a majority of the stories about environmental pollution ($N = 100$) from the *New York Times* and *Los Angeles Times* mentioned the cause of the pollution — industry most frequently being framed as the culprit — the majority of stories failed to mention any effects of the pollution. Additionally, the government, not industry, was most frequently portrayed as being the party responsible for addressing the problem.

Media Sources & Characters

Kensicki's (2004) study hints at why the media end up holding government, not industry, more responsible for addressing environmental problems. More than three fourths of the newspaper articles Kensicki (2004) studied did not mention the word "environmentalist" or mention a local or national environmental advocacy organization. Yet these are the individuals and groups most likely to raise critical questions about the

effects of environmental pollution, and hold the source of the problem — industry —

fully accountable for ameliorating it.

The individuals or organizations mentioned in a story are the ones that have the

agency to shape the narrative. In news stories those individuals and organizations that

journalists rely on to provide information for their stories — their news sources — are the

most important agents in a story. However, other media, for example, prime-time

television (Glasscock, 2003; Mastro & Stern, 2003; Oliver, 1994; Signorielli & Bacue,

1999; Tedesco, 1974), magazine advertisements (Frith, Shaw, & Cheng, 2006), or feature

films (Behm-Morawitz & Mastro, 2008; Powers, Rothman, & Rothman, 1993), do not

rely on primary sources in the same way journalists do. Yet the individuals and

organizations mentioned in these media — the media's characters — similarly drive

those media's narratives. Because this dissertation is focused on coverage of a public

affairs issue, it relies primarily on the literature on previous content analyses of news

sources used in coverage of similar issues (studies of characters' use in other types of

media have mostly focused on portrayals of race, gender, or both (Behm-Morawitz &

Mastro, 2008; Frith et al., 2006; Glasscock, 2003; Mastro & Stern, 2003; Oliver, 1994;

Powers et al., 1993; Signorielli & Bacue, 1999; Tedesco, 1974)). However, because this

dissertation compares newspaper to Twitter coverage, the latter, which does not rely on

primary sources as journalists do, this study uses characters and not news sources as the

unit of analysis.

Where a news source is an individual or organization cited as providing the

journalist with information, a character is any individual or organization who is central to

the narrative and is mentioned in a news story or Tweet. News sources and characters are

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not synonymous — a source, for example, a BP protester, who has the opportunity to speak to the reasons why he/she is protesting, has a greater agency to shape a narrative than a protester who might have his/her motives explained by someone else, for example the police. Nonetheless, if a character is deemed important enough to be mentioned at all, it reflects the fact that he/she is shaping the public discourse to some degree. Additionally, the use of sources and characters in the different media follow similar patterns — for example, women and racial minorities tend to be similarly marginalized as both news sources and characters in the various media (Brown, Bybee, Weardon, & Straughan, 1987; Freedman, Fico, & Durisin, 2010; Glasscock, 2003; Mastro & Stern, 2003; Oliver, 1994; Signorielli & Bacue, 1999; Tedesco, 1974; Zeldes, Fico, & Arvind, 2007). Thus, while the concepts are not perfectly synonymous with one another, in the context of theorizing how characters might be used in Twitter and newspaper coverage of the BP oil spill, one can think of characters and sources as being interchangeable.

In Smith's (1993) study of newspaper journalists' use of sources in coverage of the 1989 Exxon Valdez spill, he found that government and oil industry officials made up 60% of sources quoted in these newspapers' coverage (scientists, who ranked third, made up only 8.3%; environmentalists ranked fourth at 7.8%). Additionally, government and oil industry sources were the most likely to say that the crisis had been overblown, and rate Exxon's response to the crisis favorably. Those who have the most access to the media — government and industry officials — have the power to frame the news coverage in a manner favorable to their interests.

Entman and Rojecki (1993) found similar patterns in their study of national media coverage of the nuclear freeze movement, a grassroots effort to force U.S. nuclear

disarmament. Representatives of the movement were quoted in only 12% of the stories about the nuclear freeze movement; government officials were quoted in 88% of the stories. This marginalization of the protesters is significant because Entman and Rojecki's data showed that two thirds of articles expressing concern over nuclear weapons attributed that concern to non-elite actors. Fewer than a third of articles quoting elite sources — including government officials and expert sources — expressed concern over nuclear weapons. This is a vivid illustration of the fact that those sources the media rely on most heavily are least likely to raise critical questions about potential environmental problems.

Entman and Rojecki (1993) also found that protesters' concerns were further marginalized in coverage of the movement's protests. Coverage of these events focused not on the protesters' substantive concerns but on the spectacle and logistics of the protests, such as assembling a crowd of 750,000 at a Central Park rally. When the protesters' concerns were mentioned in the coverage, they were typically portrayed as being extreme and emotional as opposed to rational. Entman and Rojecki (1993) concluded that the media's "freezing out" the nuclear protesters illustrates the media's system-maintenance function, reducing "the pressure elites feel to act favorably on the proposal, providing political cover for a symbolic rather than concrete government response" (p. 155).

This system-maintenance function is particularly pronounced in media coverage of social protests, which frequently conform to a protest paradigm: the media focus on protests as spectacle, emphasize protesters' criminal actions instead of their social criticisms, and focus on protesters' conflicts with police instead of the protests' intended

targets (McLeod & Detenber, 1999).

Protesters, however, are not the only group routinely marginalized as news sources. Journalists rely on "expert" sources partially to buttress journalists' claims of legitimacy, specifically claims that their work represents an "objective truth" (Steele, 1995). Ironically, though, these experts are often called upon to offer opinions, rather than factual information. Thus, think tank pundits are favored over university experts, who might offer a more fact-based assessment of a situation.

In her study of "expert" sources during the Gulf War, Steele (1995) found that fewer than 16% were independent university experts; 30% were from think tanks, and another 30% were former government or military officials. The last two groups together make up the Washington "power elite," who were 60% of the total sources (p. 799). According to Steele (1995), journalists' use of experts also becomes part of a reinforcing cycle: the more a given source is cited by the media as an "expert," the more sought out that person is by other media for "expert" opinion.

Thus, the media's use of "expert" sources both reinforces and *amplifies* the existing power structure, marginalizing those groups that fall outside of it. These outsider groups also include other important groups of individuals, such as racial minorities and women (Brown, Bybee, Weardon, & Straughan, 1987; Freedman, Fico, & Durisin, 2010; Zeldes, Fico, & Arvind, 2007). However, the media's sidelining of environmental groups (Kensicki, 2004), protesters (Entman & Rojecki, 1993; McLeod & Detenber, 1999), and independent experts (Steele, 1995) as news sources — or characters — is more immediately relevant to studying media coverage in the wake of the BP disaster.

Stages of Crisis Coverage

Thus far one might offer two hypotheses based on the journalistic *routines* described above: journalists will be more likely to frame the BP spill as an episodic event; and they will also favor "official" characters — including government and industry representatives — over environmental groups, university experts, and other independent characters most likely to raise critical questions following the spill. The spill, though, was not routine: it was a *disaster* – by definition, an unexpected event. As such, it is possible that such an event may — at least temporarily — dislodge routine coverage.

Graber (2009) suggested that there are three discernible stages of crisis coverage: Stage One, just before and immediately after a crisis has occurred, when chaos abounds and journalists scramble to collect the facts and authoritative analysis; Stage Two, when the dominant interpretation begins to emerge, the media attempt to correct any previous errors in their reporting, and they put the crisis into perspective; and Stage Three, during which the media put the crisis into even longer-term perspective and attempt to help the audience cope with the crisis' aftermath.

Graber, who based her three-stage model of crisis reporting more on anecdotal observation than on empirical evidence, views the chaos in the first stage as a weakness of media coverage. She portrays the media as reporting inaccurate information and rumors, in part because the media are desperate for sources in this chaotic phase, and in a break with their routine practice, often end up relying on what she calls "non-authoritative" sources.

This first stage, however, before authorities begin to converge on a common interpretation of the crisis, may represent a positive opportunity for some groups that are typically marginalized in routine coverage to have their concerns heard. Tichenor et al.

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(1980) suggest three phases of conflict (p. 110-113), the second two which roughly correspond to Graber's stages of media coverage (Tichenor et al.'s (1980) first stage of crisis reporting occurs out of public view). In Tichenor et al.'s (1980) public phase (the second phase), which corresponds most closely with Graber's first stage of disaster coverage, the conflict moves beyond basic definition. Diverse groups within the community recognize a problem and give it their own interpretations. According to Tichenor et al. (1980), it is during this stage that the conflict is most open to diverse, potentially competing interpretations.

Thus, while Graber (2009) saw this period of uncertainty negatively, Tichenor et al. (1980) framed it more positively in terms of it serving as a time of open democratic debate. That journalists rely on sources traditionally seen as less "authoritative" may indicate that media coverage during this stage accommodates more non-government, non-establishment perspectives that are part of an open (and sometimes messy) democratic debate.

Graber's second and third stages, however, cover what Tichenor et al. (1980) term the "legitimization" phase, when "incumbents label the issue, or some aspect of it, as worthy in terms of basic norms and values of the community" (p. 112). Thus, while it is difficult to pinpoint where one stage ends and the next begins, it is expected that following the Deep Water Horizon explosion, there will be an initial period of coverage marked by inclusion of more independent sources and critical frames, before the relative proportion of these frames drops off markedly, in correspondence to a single, or perhaps a series, of "legitimizing" events that narrow what is accepted as a legitimate interpretation of the crisis.

Structural Pluralism

While newspapers share some standardized routines, Tichenor et al. (1980) argued that they are also responsive to the particular *local* community structure in which they are embedded. According to Tichenor et al. (1980)

> Social environments of people are determined by the nature of the communities in which they live, work, and interact with others. Work opportunities, commercial centers, leisure time facilities, and public services may differ sharply according to the size of the community, its location, and the way that it is structured. It follows that the availability of information about the public life of the community may vary according to the same characteristics. (p. 16)

Tichenor et al. (1980) theorized specifically that the amount of coverage local media give issues involving conflict varies according to a community's degree of structural pluralism. They found strong support for their thesis in a study of seven environmental conflicts in Minnesota: newspapers in less-pluralistic communities reported almost exclusively on conflicts involving actors from outside the community, whereas newspapers in more pluralistic communities gave more coverage to stories about both conflicts involving insiders and outsiders. Subsequent studies have demonstrated that the effects of structural pluralism extend not only to the *amount* of coverage media give to issues involving conflict, but the sources and dominant frames media use in their coverage of conflicts, including environmental conflicts (Griffin & Dunwoody, 1995; 1997; Hindman, Littlefield, Preston, & Neumann, 1999; McCluskey, Stein, Boyle, & McCleod, 2009).

In their original study, Tichenor et al. (1980) ranked the 19 Minnesota communities they studied based on five measures of structural pluralism: population, number of businesses in a community, number of voluntary groups, number of churches,

and number of schools and education centers. The last four measures were collected from local telephone books.

In a second study comparing coverage in 1965 and 1979 in 83 Minnesota newspapers, Donohue, Olien, and Tichenor (1985) replaced data from the telephone book previously used to operationalize structural pluralism with U.S. Census Bureau data, which would become the most common method of measuring structural pluralism in subsequent studies. Donohue et al.'s (1985) census measures of structural pluralism included a community's population, per capita income, percent of proprietors' income from manufacturing, and percent of proprietors' income from farming. They found that newspapers in more pluralistic communities contained more coverage of conflict involving the local government, as well as general issues involving conflict. They also found, however, that the effects of structural pluralism declined as the communities grew in size and their workforces became more specialized (i.e., moving from farming to manufacturing).

Since Tichenor et al.'s (1980) study, which popularized this research approach, the structural pluralism literature has expanded significantly to explore other aspects of newspaper coverage. There has been little focus, however, on applying that framework to studies of other media or attributes of those media. Demers' (1994a; 1994b) work is one of the exceptions. He studied the relationship between total national advertising expenditures and changes in structural pluralism from 1850 to 1990. His time-series analysis showed that during that period, a 1% change in structural pluralism — which he measured as an additive index of standardized measures including total population, number of individuals employed in non-agricultural jobs, and the number of cities with

populations over 100,000 people — produced a 25% increase in advertising expenditures (Demers, 1994a). Demers (1994b) also showed that the growth in structural pluralism from 1900 to 1994 — this time operationalized as an additive index of measures from U.S. Census data including population, number of urban areas with populations greater than 100,000, total number of people in the workforce, and total number of businesses — also predicts growth in overall media competition and growth of corporate-owned newspapers; that is, as structural pluralism increases, organizational complexity also increases.

Watson and Riffe (2011) applied a structural pluralism framework to a study of online media. They tested whether structural pluralism could predict the presence of public affairs blogs in U.S. cities with populations between 100,000 and 400,000. They found that structural pluralism performed poorly in predicting the presence of these blogs, but the presence of these blogs was related to local community structure. Blogs were more likely in communities with higher amounts of crime, poverty, and physical decay (namely aging homes), which were part of a competing "community stress" model. They suggest that these blogs may be an important outlet for residents to write about and cope with community problems.

Though Watson and Riffe (2011) examined the *presence* of blogs, not their content, their study illustrates two important points about community structure's effect on local media: Tichenor et al.'s (1980) general thesis that information about local public life should vary according to local community structure also applies to aspects of community structure other than pluralism and also to local *online* information. This last point is particularly important because it challenges claims that, based on the global

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nature of the Internet, it "overrides geography" (Reese, Rutigliano, Hyun, & Jeong, 2007). To the contrary, Watson and Riffe's (2011) data suggest that local community structure is an important factor in shaping the availability of local online information about public life.

The majority of the literature on the effect of community structure on mass communication, however, has examined its effects on newspaper coverage. There are two consistent findings relevant to the exploration of sources and frames used in coverage of the BP disaster: newspapers in more pluralistic communities are more likely to cite sources outside of traditional power establishments (Armstrong, 2002, 2006; Hindman, Littlefield, Preston, & Neumann, 1999; McCluskey, Stein, Boyle, & McLeod, 2009); and they are more likely to use frames critical of industry when covering local environmental contamination (Griffin Dunwoody, 1995; Griffin and Dunwoody, 1997; Griffin, Dunwoody & Gehrmann, 1995; Rossow & Dunwoody, 1991).

Structural pluralism and sources. Hindman et al. (1999) studied the effect of structural pluralism on the frequency with which Midwestern community newspaper editors listed ethnic minorities, among those categories of sources typically marginalized by the media (Freedman et al., 2010; Zeldes et al., 2007), either among their lists of local influential people or important news sources. Hindman et al. (1999) measured structural pluralism as an additive index of standardized measures of city and county population, number of residents with a college degree or higher education, county per capita income, and the percentage of workers in non-agricultural, forestry, or fishing occupations. These measures closely followed those used by Tichenor et al. (1985).

Hindman et al. (1999) found that structural pluralism was positively, albeit weakly, associated with editors listing ethnic minorities among the paper's important sources. Structural pluralism was not significantly associated with listing ethnic minorities among influentials in the community.

Hindman et al. (1999) also included a measure of what they termed "ethnic pluralism," operationalized as the percentage of the community that was classified in the 1990 U.S. Census as Black, American Indian/Eskimo/Aleutian Islander, Asian/Pacific Islander, Other, and Whites of Latino/Hispanic heritage. Notably, Hindman et al. (1999) fault scholars for not including ethnic pluralism in previous operationalizations of structural pluralism. However, their criticism fails to consider that measures of structural pluralism have a particular historic and geographic context. Tichenor et al.'s (1980) study was conducted in Minnesota, which according to the U.S. Census, was *96.6% white* in 1980 (U.S. Census Bureau, 1980). It would have made little sense for Tichenor et al. (1980) to include ethnic pluralism as a measure of overall structural pluralism in their study.

Similarly, it makes little sense for contemporary studies to replicate all of Tichenor et al.'s (1980) original measures, including the percentage of the workforce employed in farming, as McCluskey et al. (2009) did. Tichenor et al.'s (1980) study collected data from 1965 to 1979. According to the 1960 U.S. Census, 14.5% of Minnesota's population had agricultural occupations, though that percentage was quickly declining (U.S. Census Bureau, 1960; 1970). In 2009, .7% of Minnesota's population had agricultural occupations (U.S. Census Bureau, 2010); in 2009, 1% of workers had agricultural occupations in Wisconsin, where McCluskey et al. (2009) conducted their

study. Thus, it made little sense for McCluskey et al. (2009) to include the percentage of the workforce employed in farming as a current measure of structural pluralism.

Ethnic pluralism, however, is an important measure of contemporary structural pluralism in most U.S. communities. In their study, Hindman et al. (1999) found that ethnic pluralism was a significant predictor of whether newspaper editors listed ethnic minorities among the papers' important sources and among influential individuals in the community. Armstrong (2002) also found, in a study of women sources in 18 American newspapers, that structural and ethnic pluralism were positively correlated with the use of female sources in news coverage.

These findings also extend to newspapers' coverage of another neglected category of sources: social protesters. McCluskey et al. (2009) examined the effects of structural pluralism on use of the protest paradigm in Wisconsin newspapers' coverage of social protests. They hypothesized that the protest paradigm would be particularly pronounced in more homogeneous communities. McCluskey et al. (2009) examined four decades of coverage of protests in Wisconsin related to the civil rights movement and anti-Vietnam War protests in the 1960s, the women's movement in the 1970s, anti-Apartheid protests in the 1980s, and the free trade and anti-globalization movements of the 1990s. Four Wisconsin newspapers were ranked based on city population, county population, county per-capita income, labor force not in agriculture, and distance from a major metropolitan area. Consistent with their hypotheses, the researchers found a significant difference between the newspapers' coverage of social protests: newspapers in more pluralistic communities were both significantly more likely to cite protesters as sources compared to newspapers in less pluralistic communities, and the tone of their articles about social

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protests were significantly more positive, particularly when the target of the protests was the local government.

Structural pluralism and coverage of the environment. In addition to affecting the tone of a story, structural pluralism has also been shown to influence how news coverage is framed. Dunwoody and colleagues conducted a series of studies that examined the effects of structural pluralism on framing of environmental contamination (Griffin & Dunwoody, 1995; Griffin & Dunwoody, 1997; Griffin, Dunwoody, & Gehrmann, 1995; Rossow & Dunwoody, 1991). For example, Griffin and Dunwoody (1997) examined the effects of structural pluralism on how 19 newspapers, primarily in Wisconsin, framed news coverage about environmental contaminants known to cause human health risks. Coverage was analyzed for whether it contained a science frame — that is, the coverage focused on scientific evidence and evaluation of contaminants — or a government linkage — focusing primarily on government response to contaminants. They also analyzed whether contaminants were linked to threats to human health (i.e., contained a "health linkage"). Griffin and Dunwoody (1997) operationalized structural pluralism as an additive index of a community's population, proportion of the school children in grades kindergarten through grade 12 who are racial minorities or attend private schools, the number of religious denominations, and the number of voluntary service organizations.

Griffin and Dunwoody (1997) found that, in general, newspapers were more likely to use government than scientific frames, which one might expect based on journalists' reliance on government sources (Steele, 1995). But newspapers in more pluralistic communities were more likely to use science frames and link contaminants to

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risks to human health, *particularly when the source of the environmental contamination was a local industry*, than were newspapers in less pluralistic communities.

These findings largely confirmed those of an earlier study (Griffin, Dunwoody, & Gehrmann, 1995), which used identical measures of structural pluralism and found that newspapers in more pluralistic communities are also more likely to use thematic frames in coverage of environmental risk. Rossow and Dunwoody (1991) found that newspapers in more pluralistic communities were more likely to include "enabling information" in their coverage, telling residents how they could publicly voice their concerns about the controversy surrounding the siting of a nuclear waste facility.

Economic Reliance on Industry

Griffin and Dunwoody (1995), however, found that a local community's economic reliance on manufacturing was stronger than structural pluralism as a predictor of how 373 U.S. newspapers covered a report on toxic releases from local industry. Structural pluralism measures were identical to those used in Griffin and Dunwoody (1997). Reliance on manufacturing was measured as the percentage of residents within a community employed in manufacturing, based on U.S. Census Bureau data.

Griffin and Dunwoody (1995) analyzed in the coverage how likely a newspaper was to use a "risk headline," a headline that signaled a possible threat to health (e.g., by using the word "toxic"). Newspapers in more pluralistic communities were more likely to use a risk headline than newspapers in less pluralistic communities. However, even those newspapers in more pluralistic communities were less likely to use a risk headline if the community was more reliant on manufacturing for its economic base. They concluded

that, even in more pluralistic communities, the press' willingness to raise controversy is tempered by economic sensitivities (p. 281).

How Structural Pluralism Affects the News

The question not addressed in previous studies of structural pluralism is *how* these community-level effects enter the news gathering process: is it through a top-down, coercive force (i.e., a newspaper publisher reinforcing elite interests), a bottom-up process (i.e., routine interactions with local sources socialize journalists into the dominant social structures of the communities they cover), or some combination of both simultaneously? This dissertation tests a model that proposes a bottom-up process, by which community-level variables shape journalists' attitudes toward the BP oil spill, which in turn shape journalists' coverage. One might term this a "social structure bias" model; that is, journalists' work is shaped by their personal biases that are shaped by and reinforced by the dominant social structure of the community where they work (i.e., journalists in communities that are more economically dependent on the oil industry will hold more positive attitudes toward the oil industry, which causes them to write more positive stories about the BP oil spill).

Community structure, however, is not the only possible explanation linking journalists' attitudes and the content they produce. Based on existing literature, it is more plausible to suggest that journalists' political and environmental ideologies influence the types of stories that they write. Thus, the effects of journalists' political attitudes on their coverage will be simultaneously modeled in the test of how community structure variables enter the news gathering process.

Journalists' Political Ideologies & Bias

According to social psychologists, ideologies "describe or interpret the world as it is — by making assertions or assumptions about human nature, historical events, present realities, and future possibilities — and envision the world as it should be, specifying acceptable means of attaining social, economic, and political ideals" (Jost, Federico, & Napier, 2009). This dissertation examines two types of ideology, political ideology and environmental ideology, which are correlated yet distinct from one another. Generally, though, according to Jost et al.'s (2009) review of previous studies of political ideology, liberals are more likely to seek new experiences, tolerate ambiguity, prefer progress and equality, and have more pro-environmental beliefs, whereas conservatives favor dogmatism, order, and structure, even if it means accepting inequality for the sake of stability, and tend to prioritize economic growth, property rights, etc., over environmental concerns (Jost et al., 2009).

To give some indication of the partisanship reflected in attitudes toward the environment, in a nation-wide, post-oil spill survey, the Pew Research Center for the People & The Press (2010) found that 56% of Democrats opposed increasing off-shore oil drilling (38% favored), while 74% of Republicans *favored* expanding off-shore oil drilling (22% opposed).

Typically, journalists' political ideologies skew left of center (Weaver, Beam, Brownlee, Voakes, & Wilhoit, 2007), from which is often inferred a liberal media bias (Entman, 2007). Empirical evidence of a liberal media bias, however, is mixed. In a quasi-experimental design, Patterson and Donsbach (1996) found that in a hypothetical decision-making task, which presented journalists with different options as to how to present a conflict between environmental regulators and the chemical industry over new

regulations to curb pollution, there was a correlation between journalists' political ideology and news decisions in 68% of the cases.

In a meta-analysis of content analyses of actual news content, however, D'Alessio and Allen (2000) concluded that there is not a consistent pattern of political bias in overall coverage in newspapers, television, and news magazines (they found a small liberal bias in television campaign coverage). None of the studies that D'Alessio and Allen studied, however, matched *individual* journalists' beliefs with data about the coverage those journalists produced. Thus, it is possible that individual bias does affect journalists' work, but at the aggregate level liberal journalists simply cancel out conservative journalists.

Hence this dissertation will match individual journalists' responses to a survey about their political and environmental beliefs to a content analysis of the stories they wrote, to examine the extent to which journalists represent "supernatural observers," who can coolly separate facts from values (as Schudson (2001) defines the "objective reporter"). Or conversely, this study may provide evidence of the extent to which journalists' opinions about an issue they cover — the Gulf oil spill — mirrors the American public's partisan attitudes.

While it was previously proposed that journalists' attitudes reflect a social structural bias, it is more realistic that just as journalists are not completely independent, they are not completely captive to the community structure in which they are embedded, either. Thus, if there is evidence of journalistic bias, it is likely to reflect both social structural and individual ideological (both political and environmental) biases, which may even conflict with one another (e.g., a liberal, pro-environmental journalist, whose

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anti-BP attitudes and coverage is tempered by a recognition of his/her community's – and newspaper's – economic reliance on the industry).

The Internet as a Counter Public

There has been little research into the relationship of "new" media to the social, economic, and political forces described above (Watson & Riffe, 2011), so there is little empirical evidence on which to base hypotheses about the effect of community structure on Tweets about the oil spill. Previous scholars have, however, suggested that the Internet has the broad potential to be a counter public, with the capacity to challenge those social forces describe above, which limit debate in mainstream media coverage (Downey & Fenton, 2003; Dahlberg, 2001; Dahlgren, 2005).

If the media are to live up to the deliberative democratic ideals of the public sphere, the media, according to Curran (1991), should ideally represent *all* significant social interests, and should encourage broad, unfettered public debate and participation in shaping public policy. The media — at least the mainstream commercial media — have, however, been broadly critiqued for falling short of these ideals. Critics of the mass media claim that commercialization has limited the range of voices represented; corporate interests have affected the range of ideologies debated; and media trivialization and sensationalism of public issues has undermined deliberative participation (Dahlgren, 2001). The structural pluralism literature reviewed above illustrates more specifically how the media fall short of serving as a forum for unfettered debate. Rather, it suggests that coverage of important issues, including the BP oil spill, is likely to be limited by the potential distribution of social power and the economic interests of the community in which it is embedded (Tichenor et al., 1980; Griffin & Dunwoody, 1995, 1997).

While Habermas (1962/1989) argued for a single public sphere so that the deliberative public could reach consensus on public issues, Fraser (1990) argued instead that promoting "counter publics" is the best way to ensure inclusive, democratic debate given the structural limitations of discourse within the dominant public. Based on Warner's (2002) text-based approach to understanding publics, Twitter could be considered a separate public simply as a function of adhering to a very different style of discourse. Twitter and newspapers also have demographically distinct audiences (Edmonds, Guskin, & Rosenstiel, 2011; Smith, 2011). The existence of a counter public, however, does not just imply a distinct public, but one that represents a different worldview, which challenges the monopolizing social, political, and economic forces that limit the range of discourse in a dominant public (Fraser, 1990; Warner, 2002).

According to both Fraser (1990) and Warner (2002), a counter public is also not an enclave, but rather its goal is to participate in a wider public dialogue. But what has befallen many alternative media conceived of as filling the role of a counter public in the past is that they have been enclaved, albeit involuntarily. Alternative media are defined as having alternative content, content which challenges dominant power structures and social norms, and content which is shaped by different production forces — less hierarchical, more participatory, and less commercial (Atkinson, 2010; Atton, 2002). However, precisely because they have less commercial support to support their production and circulation, alternative media have traditionally had a very marginal existence within the larger political discourse.

The Internet, however, has been touted for having the potential to revolutionize alternative media. Anyone can cheaply set-up a website instantly available to millions of

people, erasing the financial pressures on alternative media and far exceeding the potential audience of any home-produced newsletter. As Downey and Fenton (2003) wrote, the Internet affords counter-publics the potential of reaching beyond the "radical ghetto" to affect mainstream political decision making (p. 199).

Others contend, however, that the realities of the Internet have fallen far short of these radical potentials and that alternative voices have been enclaved, even online (Dahlgren & Sparks, 2001; Dahlberg, 2005). Dahlberg (2005) wrote about the "corporate colonization" of the Internet. He highlighted data that show that despite the diversity of content from non-commercial sites, American Internet users spend the vast majority of their time on mainstream commercial websites. He also pointed to a study by the Pew Internet and American Life Project, which found that among those who used the Internet to access information about the Iraq War, only 17% felt the news and point of views they received online were any different from what they got from mainstream newspaper and television coverage (Fox, Rainie, & Fallows, 2003). Dahlberg (2005) concluded that, "This situation goes against the vision of the Internet operating as an alternative medium to the mass media, as a space where positions and critique excluded offline are foregrounded" (p. 172).

So there are two visions of the Internet: one that is inclusive and radical, and one that is "colonized" by mainstream corporate interests. Which one is "correct?" The Internet is large and diverse enough that they perhaps both are. As Dahlgren and Sparks (2001) wrote, "One can certainly find on the Internet information and opinions that transgress the limits of the bourgeois public sphere. One can certainly see in the electronic activities of political and social groups the dim outlines of a new *agora*. But

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these are the minority usages at present" (p. 92). Thus, while acknowledging that they are not representative of Twitter as a whole, this dissertation focuses on those users with the greatest number of followers, who are most likely to act as opinion leaders of and dominate the public discourse on Twitter.

Twitter, which allows users to post 140-character status updates, has been credited with playing a role in toppling Tunisia's dictatorship (Zuckerman, 2011), and the analysis of sentiment expressed by users of Twitter has been shown to be able to predict election outcomes (Tumasjan, Sprenger, Sandner, & Welpe, 2010), daily fluctuations in the stock market (Bollen, Mao, & Zeng, 2011), and even movie box office sales (Asur and Huberman, 2010), perhaps preciously because of the opinion-leader role Twitter's most dominant users play. But there have not been studies comparing how Twitter conversations differ from mainstream news coverage of these topics or other important social issues.

As of September, 2011, Twitter boasted having more than 100 million active users (Hachman, 2011). Yet Wu, Hofman, Mason, and Watts (2011) analyzed a total of 5 billion Tweets gathered between July 28, 2009, and March 8, 2010, and found that more than half of Tweets consumed by other Twitter users are produced by just 20,000 "elite" users. These elite users are a relatively small number of celebrities, such as Ashton Kusher, Lady Gaga, and Oprah; media, such as CNN, the *New York Times*, *Time* magazine; popular – some might even say mainstream – bloggers, such as authors of the popular tech blog Mashable.com; and large corporations, such as Google and Starbucks. Interestingly, two international corporations – Asahi, a leading Japanese newspaper, and KT (Korean Telecom) — are also among the most-followed elite Twitter users, which

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perhaps suggests a slight broadening of the public discourse, though one cannot tell from Wu et al.'s (2011) data if followers of these companies cross geographic boundaries, or if there exists different "Twitterverses" in the U.S., Japan, and Korea.

Wu et al. (2011) concluded that "while attention that was formally restricted to mass media channels is now shared amongst other 'elites,' information flows have not become egalitarian by any means" (p. 6). Thus, instead of searching Twitter broadly for mention of the BP oil spill, this study will examine Tweets authored by the most-followed users in cities that correspond with newspaper communities that are also part of this research. Journalists' coverage and Tweets about the spill within the affected areas will be compared to examine if Twitter represents a potential counter public, or if it presents similar viewpoints that are shaped by the same social, economic, and political forces and mainstream news coverage.

CHAPTER 3

HYPOTHESES & RESEARCH QUESTIONS

This dissertation explores the extent to which the media – traditional and alternative – fulfilled their surveillance function in the wake of the 2010 BP oil spill disaster by raising critical questions about industry responsibility, government oversight, and future energy and environmental policies. More specifically, the study examines primarily what effect community-level variables, including structural pluralism and economic reliance on the oil industry, have in determining the extent to which either newspaper journalists or Twitter users in the Gulf Coast states raised critical questions in the aftermath of the Deep Water Horizon explosion.

Because of the lack of literature exploring the effects of these community-level variables on social media, Twitter in particular, this dissertation first sets up a series of hypotheses and research questions about mainstream media coverage. These findings are then used to answer the primary research question guiding the comparison of traditional and social media coverage of the BP oil spill: does Twitter represent a counter public? Or do Tweets about the spill follow similar patterns as mainstream news coverage, including being shaped by the same social, economic, and political forces that limit discussion of critical issues in the mainstream media?

Professional journalism, however, tends to follow certain standardized patterns from one newsroom to the next (Schudson, 2003; Tuchman, 1973/1997). Thus, before testing for local variation in coverage of the BP oil spill, the dissertation first explores the

general patterns of how the media assign responsibility for the disaster, how they frame the disaster, and the characters that drive their narratives. Again, while content analyses of news coverage primarily analyze news sources, this study uses the more general concept of "characters" in order to make a valid comparison with Tweets, which do not rely on primary sources in a similar fashion as news media do.

Kensicki's (2004) study of newspaper coverage of pollution found that while industry was primarily framed as the culprit that caused the problem, government was overwhelmingly framed as having responsibility for cleaning up the oil spill. Thus, it is expected that in the aftermath of the BP oil spill, journalists' stories about the disaster will focus more on the government's response to the disaster than on BP's role in the crisis. Thus:

H$_1$: Newspaper coverage after the BP oil spill will focus more on the government's, rather than BP's, role in the oil spill disaster.

Beyond assigning responsibility for the spill, according to Kensicki's (2004) article, journalists' coverage also plays an important role in identifying the causes and effects associated with a particular problem. Thus, this study probes what social, environmental, economic issues, etc., journalists link to the BP oil spill.

R$_1$: Beyond the spill itself, what larger environmental, policy, and economic issues were raised in newspaper coverage of the BP oil spill?

How journalists frame the BP oil spill is also likely to determine whether coverage results in the public critically examining systematic shortcomings underlying the BP oil spill. Castelló (2010) found that though the Spanish oil refining industry had suffered several high-profile chemical accidents and lapses in safety protocols, journalists

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there were much more likely to focus on the industry's positive impacts on the local economy, rather than the industry's negative impacts on the local environment and residents' health. While Castelló's (2010) study is based on data from Spain, one would expect similar patterns given the system-maintenance function the domestic press fulfill (Tichenor et al., 1980). Given the shortage of positive news in the immediate aftermath of the BP oil spill, it would be unreasonable to expect the majority of journalists' coverage of the BP oil spill to be framed positively. Nonetheless, one might expect journalists to be more hesitant to focus on negative news related to the oil spill than the facts of the crisis might otherwise dictate. Thus, this study explores what proportion of journalists' coverage was framed negatively, defined as focusing on negative outcomes related to the oil spill.

R₂: To what extent was newspaper coverage of the BP oil spill framed negatively?

It is not enough, however, that journalists simply cover negative outcomes of the oil spill. If journalists are to fulfill their surveillance function, the negative outcomes of the oil spill should also be treated as symptoms of larger systemic problems, rather than as isolated problems. According to Iyengar (1990; 1991; 1996), thematic frames are more likely result in readers assigning responsibility for a problem to systematic, societal problems, rather than to individual actors. However, based on Iyengar's work that examined television framing of social issues, as well as Kensicki's (2004) work exploring newspaper framing of social issues, including environmental pollution, it is hypothesized that newspapers will use more episodic frames than thematic frames.

H₂: Episodic frames will be more frequent than thematic frames in newspaper

coverage of the BP oil spill.

Exploring which characters journalists featured most frequently in their coverage of the spill is also important because these "primary definers" play a role in determining which frames the media will use to frame an issue (MacKendrick, 2010).

According to Entman and Rojecki's (1993) study of the anti-nuclear weapons movement, non-governmental, non-expert sources are the most likely to raise critical questions about potential environmental/health consequences in newspaper coverage, but these are also the sources most likely to be marginalized as sources in press coverage (McCluskey, 2009; McLeod & Detenber, 1999; Steele, 1995). Journalists instead are more likely to rely on "official" sources, including government and industry representatives (Steele, 1995). Because the use of sources and characters across different media typically follows similar patterns (Brown, Bybee, Weardon, & Straughan, 1987; Freedman, Fico, & Durisin, 2010; Glasscock, 2003; Mastro & Stern, 2003; Oliver, 1994; Signorielli & Bacue, 1999; Tedesco, 1974; Zeldes, Fico, & Arvind, 2007), and based on these previous studies of news sources, it is hypothesized that journalists will also be more likely to rely on "official" characters than on "non-official" characters, such as independent scientists, environmental advocates, Gulf fishermen, etc.

H₃: "Official" characters will be more prominent than "unofficial" characters in newspaper coverage of the BP oil spill.

It is possible, however, that there are different stages of crisis coverage that affect the frequency with which the media rely on unofficial characters. Graber (2009) suggested that in the initial stage of crisis coverage the media scramble for sources and often quote less authoritative sources. She viewed this period as a low point for accuracy

in reporting, but Tichenor et al. (1980) framed the initial phase of crisis coverage more positively, suggesting that it is a period of freer and more open debate. Graber (2009) and Tichenor et al. (1980) agree, though, that this initial period of uncertainty and competing interpretations of the crisis is followed by a "conflict definition" phase, when those in power begin to converge on an official interpretation of the crisis, narrowing those perspectives that are viewed as being legitimate. Thus, this study seeks to identify discernible stages of crisis coverage, marked by an initial stage in which unofficial characters and critical frames are used more freely, followed by a "legitimization" phase, which narrows the interpretation of the crisis and the variety of characters and frames used.

R$_3$: Are there discernible stages of coverage of the BP disaster, the first marked by frequent use of non-official characters and critical frames, followed by a narrowing of those perspectives seen as being legitimate and those characters and frames used?

These hypotheses and research questions are guided by assumptions and observations about standard practices across newsrooms regardless of local or community character. Based on these journalistic routines, it is expected that these community-level effects will be relatively modest. However, though Donohue et al. (1985) found that the effects of structural pluralism declined as society has generally become more pluralistic, other studies still find significant variation in media content based on local community structure (Griffin & Dunwoody, 1995, 1997; McCluskey et al., 2009; Watson, in press). More specifically, Griffin and Dunwoody (1997) found that coverage of environmental contamination is more likely to be linked to industry and be more critical of industry in communities with a greater number of potential sources of organized social influence

(i.e., greater levels of structural pluralism). Thus, it is hypothesized that coverage of the BP oil spill will also differ based on a community's degree of structural pluralism.

While the following hypotheses and research questions could be presented as more general statements of community structure's effects on coverage, they will be answered empirically using a path model (see Figure 1 for an illustration of the model). Thus, they are expressed here in terms of individual hypothesized paths. Common numerical subscripts, however, indicate sub-hypotheses that could be grouped into more general statements.

H_{4a}: The degree of structural pluralism in the community where a newspaper is based will positively predict whether journalists focus on BP's role in the disaster.

H_{4b}: The degree of structural pluralism in the community where a newspaper is based will positively predict journalists' use of thematic frames.

H_{4c}: The degree of structural pluralism in the community where a newspaper is based will positively predict the negative tone of journalists' stories about the BP oil spill.

H_{4d}: The degree of structural pluralism in the community where a newspaper is based will positively predict journalists' use of unofficial characters.

In addition to examining whether community structure affects the frequency with which journalists link their coverage to BP, this study also examines if structural pluralism affects whether journalists assign responsibility for responding to the oil spill to government, by focusing their coverage on the government's role in the crisis.

R_4: Will the degree of structural pluralism in the community where a newspaper is based affect the frequency with which journalists focus their coverage of the oil spill

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on the government's role in the crisis?

While Griffin and Dunwoody (1997) attributed differences in local reporting primarily to differences in communities' degrees of structural pluralism, Griffin and Dunwoody (1995) found that a community's reliance on manufacturing for employment was a stronger predictor of newspapers' coverage of local environmental contamination from that industry. They found that even in more pluralistic communities, newspapers in communities that relied on manufacturing for a greater percentage of local employment were less likely to link local environmental contamination to local industry and frame that coverage critically. Thus, it is hypothesized that newspaper coverage in communities that rely on the oil industry more heavily for local employment will be less likely to link the crisis to BP and to frame coverage critically. Critical coverage is defined as focusing on negative outcomes of the oil spill; using thematic frames, which are more likely to result in the responsibility for negative outcomes being assigned to systematic shortcomings, rather than isolated problems; and using a greater number of unofficial characters, who are more likely to be critical of the oil industry.

H$_{5a}$: The degree to which the community where a newspaper is based relies on the oil industry for its economic base will negatively predict whether journalists focus their coverage of the oil spill on BP's role in the disaster.

H$_{5b}$: The degree to which the community where a newspaper is based relies on the oil industry for its economic base will negatively predict journalists' use of thematic frames.

H$_{5c}$: The degree to which the community where a newspaper is based relies on the oil industry for its economic base will negatively predict the tone of journalists' stories

about the BP oil spill.

H_{5d}: The degree to which the community where a newspaper is based relies on the oil industry for its economic base will negatively predict journalists' use of unofficial characters.

In addition to examining whether communities' economic reliance on the oil industry affects the frequency with which journalists link their coverage to BP, this study also probes whether economic reliance on the oil industry affects whether journalists assign responsibility for responding to the oil spill to government, focusing their coverage on the government's role in the crisis.

R_5: Will the degree to which the community where a newspaper is based relies on the oil industry for its economic base affect the frequency with which journalists focus their coverage of the oil spill on the government's role in the crisis?

Additionally, though previous scholars have not tested it, this dissertation tests the hypothesis that community-level variables enter the news process by shaping the attitudes of individual journalists and in turn shaping the stories these journalists write. Thus, it is hypothesized that journalists' positive attitudes toward the oil industry will be negatively related to the degree of structural pluralism in a community and positively related to a community's degree of economic reliance on the oil industry. It is also hypothesized that journalists' attitudes toward the oil industry will be positively related to their positive coverage of the BP oil industry (i.e., fewer thematic stories, fewer negative stories, and less use of unofficial characters). That is, in addition to having direct effects on coverage, structural pluralism and economic reliance on the oil industry will have indirect effects on coverage by shaping journalists' attitudes, which in turn shape the stories they write,

reflecting what could be termed as "structural bias" in journalists' work.

Community structure, however, is not wholly responsible for journalists' attitudes toward the oil industry. Based on previous studies of potential bias in journalists' work (Patterson & Donsbach, 1996; D'Alessio & Allen, 2000), and the highly partisan assessments of the BP oil spill within the general American population (Pew Research Center for the People & The Press, 2010), it is hypothesized that journalists' political and environmental ideologies will also shape their attitudes toward the oil industry, and in turn shape the stories they write.

H$_{6a}$: The degree of structural pluralism in the community where a newspaper is based will negatively predict journalists' positive attitudes toward the oil industry; journalists in more pluralistic communities will be more critical of the oil industry.

H$_{6b}$: The degree to which the community where a newspaper is based relies on the oil industry for its economic base will positively predict journalists' positive attitudes toward the oil industry; journalists in communities that are more economically dependent on oil drilling will hold more positive attitudes toward the industry.

H$_7$: Journalists' political conservatism will positively predict their attitudes toward the oil industry: more conservative reporters will have more favorable attitudes toward the oil industry.

H$_8$: Journalists' environmental ideologies will negatively predict journalists' attitudes toward the oil industry: most pro-environmental reporters will be more critical toward the oil industry.

H$_{9a}$: Journalists' positive attitudes toward the oil industry will negatively predict whether journalists focus their coverage of the oil spill on BP's role in the disaster.

H$_{9b}$: Journalists' attitudes toward the oil industry will negatively predict journalists' use of thematic frames.

H$_{9c}$: Journalists' attitudes toward the oil industry will negatively predict the tone of journalists' stories about the BP oil spill.

H$_{8d}$: Journalists' attitudes toward the oil industry will negatively predict journalists' use of unofficial characters.

R$_6$: Will journalists' attitudes toward the oil industry affect the frequency with which journalists focus their coverage of the oil spill on the government's role in the crisis?

H$_{10}$: The indirect effects — via journalists' positive attitudes toward the oil industry — of community structure on journalists' coverage of the BP oil spill will be stronger than community structure's direct effects.

Lastly, the dissertation poses a series of research question to determine if Twitter can be considered a "counter public" in the context of the BP oil spill, or if Twitter reflects similar viewpoints and is shaped by similar social, economic, and political forces, as mainstream journalism coverage.

R$_7$: Is there a significant difference between Twitter users' and journalists' attitudes toward the oil spill?

R$_8$: Are there significant differences between Twitter users' and journalists' coverage of the oil spill?

R$_9$: Are there significant differences in the social, economic, and political factors that shape Twitter users' and journalists' attitudes toward, and coverage of, the BP oil spill?

CHAPTER 4

METHODS

This dissertation combines data from three sources. Gulf Coast journalists and Twitter users who wrote about the BP disaster were surveyed about their attitudes toward the oil industry immediately following the BP disaster. These survey responses were then matched with data from a content analysis of the individual journalists' stories and Twitter users' Tweets. Lastly, these data were matched with measures from the U.S. Census Bureau of structural pluralism and oil-industry employment in the communities where journalists work and Twitter users live.

Data were matched starting with a list of the journalists and Twitter users who replied to the survey. Then a list of all of the newspaper stories ($N = 1,829$) and Tweets ($N = 6,437$) these respondents wrote on the BP oil spill was generated. Lastly, 1,000 of these newspaper stories and 1,000 of these Tweets were randomly sampled for inclusion in the final analysis (for the sake of multi-group path analyses, one wants roughly equal-sized groups (Tabachnick & Fidell, 2007)). These 2,000 newspaper stories and Tweets were used as unique cases in the final data set; survey and community data were assigned to these cases by matching the story/Tweet author's name and the name of the community with the survey responses and census data.

The individual stories/Tweets were used as the cases because there was a great range in the number of stories/Tweets individual authors wrote: journalists wrote from 1 to 82 stories; Twitter users wrote from 1 to 107 Tweets. It would be very difficult to

devise a summary measure of each individual's coverage with such variation in the number of stories. For example, how would one come up with a valid comparison between a journalist who wrote one story that used thematic frames 100% of the time, and another journalist who wrote 20 stories with thematic frames, but wrote a total of 63 stories (i.e., only 31.7% of their stories were thematic)? One option would be to drop those cases where a journalist or Twitter user wrote too few stories to create a meaningful average score of his/her coverage – say less than five stories/Tweets. Doing so, however, would have resulted in the loss of 25% of the Twitter sample and 45% of the journalist sample. Thus, each story was treated as an individual case.

Assigning journalists' and Twitter users' personal and community characteristics to multiple cases (i.e., stories/Tweets) violates the statistical assumption that each case represents an independent observation. However, as will be described in the analysis section, the multivariate analysis controlled for violation of this statistical assumption by grouping the individual newspaper stories and Tweets into clusters based on unique authors. The final data set included 404 clusters: 164 unique journalists and 204 unique Twitter users.

It is also possible that because data were matched based on a random selection of stories/Tweets, not a random sample of survey responses, that these journalists/Twitter users in the final data set differ significantly from those individuals in the original survey data set. Thus, independent sample t-Tests were run to see if there were any significant differences in survey responses, community characteristics, and the number of stories/Tweets individual authors wrote, between those initial survey respondents who were and were not included in the final data set. There was only one significant

difference: journalists in the final data set represented communities with a significantly

greater percentage of the workforce employed in the oil industry ($M = .010$, $SD = .010$)

than did those journalists who responded to the survey but were not in the final sample

($M = .004$, $SD = .007$) ($t(26.148) = -2.819$, $P = .009$, equal variances not-assumed). It is

likely this difference is due to the fact that the BP oil spill had more salience for those

communities that relied more heavily on the oil industry for local employment. This

increased salience did not result in a significant difference in the number of stories

individual journalists wrote; however, it could have resulted in newspapers in those

communities assigning a greater number of reporters to cover the oil spill, which would

explain why those communities for which the oil spill had more salience are perhaps

slightly overrepresented in the final data set. However, because there are no significant

individual differences between the different data sets, as the data are described in this

study, only the characteristics of those individuals and communities in the final data set

are reported, except to report the surveys' response rates.

Surveys

Journalists and Twitter users were surveyed separately as the dissertation project

developed, as soon after the oil spill as possible. Journalists were surveyed from Nov. 10,

2011, to Dec. 10, 2010; Twitter users from April 20, 2011, to Aug. 20, 2011. Because of

the time that had elapsed since the explosion of the Deep Water Horizon on April 20,

2010, it is unlikely that these surveys captured the initial shock to public opinion

immediately following the disaster. According to data from the Pew Research Center

(2011), from February 2010 to June 2010, support for expanding off-shore oil drilling fell

from 63% of Americans to 44%. However, within a couple of months those numbers

started to rebound: in October 2010, 51% of Americans favored expanding off-shore oil drilling, and by March 2011 that number was back up to 57%. Thus, the survey data collected for this study likely do not capture this shock to opinions about off-shore oil drilling immediately following the disaster, which is problematic in that this dissertation is most interested in this period of the media's coverage.

However, the study's hypotheses are based less on absolute support for oil drilling than on respondents' attitudes relative to one another (i.e., journalists with *more* positive attitudes toward the oil industry will be *less* likely to use critical frames in their coverage of the BP disaster). Relative differences, for example, between Republicans' and Democrats' attitudes toward off-shore oil drilling appear to have remained relatively consistent throughout the crisis (Pew Research Center for the People & The Press, 2011). Thus, the timing of these surveys, while worth noting, is not likely to affect inferences based on relative differences in attitudes.

Survey of journalists. Gulf Coast journalists who covered the BP oil spill were identified by searching the America's News database from April 20, 2010, the day of the Deep Water Horizon explosion, until Sept. 20, 2010, the day after BP sealed the leaking oil well. The following keywords were used to search Florida, Alabama, Mississippi, Louisiana, and Texas newspapers: BP, oil spill, and Deep Water Horizon. Headlines and stories' lead paragraphs were read to determine if the story was about the Gulf oil spill. Stories primarily about another subject, but containing substantial discussion of the spill (e.g., a coastal real estate prices story mentioning fears that the spill would depress prices), were included. Both news and opinion articles were included in order to capture

an overall picture of the impression a given newspaper's coverage is likely to have on a reader (McCluskey et al., 2009).

Reporters' email addresses and their newspapers' mailing addresses were found at the bottom of the relevant stories and on newspapers' websites. Six hundred and eighty-eight unique bylines and valid email addresses were identified: 379 in Florida, 142 in Texas, 80 in Alabama, 59 in Louisiana, and 34 in Mississippi.

A pre-notification letter was mailed to journalists on Nov. 5, 2010. Newspapers returned 11 letters as undeliverable. These journalists were removed from the sample, presumably because they no longer worked at these papers. A link to the web-based survey, which had been reviewed and approved by the university's Institutional Review Board (IRB), was then emailed to the remaining 682 journalists on Nov. 10, 2010, followed by six reminder emails.

A total of 220 journalists completed the survey, for a response rate of 32.3%. Given the generally low response rates on web surveys — especially when surveying a professional population (Cook, Heath, & Thompson, 2000) — and the sensitive nature of asking journalists to disclose their personal opinions on issues they cover and about their political beliefs, the response rate is probably as good as one could anticipate.

Survey of Twitter users. Studying Tweets presents a significant challenge because at the time data were first collected for this study, Twitter allowed users only to search Tweets that were up to four days old (Twitter, 2011a). Thus, in order to have access to Tweets that are more than four days old, a researcher must device a method for collecting the Tweets of interest into some type of custom database. There are a number of methods for collecting "live" Tweets if one is prepared to begin collecting data as an

event unfolds. Data collection for this current study, however, was not started until October 2010, which again means that Twitter's search function could not be used to access Tweets about that BP disaster for the period immediately following the spill. However, these Tweets were available on the individual Twitter profile pages of the authors who wrote the Tweets. Thus, a computer programmer was hired to help build a custom database of Tweets that was built by first identifying authors of interest, and then downloading Tweets from their profile pages using Twitter's application programing interface, or API. An API is a set of computer code, which various websites make available to independent programmers, granting these programmers limited access to these websites databases for the purposes of building third-party applications. For example, the various applications that allow one to Tweet from a mobile phone, iPad, or desktop computer without visiting Twitter's site directly are built by third-party companies using the API provided by Twitter.

The focus of this study is those most-followed Gulf Coast Twitter users, who were most likely to serve as opinion leaders and dominate discussion of issues in their communities (Wu et al., 2011). Twitter's API allows programmers to access and download up to 2,500 Tweets from individuals' accounts that are not password-protected. Data collection started on Oct. 22, 2010. In the time that elapsed since April 20, 2010, it seemed unlikely that most users would have written more than 2,500 Tweets. Thus, if one could identify the most-followed users in a given community, all of their Tweets for the period following the BP disaster could be downloaded into a custom database which could be searched by keyword.

Because this study ultimately examines community-level factors that shaped journalists' attitudes and coverage compared to those community-level factors that shaped Twitter users' attitudes and Tweets, journalists' and Twitter users' communities should not be significantly different from one another (e.g., one would not want to compare only rural journalists to urban Twitter users). Thus, the first step of this part of the study was to generate a list of Gulf Coast communities with a newspaper included in the America's Newspaper database. A computer programmer hired for this research project then built a program that used this list of cities and data from the website Twitaholic.com, which tracks the most-followed Twitter users in a given community, to identify the 250 most-followed users in a given community. Some communities had fewer than 250 users on Twitaholic.com, which only had data for users that identify their city in their Twitter profile.

The 2,500 most recent Tweets from each of these users were then downloaded. The final database included more than 14.2 million Tweets. This database was then searched using keywords identical to those used to search newspaper coverage: BP, oil spill, and Deep Water Horizon. This generated a list of 25,501 Tweets that used these keywords. This list of Tweets was then used to identify individual Twitter users who had Tweeted about the BP oil spill, which yielded a list of 4,396 unique authors in 110 cities.

Because the only contact information available for these users were their Twitter names, these authors were invited to participate in the survey by sending 140-character Twitter messages to each user (Twitter limits all messages to 140 characters): "@{user's name} Read your Tweets about the BP oil spill. Can you take 5 mins. to take short survey for university study? {survey link}."

To streamline this process, a second computer programmer was hired to create a program that automatically sent a standard message to each author containing a link to the web-based survey, which had been reviewed and approved by the university's Institutional Review Board (IRB). Twitter limits the number of messages a user can send within a given period, so initially the program was calibrated to send out five messages every minute. Identical invitation messages were sent out sequentially starting with the first user on April 22, 2011, and continuing until the program reached the end of the list of users. The start date of this research is somewhat problematic given the period of time that had elapsed since the Deep Water Horizon explosion a year earlier, but respondents were asked to recall back to the fall of 2010, shortly after BP had capped the leaking well, in answering relevant questions.

Despite efforts to follow Twitter's guidelines for posting messages, the Twitter account used to send the messages was suspended for "spamming" users with a large volume of unsolicited messages within a couple of hours of the first batch of messages being sent. Twitter issued a warning and eventually re-opened the account, though the company will not divulge guidelines as to how one can conduct such a project without being flagged as a "spammer," lest one use this information to game the system. The program was recalibrated, however, to send out only one message every five minutes; additionally, messages were sent only from 7 a.m. to 9 p.m., and not on weekends. Still, the Twitter account used to send messages was suspended twice more, though quickly reopened after emails were sent to the Twitter help desk explaining the project and more warnings against "spamming" were issued by Twitter.

To reduce the perception that the survey invitation was spam, personalized reply messages were manually sent to individuals who replied to the initial invitation. Some respondents were clearly testing whether the survey invitation was sent by a legitimate researcher, and not a "spam bot"; after these skeptical participants received a personal reply, most completed the survey. Twitter users who had not yet responded to the survey received two reminder Tweets, the last of which was sent on June 10, 2011.

A total of 731 users completed the survey for a response rate of 16.6%. Because the purpose of the survey is to match users' responses on the survey to their Tweets, 28 users who did not give their user names in the survey and thus could not be matched with the other data in the study, or who were accidently sent the initial invitation, were eliminated from the analysis (the process described above accidently identified some users in Paris, France, instead of Paris, Texas, and Birmingham, England, instead of Birmingham, Alabama). The final data set included 703 Twitter users.

Survey measures. The survey of journalists contained additional questions about journalists' preferred professional roles, their interactions with BP and Coast Guard public relations staff, and their use of the web for reporting on the disaster (the data on journalists' preferred professional roles were reported in Watson, in press; data on journalists' interaction with BP public relations professionals were reported in Watson, 2012). Because this dissertation focuses on a comparison of journalists and Twitter users, this study will report only on those items that the two surveys had in common.

Descriptive statistics for these measures are contained in Tables 1 and 2. These tables report the descriptive statistics for the entire sample, as well as by group (i.e.,

journalist or Twitter user). Statistics in the following descriptions of the survey measures represent the entire sample.

Political ideology. Political ideology was measured using a single item, adapted from Patterson and Donsbach (1996): "How would you characterize your political ideology, from left to right?" This question was chosen because it was believed that the journalists in the study might have reacted more negatively to a more direct question that asked them to identify their preferred political party ($M = 3.61$, $SD = 1.362$).

Environmental ideology. Environmental ideology was measured using the four highest-loading items from the New Environmental Paradigm scale (Dunlap, Van Liere, Mertig, & Jones, 2000): "Humans are severely abusing the environment"; "The balance of nature is strong enough to cope with the impacts of modern industrial nations"; "The so-called 'environmental crisis' has been greatly exaggerated"; and "Humans will eventually learn enough about how nature works to be able to control it." (Cronbach's α = .749, $M = 3.795$, $SD = .755$).

Attitudes toward oil drilling. This portion of the survey adapted 13 questions from public opinion surveys about oil drilling (CBS News, 2010), energy policy and government regulation, (Bolson & Cook, 2008) and industry responsibility (Miller & Sinclair, 2009) (see Table 1 for question wording and descriptive statistics). (α = .912, $M = 2.675$, $SD = .746$).

Demographics. The survey also collected a series of demographic questions. All respondents were asked their age, race, and income. Journalists were asked whether they held a journalism degree, how many years they have been a journalist, their tenure at their current newspaper, their primary job function (reporting, commentary, or editing),

what beat they are assigned to, and whether they had any special training in covering environmental or energy issues.

Twitter users were asked how long they had used Twitter and what industry they worked in, specifically if they worked in the oil, tourism, or fishing industries, which were particularly impacted by the BP oil spill, or whether they were a professional journalist. Journalists on Twitter were not eliminated from the study because they are among those most-followed influential users that are likely to shape discussions about the BP oil spill on Twitter.

Content Analysis

For the content analysis portion of the study, newspaper stories were identified by searching the author field of the America's News database for the names of the 220 reporters who completed the survey and the initial keywords used to identify newspaper stories (BP, oil spill, Deep Water Horizon) between April 20, 2011, the day of the Deep Water Horizon explosion, and Sept. 20, 2010, the day after the Macando well was permanently sealed. These journalists wrote a total of 1,829 stories, each which was assigned a random number and then sorted by ascending order. The first 1,000 stories were selected and coded.

The 703 Twitter users who responded to the survey authored a total of 6,437 Tweets (Tweets that were clearly a reply to another message – denoted by using the at sign (@) followed by another Twitter users' name – were eliminated from the data set because they represent one side of a conversation, and therefore would be difficult to code). These Tweets were similarly assigned a random number and sorted by ascending order. The first 1,000 Tweets were also coded.

Content analysis protocol. A challenge in this content analysis is to develop a straightforward protocol, which produces coding rules that can be applied equivalently to two very different media, so that valid conclusions can be drawn based on a comparison of journalists' and Twitter users' coverage of the oil spill. Thus, the coding protocol is based on manifest attributes of the content that are not unique to either media (see Appendix).

The purpose of the content analysis is to discern whether the BP disaster was covered as an isolated, episodic accident, or tied to larger, thematic questions concerning the environmental, health, and economic impacts of the oil spill; corporate responsibility, of both BP and the entire oil industry; government oversight and regulation; and future environmental and energy policy.

The protocol for coding news stories focused on the first four paragraphs of a story substantially about the oil spill (Tweets were coded in their entirety), a commonly-used coding strategy (see Griffin & Dunwoody 1995, 1997). It is assumed that the first paragraphs of a story contain both the story's "lead," typically a one-sentence introduction that states the main purpose of the story, as well as the story's "nut graf," a longer summary of the story's main points (see Yopp, McAdams, and Thornburg, 2010, for a discussion of these key elements of a news story). Not all stories that made substantial mention of the oil spill were *only* about the oil spill. The spill, for example, occurred during political campaigning in the run-up to the 2010 mid-term elections. Thus, there were many campaign stories in which the oil spill was one of several issues that candidates discussed — and not necessarily the first issue they discussed. In such instances, coders were instructed to code up to the first four consecutive paragraphs

substantially about the oil spill. Not every story contained four consecutive paragraphs about the oil spill; thus in some instances coders coded one, two, or three paragraphs.

The challenge with coding Twitter is not condensing the content into digestible units of analysis, but rather inferring the author's intention from 140-character status updates. The coding of these messages, however, was based only on the manifest content of the messages themselves, rather than efforts to infer the author's intentions by also coding content linked to in the Tweet.

Episodic/thematic frames. The primary variable of interest is whether journalists and Twitter users framed the BP oil spill as an episodic or thematic story, using the typology originally developed by Iyengar (1991). Iyengar defined an episodic frame as focusing on a single event, where a thematic frame examines broader trends and implications beyond an isolated incident. Only the first mention of either an episodic or thematic frame was coded present/absent.

Linkages. In addition to simply coding if a story used a frame that connects a story to larger thematic concerns, this study catalogued which broader concerns were raised in the coverage. Griffin and Dunwoody (1995) coded whether or not a newspaper story contained a "risk linkage," that is, whether an issue involving contamination was connected in the coverage to issues of human health. This study builds upon Griffin and Dunwoody's (1995) idea of linkages, though it includes a larger list of potential linkages. They include whether the story focuses on BP's role in the spill, or the spill's effect on BP (such as the effects of the spill on the company's share prices); whether the story contains an "other" oil industry link, such as the effect of the spill on off-shore oil drilling generally; whether the story focuses on governmental regulation or oversight, either in

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terms of its role prior to the BP disaster, or government regulations, including the moratorium on off-shore oil drilling, following the Deep Water Horizon explosion; whether the story links the spill to potential environmental or health impacts, such as the effects on wildlife, or the mental health impacts of the spill on Gulf Coast fishermen; whether the story mentions implications for energy and environmental policies, such as the effects of the spill on the future of alternative sources of energy; or whether the story discusses economic links, which discuss the spill in terms of its impacts on businesses, stock prices, the general economy, etc.

Evaluative tone. Evaluative tone is used to measure the degree to which the media framed the BP oil spill negatively. While this study is not an agenda-setting study, this portion of the coding protocol is closely related to second-level agenda-setting: the idea that the media indicate not only what to think about (first level agenda setting), but *how* people should view those events covered in the news (Hester & Gibson, 2003; Kiousis, 2004; Sheafer, 2007). Evaluative tone – whether news coverage of an issue is positive, negative, or neutral – is one story attribute that is the focus of second-level agenda setting studies (Kiousis, 2004; Sheafer, 2007).

In the case of the BP oil disaster it might be hard to imagine the media framing the crisis positively. However, Hester and Gibson's (2003) study of the media's second-level agenda setting effect on consumers' economic evaluations raises the possibility that there might be such as thing as "good bad news." They evaluated the tone of the media's coverage not in terms of whether the media emphasized market expansions or contractions, but rather whether a particular change in the market was portrayed as being desirable or undesirable. Thus, "good bad news" occurs when the market contracts, but

media coverage focuses on the fact that the markets did not contract as much as expected, or that despite the contraction the market still outperformed analysts' expectations.

Applying this same "good bad news" concept to analyzing the evaluative tone of media framing of the BP oil spill, positive frames are those that emphasize desirable outcomes. Desirable outcomes include BP making progress on capping the well, the fact that the ecological effects of the oil spill were not as bad as they could have been, etc. Negative frames are those that emphasize negative outcomes — setbacks for BP's efforts to cap the well, ecological impacts of the oil spill on Louisiana's fragile wetlands, etc. Neutral frames either did not mention either positive or negative outcomes, or mentioned both simultaneously.

Characters. Lastly, coders recorded whether different "official" and "unofficial" characters were used in newspaper and Twitter coverage of the BP oil spill. Characters are any individual or organization mentioned in a Tweet or the first four paragraphs of a news story substantially about the BP oil spill. If both an organization, for example, the U.S. Congress, and more specific members of that organization, for example, individual congressmen, were mentioned, only the more specific individuals were coded.

Official characters included BP and other oil industry representatives (including representatives of industry lobbying organizations); elected officials; government officials that are part of an environmental or health agency, such as the Environmental Protection Agency; regulatory and/or enforcement officials, such as officials with the Minerals Management Service; other government officials, such as those serving with the Coast Guard; and other characters that have some sort of official involvement with/jurisdiction over some aspect of the oil spill and response, including organizations

such as local chambers of commerce who were regularly called on to offer official comment on the economic impacts of the spill.

Unofficial characters include environmental or health organizations and individual environmental activists; characters affiliated with other non-governmental agencies, such as local food banks, which provided assistance to families struggling with the economic impacts of the spill; those who volunteered to participate in the clean-up effort; independent scientists and other academics commenting on scientific or social-scientific research related to the spill; other independent experts, such as legal experts commenting on BP's legal liabilities; individual fishermen, local business and oil industry employees (who were not commenting officially on behalf on an oil company) and other local citizens and visitors who were used for "man-on-the-street" commentary.

Each category of character was coded as being either present or absent.

Inter and intracoder reliability. While the content analysis was conducted by a single coder (Coder 1), a second individual (Coder 2) coded a randomly-selected sample of 10% ($N = 100$) of the newspapers stories and 10% ($N = 100$) of the Tweets in order to establish intercoder reliability. Coder 1 also re-coded the sample of newspaper stories and Tweets at the end of the study and measured *intra*coder reliability at Time 1 and Time 2 to make sure that the application of the coding protocol had remained consistent.

Coding reliability was measured based on simple-agreement and Krippendorf's alpha, which is perhaps the most robust, widely accepted measure of coding reliability (Potter & Levine-Donnerstein, 1999; Hayes & Krippendorf, 2007). The latter takes into account the variables' levels of measurement and controls for chance agreement between the coders in calculating reliability. An alpha of .80 or above is typically considered an

acceptable level of coder agreement; alphas .70 and above are considered by some to be acceptable for exploratory studies (Neuendorf, 2002). Tables 3 and 4 display the intercoder and intracoder reliability results respectively. Originally, characters within each category were going to be recorded as a ratio-level measure. However, most Tweets only had a single character in a given category (and often only one character total) due to the 140-character limit on Tweets. For the sake of a valid comparison between Tweets and news stories, it also makes sense to use a dichotomous present/absent variable for coding characters in news stories.

To improve reliability, several categories of characters were also collapsed: local business employee/owner, fishermen, and oil industry employees were originally coded as separate categories. However, there was ambiguity, for example, as to whether to code a charter fishing boat captain as a fisherman or a local business owner. There was also some ambiguity in coding the difference between local businesses, which might include businesses that serve the oil industry, and oil industry employees (this category was also infrequent). Thus, local business employee/owners, fishermen, and oil industry employees were collapsed into a single category. With these adjustments, intercoder reliability exceeded the .80 category for all of the variables that are used to answer the research questions and test hypotheses (see Table 3). Further conclusions about the data based on variables that failed to meet the .80 cut-off should be interpreted cautiously. Intracoder reliability exceeded the .80 cut-off for all variables (see Table 4).

Measuring Structural Pluralism

Despite the wide use of, and support for, Tichenor et al.'s (1980) structural pluralism framework (Donohue et al., 1985; Griffin & Dunwoody, 1995, 1997; Hindman

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et al., 1999; McCluskey et al., 2009), it has also come under some poignant, though

underdeveloped criticism (Gandy, 1999). The criticism perhaps stems from the fact that

Tichenor et al. (1980) originally defined structural pluralism in terms of the "*potential*

sources of organized social power" (p. 16, emphasis added). Yet, later studies have

tended to gloss over the subtle, but important distinction between real and potential

power. Griffin and Dunwoody (1995), for example, assert that "Scholars have used the

concept 'community pluralism' to represent the *distribution of power* in a community"

(p. 253). The problem with this statement is that the U.S. Census data Griffin and

Dunwoody (1995) used to measure structural pluralism cannot capture the distribution of

social power. As Gandy (1999) points out, for example, the mere presence of black

people does not guarantee their proportional representation in positions of power, such as

city councils (though Gandy (1999) did find that there is a relationship between the

proportion of black residents and the probability of electing a black mayor). Thus,

measuring the percentage of minority residents in a community cannot represent the

distribution of social power in that community. With slight modifications, however, U.S.

Census data can be used as Tichenor et al. (1980) suggested to represent "*potential*

sources of organized social power" (p. 16, emphasis added).

There may be more direct ways to measure the actual distribution of social power

within a community. Armstrong (2006), for example, designed a complicated survey

method to attempt to capture the relative representation of racial minorities among non-

political leaders (she also measured blacks' relative political power by measuring their

representation on city councils). She surveyed informants in local mayors' offices,

chambers of commerce, the United Way, schools superintendents' offices, and a

randomly-chosen hospital in a given community. She asked these individuals to name

five influential groups in the community based on three factors: competence, social

networking capability, and strong personality traits. Those groups named by the

informants were then contacted to tabulate the percentage of the groups' officers and

boards of directors who were black. This method produces a more direct measure of

blacks' relative social power, but such methods are not practical for larger-scale

comparative studies of community structure's effect on media content, which are made

feasible by the use of U.S. Census Data and other widely available data. Arguably,

Armstrong's (2006) method also does not capture the *distribution* of power, which is at

the heart of the structural pluralism concept: communities with city councils that are

completely black are no more pluralistic than those with city councils that are completely

white.

A common shortcoming of the different methods used to operationalize structural

pluralism is that the authors rarely have paused even to elaborate on the face validity of

the measures that they use to represent the underlying construct (Griffin & Dunwoody,

1995, 1997; Hindman et al., 1999; McCluskey et al., 2009). Tichenor et al. (1980) at least

provided some data that showed their operationalization of the construct based on the size

of a community's population and data from the telephone book. This data had some

convergent validity; their operationalization correlated with theoretically related

concepts.

Tichenor et al. (1980) asked residents in four communities, three of which were

low in pluralism and one which was a larger urban community, about their perceptions of

how a decision would be made affecting water quality "around here." Those living in the

less pluralistic communities were more likely to expect that a small number of individuals would take part in making the decision and that only one or two organizations or government agencies would have a hand in the decision (i.e., these residents perceived that power was more concentrated among a small group of elite actors, as Tichenor et al. (1980) theorized it would be in a less pluralistic community). Residents in the most pluralistic community were more likely to believe that "much attention" would be given to public opinion before a decision was reached. They also asked residents of one large and one small community about the distribution of scientific information concerning local contamination. Residents in the larger community were significantly more supportive of distributing scientific information and having a public debate about environmental issues, even if it would lead to additional conflict within their community.

Griffin and Dunwoody (1999) also asserted that their measures of structural pluralism based on U.S. Census data have face validity, though they offer no explanation. To the contrary, one might argue that their data lacked face validity. Measures of structural pluralism, based on Tichenor et al.'s (1980) definition, should capture the extent to which there are *multiple* sources of potential organized power. Yet, scholars, including Tichenor et al. (1980), have frequently measured structural pluralism as the presence of a single group, such as the percentage of black residents (Hindman et al., 1999). Yet, there are communities, particularly in the American south, where the majority of residents are black. These communities are no more pluralistic than those communities where the majority of residents are white; there cannot be multiple potential sources of social power if there is only a single group.

Additional research needs to be conducted to establish the construct validity of structural pluralism measures. Such a project is beyond the scope of this dissertation. However, it is possible to at least operationalize structural pluralism in such a way that it has additional face validity. First, in addition to clarifying that a structural pluralism measure reflects only the *potential* sources of social power, structural pluralism should be measured in relation to the presence of *multiple* groups (i.e., multiple sources of *potential* social power). Again, the presence of multiple groups does not guarantee that those groups share social power equally. However, social power cannot be distributed if there is only one group in the population. With *at least* two groups, however, social power has the *potential* to be distributed within the community.

Given this logic, Blau's (1975, 1977) diversity index ($Diversity = 1 - \sum_{i=1}^{R} P_i^2$, where P_i is the proportion of the population in a given category/group) can be used as a measure of the potential sources of organized social power in a community. The index measures the probability, on a 0 to 1 scale, that two individuals in the population, drawn at random (with replacement), are from two different groups. It is a measure of the distribution of the population across different social groups; the higher the Blau index value, the greater the *potential* distribution of social power.

A second potential problem with current measures of structural pluralism as applied to journalistic dependent variables is the role of population. As Demers (1994b) argues, population is a good measure of structural pluralism in the U.S., more specifically the specialization of labor and social and cultural heterogeneity. Indeed, Tichenor et al. (1980) reported that the correlation between population and the other structural pluralism measures is $r = .75$. That is problematic when applied to journalism, because population

can have effects on the dependent variables that are theoretically unrelated to the differentiation in the potential sources of organized power in a community.

For example, population is strongly correlated with circulation (according to Tichenor et al. (1980), as high as $r = .84$), and circulation is in turn strongly correlated with reporting resources. Demers (1994b) cited studies that found that the correlation between circulation and number of editorial employees is as high as $r = .94$, which is in turn correlated with the dependent measures of some structural pluralism studies.

For example, Griffin and Dunwoody (1997) found a positive relationship between newspaper circulation and whether or not a newspaper covered environmental contamination using a science frame. They suggest that this is because the use of science frames requires the allocation of more reporting resources. Thus, one could question if effects attributed to structural pluralism really are due to the differentiation in the potential sources of organized power in a community, or if newspapers in more pluralistic communities report more on conflict simply because they have more resources and report more on *everything*.

Population is, however, an important component of structural pluralism. Thus, one would not want to drop it completely from one's measure of structural pluralism. In this study, to preserve the easily comprehended 0-1 scale of the Blau index, population was calculated as a percentage of Houston, Texas's population, the largest city in the sample.

The indicators of structural pluralism used in the final index, which have also been used in previous structural pluralism studies, include population (Demers, 1994a; 1994b; Donohue et al., 1985; Griffin & Dunwoody, 1995, 1997; Hindman et al., 1999;

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McCluskey et al., 2009; Tichenor et al., 1980), race (Armstrong, 2002; Griffin & Dunwoody, 1995, 1997; Hindman et al., 1999), educational attainment (Hindman et al., 1999), income (Donohue et al., 1985; Hindman et al., 1999; McCluskey et al., 2009), and major industry sectors (Donohue et al., 1985; McCluskey et al., 2009). These measures were taken from the 2005-2009 American Community Survey (ACS) 5-Year Estimates, which were used because they cover communities of all sizes, meaning there are no missing data (U.S. Census Bureau, 2010). Data were collected based on the counties where journalists work and Twitter users live, because the county is a better geographic representation of a media market than an individual city.

Other than population, each of these measures was broken into discrete groupings and then Blau's index was used to measure the distribution of the population across these groups. Race was divided into white and non-white. Educational attainment was broken down into less than high school, high school graduate, some college (including associate's degree), college graduate, and advanced degree (master's, J.D., Ph.D. etc.). Income was broken down roughly based on the quintile distribution of the median U.S. household income: less than $19,999; $20,000-34,999; $35,000-49,000; $50,000-74,999; and over $75,000. The percentage of the population employed in different industry sectors was broken down according to classification of major industry sectors used by the federal Bureau of Labor Statistics (2011): Goods-producing (construction and manufacturing), services-producing (information services, transportation, retail trade, wholesale trade, etc.), and agriculture.

To make sure that those communities that end up ranking highest in their degree of structural pluralism are not simply the largest, but also rank highly on other indicators

of the distribution of potential social power, instead of simply adding the structural pluralism measures together to create a single structural pluralism index as others have done (Tichenor et al., 1980; McCluskey et al., 2009), the measures were added and then divided by the total number of items in the scale (5) to give each pluralism measure equal weight in the final index ($M =.399$, $SD =.067$).

Economic Reliance on the Oil Industry

Following Griffin and Dunwoody (1995), economic reliance on the oil industry was measured as the percentage of the local workforce employed in "mining, quarrying, and oil and gas extraction" industries, according to the ACS ($M = .006$, $SD = .014$) (U.S. Census Bureau, 2010). This measure covers a broader swath of employment outside the oil industry. However, the oil industry is dominant in the Gulf Coast region. Thus, the oil industry will comprise a majority of those employed in this larger category. For the sake of brevity, this measure is referred to as the percentage of the workforce employed in the oil industry for the remainder of the dissertation.

A more direct measure of the economic impact of the oil industry on the local economy — such as the percentage of the economy's GDP contributed by the oil industry, which is likely to be much greater than the percentage of the workforce employed in the oil industry — would be a preferred measure of a community's economic reliance on the oil industry. This information is available from the Bureau of Economic Analysis (BEA) at larger geographic levels (i.e., for individual states), but the BEA has an agreement to restrict the availability of this data at smaller geographic levels in order to protect data on individual companies (Bureau of Economic Analysis, 2011).

Data Screening & Transformations

Prior to conducting the data analysis, the data were screened for any data entry errors; large numbers of missing data; non-linearity in the pairwise plots; and normal distributions of the continuous variables (see Tabachnick & Fidell, 2007, for data screening recommendations). There were no obvious data entry errors, nor were there large numbers of missing data. There were no missing data for the community-level demographic variables, or the content analysis variables.

There were 15 cases (3 newspaper stories and 12) that were missing data for the survey measures. None of the variables, however, were missing for more than 5% of the cases. With such a small number of missing cases, the most conservative approach to dealing with these cases is to delete them before performing multivariate analyses (Tabacknick & Fidell, 2007). Thus, the multivariate analysis included 997 newspaper stories and 988 Tweets.

With the exception of the percentage of the local workforce employed in the oil industry (skewness = 6.477, *SE* = .121, kurtosis = 56.227, *SE* = .242) and a community's degree of structural pluralism (skewness =1.395, *SE* = .121 kurtosis=1.847, *SE* = .242), the continuous variables were normally distributed.

Frequently census measures are non-normal. In this instance, structural pluralism is not severely skewed or kurtotic. However, a secondary problem with census measures is that the error associated with these variables is also positively correlated with the size of the variable (i.e., the larger a city's population, the greater the error in the estimate of the population). Log-transforming census measures can address both their non-normal distribution, and their correlated measurement errors (see Tabacknick and Fidell, 2007, pp. 88-86, for a discussion of commonly-used data transformations). Log-transformations

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improve the normality of a positively skewed variable; the error term of a log-transformed variable also becomes a constant percentage of the measure. Thus, both the percentage of the local workforce employed in the oil industry and communities' degree of structural pluralism were log-transformed prior to conducting multivariate analyses. Because one cannot take the log of zero, and some communities in the sample had zero percent of their workforce employed in the oil industry, a constant of .0001 was added to the score before it was log-transformed.

CHAPTER 5

RESULTS

Journalists' and Twitter users' coverage of the BP oil spill is summarized as part of the study's exploration of the formal research questions and tests of the hypotheses (see also Table 5). However, before presenting these results, it is worthwhile to explore some key characteristics of the individual journalists and Twitter users, as well as their communities, which may help illuminate why the crisis was covered by both groups in the manner it was.

The average journalist in the final sample is a white (83.5%, $N = 137$) male (54.3%, $N = 89$) reporter (76.8%; $N = 126$), who is 43 years old and leans slightly left politically ($M = 3.410/7$, $SD = 1.090$). He holds a bachelor's degree in journalism (69.5%, $N = 114$) and has been a reporter for 20 years, and has worked at his current newspaper for 11. He makes between $40,000 and $50,0000 a year. This profile is very similar to Weaver et al.'s (2007) national survey of journalists.

Among those reporters who covered the BP oil spill, 26% had specialized training in covering either energy ($N = 17$) or environmental ($N = 25$) issues; fewer than 13% were energy ($N = 6$), environmental ($N = 12$) or outdoor reporters ($N = 3$). The majority (55%) of reporters who covered the oil spill were political ($N = 26$), general assignment ($N = 25$), business ($N = 22$), and "cops and court" reporters ($N = 17$).

As shown in Tables 1 and 2, these reporters had a mild degree of concern for the state of the environment ($M = 3.767$, $SD = .570$). They had little affinity for the oil industry following the BP oil spill ($M = 2.681$, $SD = .563$).

The 164 journalists in the sample represented 45 newspapers in 44 different Gulf Coast communities. For those 33 newspapers for which data were available in the 2009 Editor and Publisher's yearbook, the newspapers' weekday circulations ranged from 9,872 to 507,437 ($M = 123184.550$, $SD = 115867.230$). Thus, this study likely over-represents large newspapers, though data are primarily missing for smaller newspapers in the sample, which suggests that small-circulation newspapers may be represented to a greater extent in the data than the mean suggests.

The majority of Twitter users in the sample were also male (57.7, $N = 138$) and white (82.4%, $N = 196$). The Twitter users, however, are significantly younger than the journalists (journalists: $M = 43.42$, $SD = 13.275$; Twitter users: $M = 39.46$, $SD = 10.423$, $t(283.995) = 3.145$, $P = .002$, equal variances not assumed). They also earned significantly *more* money than the journalists, with an average annual income in the $50,000 to $60,000 range, the largest difference between the two groups being the number who made more than $80,000 annually. While only 10.6% ($N = 16$) of the journalists were in the highest income category, 35.4% ($N = 75$) of Twitter users made more than $80,000. The most frequent occupations among the Twitter users were advertising/marketing/public relations (26.1%, $N = 62$), journalism/media/publishing (11.7%, $N = 28$), and IT/technology/software development (10.8%, $N = 26$). Only 16.7% ($N = 40$) of Twitter users worked in non-professional occupations, including creative occupations (music/art/design, etc.) (5%, $N = 11$), tourism/hospitality (2%, $N = 5$), and

"other" non-professional occupations (10%, $N = 24$). Only three of the Twitter users worked in the oil industry.

Like journalists, Twitter users also leaned slightly left, albeit significantly less so than the journalists ($M = 3.75/7$, $SD = 1.508$, $t(400.697) = -2.561$, $P = .011$). There were no significant differences in the two groups' attitudes toward the environment, or their support for the oil industry following the BP oil spill. However, it is worth noting that even where journalists and Twitter users did not differ significantly, the statistics for the Twitter users had significantly larger standard deviations, which suggests that the Twitter users represent a more diverse group, though that diversity primarily reflects more cases at either extreme of a measure. That is, Twitter users were more polarized (as an example, Figure 3 shows the distribution of journalists' political ideologies compared to those of Twitter users).

The Twitter users in the sample had an average of 3,589 followers (range = 34, 119,420, $SD = 11920.168$) on the social networking website. The 240 Twitter users in the sample represented 51 unique Gulf Coast communities (both samples together represented 65 unique communities). Twitter users' and journalists' communities did not differ significantly from one another, either based on the percentage of the local workforce employed in the oil industry (journalists: $M = .006$, $SD = .011$; Twitter users: $M = .007$, $SD = .025$; $t(402)= -.729$, $P =.466$) or in terms of the communities' degree of structural pluralism (journalists: $M = .395$, $SD = .074$; Twitter users: $M = .401$, $SD = .061$; $t(305.684)= -.745$, $P = .457$).

Hypotheses & Research Questions

$\mathbf{H_1}$ predicted that newspaper coverage of the BP oil spill would be more likely to focus on the government's, rather than BP's, role in the oil spill. As shown in Table 5, of 1,000 newspaper stories, 31.8% ($N = 318$) focused primarily on the government's role in the disaster; 15.5% ($N = 155$) focused primarily on BP. A chi-square test was used to test whether the frequency of stories that did and did not have a government linkage matched the expected frequency if government linkages were equally frequent in the newspaper coverage of the BP oil spill as BP linkages. The chi-square test revealed that journalists were significantly more likely to focus on the government's, rather than BP's, role in the disaster ($\chi^2(1, N = 1000) = 202.856, P < .001$). Thus, $\mathbf{H_1}$ is supported.

$\mathbf{R_1}$ asked what larger issues were raised in newspaper coverage of the BP oil spill. Table 5 shows the number of stories in each subject category. The four most common "linkages" were to government regulation/oversight (31.8%; $N = 318$); environmental/health risks (18.9%; $N = 189$); "other"[2] (16.7%; $N = 167$); and BP (15.5%; $N = 155$). The *least* frequent linkage was to "environmental/energy policy" (1.3%; $N = 13$), which illustrates the lack of coverage of the critical energy policy questions Freudenburg and Gramling (2011) suggested should be asked in the wake of the BP oil spill.

$\mathbf{R_2}$ asked to what extent was newspaper coverage of the BP oil spill framed negatively. Given that the oil spill was one of the worst environmental disasters in U.S. history – and that journalists are sometimes accused of overemphasizing negative news – it is perhaps surprising that only 49.9% ($N = 499$) of stories were framed negatively,

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[2] "Other" stories were primarily about the summer hurricane season, including frequent updates about how specific storms could change where the oil washed ashore and affect the effort to cap the leaking well, particularly during Hurricane Alex, June 25-July 2, 2010, and Tropical Storm Bonnie, July 22-July 24, 2010.

36.8% ($N = 338$) were neutral, and 13.3% ($N = 133$) focused on positive developments related to the oil spill (see Table 5).

H₂ predicted that episodic frames would be more frequent than thematic frames in newspaper coverage of the BP oil spill. As shown in Table 5, of 1,000 newspaper stories, 94.1% ($N = 941$) were framed episodically; only 5.9% ($N = 59$) were framed thematically. According to a chi-square test, which was based on the expectation that the frames were used equally as frequently, journalists did use a significantly greater number of episodic frames in their coverage of the BP oil spill ($\chi^2(1, N = 1000) = 774.40$, $P < .001$). Thus, **H₂** *is supported.*

H₃ predicted that official characters would be more prominent than unofficial characters in newspaper coverage of the BP oil spill. As shown in Table 5, 77.4% ($N = 774$) of stories mentioned at least one official character. Only 38.6% ($N = 386$) of stories mentioned an unofficial character. A chi-square test was used to test whether the frequency of stories that did and did not mention an official character matched the expected frequency if official characters were equally frequent in the newspaper coverage of the BP oil spill as unofficial characters. The chi-square test revealed that journalists were significantly more likely to mention official than unofficial characters in their coverage ($\chi^2(1, N = 1000) = 635.196$, $P < .001$).

R₃ asked if there were discernible stages in the coverage of the BP spill, the first marked by greater reliance on unofficial characters and critical frames, and the second by the emerging of an official interpretation of the crisis and a narrowing of those critical perspectives that are now viewed as being less legitimate. To answer this question, first it is necessary to divide the coverage into two periods. There is no theoretical guidance on

which to base such a division, but one would expect that President Obama's Oval Office address to the nation — the first in his presidency — on the BP oil spill would be significant in giving shape to the emerging official interpretation of the crisis. Thus, the events of the BP oil spill were divided into two periods, prior to the June 15, 2010 speech and afterward. Then chi-square tests were used to test whether the frequency of stories citing at least one unofficial source and stories focusing on negative events differed significantly before and after this speech.

As shown in Table 6, a significantly greater proportion of stories (44.8%; N=91) mentioned at least one unofficial character prior to President Obama's Oval Office address than afterward (37.0%, $N = 295$) ($\chi^2(1, N = 1000) = 4.168$, $P = .041$). As shown in Table 7, the proportion of stories that focused on negative events prior to June 15, 2010 (59.6%, $N = 121$) was also significantly greater than the proportion of stories that focused on negative events afterward (47.4%, $N = 378$) ($\chi^2(1, N = 1000) = 9.598$, $P = .002$).

Interpreting the shift in tone within the context of the coalescing official interpretation of the oil spill, however, should be done cautiously. A change in tone may also be caused by the progress BP made in capping the well after June 15, 2010, and the fact that as the crisis dragged on, it became clearer that the early worst-case fears about the oil spill's impacts would never materialize. However, it should be noted that as shown in Table 7, while there were significant differences in the proportion of negative stories before and after President Obama's speech, there were not corresponding significant shifts in the proportions of positive ($\chi^2(1, N = 1000) = 3.640$, $P = .056$) or neutral stories ($\chi^2 (1, N = 1000) = 3.43$, $P = .064$) before and after June 15, 2010.

There were no significant changes in the use of thematic frames in coverage of the BP oil spill before and after President Obama's Oval Office address (χ^2(1, N = 1000) = 1.802, P = .179); the proportion of stories that focused on the government's role in the disaster (χ^2(1, N = 1000) = .186, P = .666); or in the proportion of stories focusing on BP's role in the oil spill (χ^2 (1, N = 1000) = .287, P = .592).

Path analyses. The remaining hypotheses and research questions were tested by conducting path analyses in MPlus (version 6). Path analysis has the advantage of being able to test multiple regression models with more than one dependent variable with a single test of statistical significance. To test similar relationships using more basic regression methods would necessitate multiple regression models, which would compound the probability of committing a Type I error. Using MPlus also has distinct advantages: It can handle categorical dependent variables (i.e., BP linkage, government linkage, tone, thematic frames, and unofficial characters) and the user is able to group non-independent observations – in this instance more than one story or Tweet written by the same author – into clusters. Creating these clusters controls for the non-independence of the observations, producing robust standard errors (MPlus's process for estimating robust standard errors for non-independent observations is described in Asparouhov and Muthen, 2006).

Before analyzing the data in MPlus, the 15 cases with missing variables were deleted. Thus, the path analyses included 997 newspaper stories and 988 Tweets. A "cluster" variable was also created, which assigned a unique ID to each of the 164 journalists and 240 Twitter users. Designating a cluster variable in MPlus did not significantly change the size of the model's path coefficients, but it did result in smaller

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standard errors and more conservative estimates of the coefficients' statistical significance; the clusters also significantly improved the model's overall fit.

The hypothesized paths are shown in Figure 1. To answer the remaining hypotheses, this model was first fitted to the journalists' data. Then the model was fitted to the Twitter users' data to test if the model fit both groups; lastly it was fitted to both groups simultaneously in order to test for invariance of means/thresholds and path coefficients. This last step answers whether there are statistically significant differences between journalists' and Twitter users' attitudes toward the oil industry following the BP oil spill; their coverage of the spill; and those individual and community-level variables that shaped their attitudes and coverage.

The proposed model was a good fit for the journalists' data, $\chi^2(14) = 11.173$, $P = .672$, root mean square error of approximation [RMSEA] = .000, comparative fit index [CFI] = 1.000, Tucker-Lewis index [TLI] = 1.033. A non-significant chi-square indicates a good model fit, as does an RMSEA value of less than .05 and CFI and TLI values greater than .90 (Browne & Cudeck, 1993; Hu & Bentler, 1999). Table 9 displays the path coefficients for the model fitted to the journalists' data; Figure 2 shows the significant paths. It should be noted that the while the model was an acceptable fit, it did not explain a large proportion of the variance in journalists' use of government links ($R^2 = .004$), BP links ($R^2 = .046$), thematic frames ($R^2 = .026$), the tone of their stories ($R^2 = .036$), or their use of unofficial characters ($R^2 = .008$). The model did explain a much larger proportion of the variance in journalists' attitudes toward the oil industry ($R^2 = .416$).

H_{4a} predicted that the degree of structural pluralism in the community where a

newspaper is based would positively predict whether journalists focused their coverage on BP's role in the disaster. The path from structural pluralism to BP linkage was significant and positive ($\beta = .150$, $P = .011$); journalists in more structurally pluralistic communities were more likely to focus on BP's role in the oil spill disaster. Thus, **H₄ₐ** *is supported.*

H₄ᵦ predicted that the degree of structural pluralism in the community where a newspaper is based would positively predict journalists' use of thematic frames. The path from structural pluralism to thematic frames was not significant ($\beta = -.057$, $P = .313$). Thus, **H₄ᵦ** *is not supported*.

H₄ᶜ predicted that the degree of structural pluralism in the community where a newspaper is based would negatively predict the tone of journalists' stories. The path from structural pluralism to story tone was significant and negative: journalists in more pluralistic communities wrote more negative stories about the BP oil spill ($\beta = -.128$, $P = .031$). Thus, **H₄ᶜ** *is supported*.

H₄d predicted that the degree of structural pluralism in the community where a newspaper is based would positively predict newspapers' use of unofficial characters. The path from structural pluralism to unofficial characters was non-significant ($\beta = .035$, $P = .608$). Thus, **H₄d** is *not supported*.

R₄ asked whether the degree of structural pluralism in the community where a newspaper is based would affect the frequency with which journalists' coverage focused on the government's role in the disaster. The path from structural pluralism to government linkage was not significant ($\beta = -.066$, $P = .258$); structural pluralism did not significantly affect whether journalists focused on the government's role in the crisis.

H5a predicted that the degree to which the community where a newspaper is based relies on the oil industry for its economic base would negatively predict whether journalists linked their coverage of the oil spill to BP. The path from the percentage of the local workforce employed in the oil industry was not significant ($\beta = .121$, $P = .064$). Thus, **H5a** *is not supported*.

H5b predicted that the degree to which the community a newspaper is based relies on the oil industry for its economic base will negatively predict journalists' relative use of thematic frames. The path from the percentage of the local workforce employed the oil industry was significant; however, the coefficient was positive: journalists in communities that relied more heavily on the oil industry were *more* likely to use thematic frames, the opposite of what was hypothesized ($\beta = .138$, $P = .016$). Thus, **H5b** *is not supported*.

H5c predicted that the degree to which the community where a newspaper is based relies on the oil industry for its economic base will positively predict the tone of journalists' stories. The path from the percentage of the local workforce employed by the oil industry to story tone was not significant ($\beta = .111$, $P = .103$). Thus, **H5c** is *not supported*.

H5d predicted that the degree to which the community where a newspaper is based relies on the oil industry for its economic base would negatively predict journalists' use of unofficial characters. The path from the percentage of the local workforce employed in the oil industry to unofficial characters was not significant ($\beta = -.090$, $P = .088$). Thus, **H5d** *is not supported.*

R5 asked whether the degree to which the community where a newspaper is based

relies on the oil industry for its economic base would affect whether journalists focused their coverage on the government's role in the BP oil spill. The path from the percentage of the local workforce employed in the oil industry to government linkage was not significant ($\beta = .014$, $P = .843$).

H$_{6a}$ predicted that the degree of structural pluralism in the community where a newspaper is based will negatively predict journalists' attitudes toward the oil industry. The path from structural pluralism to journalists' attitudes toward the oil industry was non-significant ($\beta = .083$, $P = .381$). Thus, **H$_{6a}$** *is not supported*.

H$_{6b}$ predicted that the degree to which the community where a newspaper is based relies on the oil industry for its economic base will positively predict journalists' attitudes toward the oil industry. The path from the percentage of the local workforce employed in the oil industry to attitude toward the oil industry was significant: journalists in communities that rely more heavily on the oil industry for local employment held more positive views toward the industry ($\beta = .257$, $P = .001$). Thus, **H$_{6b}$** *is supported*.

H$_7$ predicted that journalists' political conservatism would positively predict their attitudes toward the oil industry. The path from journalists' political conservatism to their attitudes toward the oil industry was significant and positive: more conservative reporters held more favorable attitudes toward the oil industry ($\beta = .308$, $P < .001$). Thus, **H$_7$** *is supported*.

H$_8$ predicted that journalists' environmental ideologies would negatively predict their positive attitudes toward the oil industry. The path from journalists' environmental ideologies to their attitudes toward the oil industry was significant and negative: more

pro-environmental reporters held more critical attitudes toward the oil industry ($\beta = -.368$, $P < .001$). Thus, **H₈** *is supported*.

H₉ₐ predicted that journalists' positive attitudes toward the oil industry would negatively predict whether they would focus their coverage of the oil spill on BP's role in the crisis. The path from journalists' attitudes toward the oil industry to BP linkage was not significant ($\beta = -.034$, $P = .703$). Thus, **H₉ₐ** *is not supported*.

H₉ᵦ predicted that journalists' attitudes toward the oil industry would negatively predict their use of thematic frames. The path from journalists' attitudes toward the oil industry to thematic frames was significant and negative: journalists who held more positive attitudes toward the oil industry were less likely to use thematic frames ($\beta = -.125$, $P = .027$). Thus, **H₉ᵦ** *is supported*.

H₉c predicted that journalists' attitudes toward the oil industry would positively predict the tone of journalists' stories about the BP oil spill. The path from journalists' attitudes to story tone was not significant ($\beta = .117$, $P = .073$). Thus, **H₉c** *is not supported*.

H₉d predicted that journalists' attitudes toward the oil industry would negatively predict their use of unofficial characters. The path from journalists' attitudes toward the oil spill to unofficial characters was not statistically significant ($\beta = .047$, $P = .501$). Thus, **H₉d** *is not supported*.

R₆ asked if journalists' positive attitudes toward the oil industry would affect whether they focused their coverage of the oil spill on the government's role in the crisis. The path from journalists' attitudes toward the oil industry to government linkage was not significant ($\beta = .019$, $P = .771$); journalists' attitudes toward the oil industry did not significantly affect whether they focused their coverage of the BP oil spill on the

government's role in the crisis.

H₁₀ predicted that community structure's indirect effects — via journalists' positive attitudes toward the industry — would be stronger than community structure's direct effects. Table 10 shows the direct and indirect effects of the community structure variables on journalists' coverage. In every instance, the direct effects are larger than the indirect effects; furthermore, none of the indirect effects are significant. Thus, **H₁₀** is *not supported.*

Group differences. The remaining research questions involve comparing parameters of the path model between journalists and Twitter users. Before comparing the two groups, it is necessary to establish that the model specified for journalists is also an acceptable fit for Twitter users by fitting the model to data that include only Twitter users (see Table 11). The chi-square was non-significant ($\chi^2(14) = 22.580$, $P = .068$), indicative of an acceptable model fit. The root mean square error of approximation (RMSEA = .018) also indicated a good model fit. The comparative fit index (CFI = .855) and the Tucker-Lewis index (TLI = 0.544), however, failed to meet the suggested .90 cut-off (Hu & Bentler, 1999). Nonetheless, because the other tests of model fit indicate an acceptable model, the analysis proceeded, particularly since starting with a good-fitting baseline model that includes both groups is more important to the validity of analysis of group differences. The model explained 91.5% of the variance ($R^2 = .915$) in Twitter users' post-oil spill attitudes toward the oil industry, but only 1.7% of the variance ($R^2 = .017$) in Twitter users' use of thematic frames; 12.7% of the variance ($R^2 = .127$) in the tone of their Tweets; .8% of the variance ($R^2 = .008$) in their use of unofficial characters;

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2.7% of the variance ($R^2 = .027$) in Twitter users' use of BP linkages; and 9.1% of the variance ($R^2 = .091$) in Twitter users' use of government linkages.

To test for group differences, first the specified path model is estimated for both groups, allowing the model's parameters to vary between the two groups (Model 1). As shown in Table 12, this baseline model was a good fit, $\chi^2(28) = 33.190$, $P = .229$, RMSEA = .014, CFI = .969, TLI =.904. Then the parameters of interest are constrained to be equal between the two groups: **R$_7$** and **R$_8$** are answered by constraining the groups' means and thresholds[3] to be equal (Model 2); **R$_9$** is answered by constraining the path coefficients to be equal between the groups (Model 3). The chi-square of the more constrained model is compared to a less constrained model using a chi-square difference test to examine if constraining the parameters results in a significant loss of goodness-of-fit (see Table 12). A significant change in goodness-of-fit between the models indicates a significant difference in the constrained parameters between the two groups.

If constraining a group of parameters, e.g. means/thresholds, significantly changes the model's fit, individual constraints are relaxed in order of the absolute value of the largest derivatives[4] of the individual parameters, until there is a non-significant difference between the more constrained and the less constrained model. The individual parameters that have been relaxed are significantly different between the two groups; the individual parameters that remain constrained are not significantly different between the two groups.

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[3] MPlus analyzes categorical dependent variables by defining underlying continuous latent response variables. Thresholds are the value of the latent response variable at which cases transition from one category, for example, from being an episodic story to a thematic story.

[4] For clustered data with categorical dependent variables, MPlus uses a weighted least-squares with mean and variance adjustment (WLSMV) estimator. Modification indices are not available in MPlus for estimators other than maximum likelihood estimators. However, derivatives are unscaled modification indices.

Put a different way: each parameter estimated by the path model represents a characteristic upon which the two groups could be judged to be either similar or different. When comparing groups, it is most efficient to start with the assumption that *all* of the characteristics pertinent to the researcher's reason for making the comparison are equal. It is often the case, however, that a significant loss of goodness of fit signals that two groups are not identical based on *all* of their characteristics. The two groups may, however, be identical based on *some* of their characteristics, while they differ on others.

To discover which individual characteristics differ between the two groups, one-by-one individual characteristics that most strain the comparison, indicated by the largest derivative values, are "relaxed" – that is, they are no longer assumed to be equal. The hypothesis that is being tested becomes that the two groups are equal, except for the individual characteristic that is no longer assumed (i.e., constrained) to be equal across the groups. This hypothesis is confirmed if this revised model does not result in a significant loss of goodness of fit when compared to the "less-constrained" model. The researcher can conclude that those characteristics still constrained between the two groups are equal, or conversely that those characteristics that were relaxed are significantly different between the two groups.

R_7 asked if there were significant difference between Twitter users' and journalists' attitudes toward the oil spill. R_8 asked if there were significant differences between Twitter users' and journalists' coverage of the oil spill. To answer these questions, the means of journalists' and Twitter users' attitudes toward the oil industry and the tone of their stories/Tweets were constrained to be equal, as were the thresholds for the presence of unofficial characters, and the use of thematic frames (Model 2). As

shown in Table 12, constraining these parameters did not result in a significant loss of model fit ($\Delta\chi^2(8) = 10.100$, $P = .258$. Thus, there are no significant differences in journalists' or Twitter users' attitudes toward the oil industry; there are also no statistically significant differences in either group's coverage of the BP oil spill – in terms of the likelihood that *individual* journalists' and Twitter users' would use BP and government linkages, negative frames, thematic frames, or unofficial characters.

That said, this path model uses the individual journalist or Twitter user as the unit of analysis. Because these individual journalists and Twitter users wrote differing numbers of stories and Tweets, it is possible, for example, that the total proportion of negative stories and Tweets differ from one another, even though the probability that an individual Twitter user or journalist would frame their story negatively does not differ. Thus, to further investigate possible differences in the aggregate coverage between the two groups, it is necessary to perform a series of chi-square tests between the two groups to see if total coverage differed between the two media using the individual stories and Tweets as the unit of analysis.

As shown in Table 13, there were significant differences in the proportion of newspaper stories and Tweets that focused on the government's ($\chi^2(1, N = 2000) = 34.326$, $P < .001$) and BP's ($\chi^2(1, N = 2000) = 77.590$, $P < .001$) roles in the disaster; the number of stories and Tweets framed thematically($\chi^2(1, N = 2000) = 26.738$, $P < .001$); the proportion of stories and Tweets that focused on negative news related to the oil spill($\chi^2(1, N = 2000) = 10.130$, $P = .001$); and the proportion of stories and Tweets that used unofficial characters ($\chi^2(1, N = 2000) = 109.137$, $P < .001$). Some of these differences, while statistically significant, are unremarkable; for example, only 7.1%

more Tweets were framed negatively. Tweets, however, are *twice* as likely to focus on

BP's role in the gulf oil spill (though less than one-third of Tweets (32.3%, $N = 323$)

focus on BP); and Tweets were *twice* as likely to be framed thematically (though Twitter

users still framed a very small proportion (12.6%, $N = 126$) of their Tweets

thematically); and *half* as likely to use unofficial characters. That said, it is also worth

noting that, as shown in Table 5, the basic patterns hypothesized for journalists held for

Twitter users: Twitter users focused more on the government's role than on BP's role in

the disaster; they used more episodic than thematic frames; and they were more likely to

rely on official than on unofficial characters.

R$_9$ also asked if there were significant differences in the social, economic, and

political factors that shaped Twitter users' and journalists' attitudes toward the oil

industry and the groups' coverage of the BP oil spill. To answer this question, using the

constrained model previously tested, the model's path coefficients were also constrained

(Model 3). Constraining the model resulted in a significant loss of goodness of fit

($\Delta\chi^2(19) = 42.993$, $P = .001$). Thus, model restrictions were relaxed to see if goodness-

of-fit would improve (i.e., not result in a loss of goodness-of-fit from the model in which

the means/thresholds were constrained).

The largest derivative for the constrained parameters was for the path from

attitudes toward the oil industry to thematic frames (.023). Thus, the constraint that this

coefficient be equal between the groups was relaxed (Model 4). When compared to the

model with means and thresholds constrained (Model 2), relaxing the constraint on the

path from attitudes toward the oil industry to thematic frames still resulted in a significant

chi-square difference test when compared to the model in which just the

means/thresholds were constrained to be equal ($\Delta\chi^2$ (18) = 31.504, P = .025). Thus, the constraint from the journalists' attitudes toward the oil industry to government linkages (derivative = .012) was also relaxed (Model 5). Doing so, however, still resulted in a marginally-significant loss of goodness-of-fit when compared to the less-constrained model (Model 2) ($\Delta\chi^2$ (17)= 27.277, P = 0.054). Thus, the constraint with the next-largest derivative (.011), for the path from attitudes toward the oil industry to BP linkages, was relaxed (Model 6). Doing so resulted in a non-significant chi-square difference test when compared to the model in which only the means and thresholds were constrained to be equal ($\Delta\chi^2$ (16) = 22.134, P =.139). Thus, with the exception of those three paths for which the constraints were relaxed, there were no significant differences in the factors that shaped journalists' and Twitter users' coverage of the BP oil spill.

The effect of the groups' attitudes toward the oil industry on their use of thematic frames did have significantly different effects on journalists' and Twitter users' use of thematic frames. While journalists' positive attitudes toward the oil industry made them significantly less likely to use thematic frames (β = -.125, P = .027), Twitter users with more positive attitudes toward the oil industry were *more* likely to use thematic frames (β = .135, P = .040). The groups also differed significantly in terms of how their attitudes toward the oil industry affected their focus on either BP's or the government's role in the oil spill crisis. Twitter users who had more positive attitudes toward the oil industry were *less* likely to focus on the role of BP (β = -.044, P = .020) and *more* likely to focus on the role of the government (β = .303, P < .001). The use of these two linkages among the Twitter users was significantly and negatively correlated (tetrachoric correlation = -.833, P < .001, see Table 8). Thus, it appears to an extent that the two linkages are substitutes

for one another — when writing about the failure to cap the leaking well, for example, Twitter users focus primarily on either BP *or* the government — and those Twitter users with more favorable attitudes toward the oil industry focus on the government's response to the crisis to shift attention away from BP. Journalists' attitudes toward the oil industry did not significantly affect their use of either BP (β = .-034, *P* = .703 or government linkages (β = .019, *P* = .771) (though BP and government linkages were also significantly and negatively correlated among the journalists, tetrachoric correlation = -.797, *P* < .001, see Table 8).

CHAPTER 6

DISCUSSION

As Freudenburg and Gramling (2011) wrote, the BP oil disaster is "a challenge to take a closer, more clear-eyed look at our [energy] policies…to respond to the oil-darkened waters with clearer thinking…" (p. 8). To the extent to there were "lessons to be learned" from the BP oil spill, however, they were not likely to be found in the Gulf Coast journalists' coverage that was studied as part of this dissertation. These journalists failed to raise the "big-picture" questions about society's reliance on fossil fuels, regulation of the oil industry, and future energy policies, which Freudenburg and Gramling (2011) suggested are necessary if a similar disaster is to be avoided in the future. Nearly all (94%) of journalists' stories were framed episodically, covering the BP oil spill as an isolated, episodic event, rather that as part of larger, systemic policy and regulatory failures to be remedied. Journalists did cover a range of topics beyond BP and the government's efforts to respond to the crisis and cap the leaking well. For example, approximately 19% of the newspaper coverage was about the environmental and health risks associated with the oil spill. However, due to the disproportionate number of episodic stories, very few of these environmental stories ($N = 189$) involved coverage of long-term impacts of the oil spill; only 21 environmental/health risks stories, 2.1% of the overall coverage, were thematic stories. Coverage of environmental issues primarily focused on daily reports of where oil was washing ashore and its short-term

environmental/health effects. There was almost zero coverage of the energy or environmental policy issues related to the oil spill ($N = 13$).

A plurality of journalists' coverage (49.9%, $N = 499$) of the BP oil spill did focus on negative news. However, it is surprising given the scale of the disaster, the environmental and economic consequences of the oil spill, and the ineffective responses by both BP and the Coast Guard, that journalists' coverage was not more negative. The lack of more critical coverage could be attributed partly to the fact that journalists mentioned unofficial characters, who are more likely to raise critical questions related to the oil spill, in only 38.6% ($N = 386$) of their stories (77.4%, $N = 774$ mentioned official characters). Environmental NGOs, activists, and volunteers were particularly marginalized in the coverage of the oil spill, mentioned in only 7% ($N = 70$) of the newspaper coverage.

The lack of more negative coverage could also reflect a concerted effort by some of the journalists in this study to strive for balance in their coverage, even when the objective facts of the story should dictate more negative coverage. In addition to framing the coverage less critically than the facts of the story might dictate, journalists were twice as likely to focus on the government's, rather than BP's, role in the disaster. Journalists may have focused more on the government's role in part because the government played a more public, transparent role in the crisis than BP, a foreign corporation. However, the pattern also reflects how negative attention and responsibility for the disaster were shifted away from BP and focused instead on the government.

Even if the journalists in this study were inclined to do so, however, one might wonder if these journalists would be equipped to cover the critical questions Freudenburg

and Gramling (2011) suggested should be asked in the aftermath of the BP disaster. Seventy-four percent of journalists lacked specialized training in covering either environmental or energy-related issues; fewer than 13% of the journalists covered energy or environmental beats. Considering journalists' training and assigned beats, it is little wonder there was a dearth of either thematic stories generally, or energy and environmental policy issues specifically. One might project that the amount of critical, big-picture policy coverage of similar crises in the future may even be scarcer as beat and investigative reporting are dismantled and more experienced journalists are laid off and accept buyouts to be replaced by less experienced, less expensive reporters, many just out of college (Walton, 2010).

The situation is already quite bleak, however, if one accepts that journalists have a surveillance function and had a responsibility to raise more critical questions related to the BP oil spill. Given the lack of this critical coverage, it would be surprising if the coverage by these Gulf Coast journalists instigated substantive, systematic changes to future energy policies, oil industry regulations, drilling practices, effective government oversight, or even preparedness for future oil spills. A year following the oil spill, the U.S. Congress had not passed any major bills related to the BP oil spill (Jaffe & Parkinson, 2011).

As expected, newspaper stories sampled in this study reflect general patterns in newspaper coverage of the BP oil spill more strongly than local variations based on the community structure of local communities. That said, however, local community structure still significantly predicted differences in journalists' coverage. As hypothesized, journalists in more pluralistic communities were more likely to focus on

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BP's role in the crisis and frame their coverage critically; that is, journalists in larger, more heterogeneous communities, where social power is potentially more dispersed, appear freer to be critical in their coverage of the oil spill, including toward the oil giant, than journalists in less pluralistic communities.

Journalists in communities that rely more heavily on the oil industry for local employment, however, were actually *more* likely to use thematic frames, which is opposite of what was hypothesized. According to Iyengar (1990; 1991; 1996) thematic framing is more likely to result in the audience attributing a societal problem to systemic failures, and Hart (2010) found that audiences exposed to thematic framing of an environmental issue were more likely to support additional environmental regulations. Thus, it was hypothesized that journalists in communities that relied more heavily on the oil industry for its economic bases would be *less* likely to frame the oil spill thematically (those journalists with more positive attitudes toward the oil industry were significantly *less* likely to frame the oil spill thematically). However, it could be that the oil spill is more salient in those communities that rely more heavily on the industry, and as a result, journalists in these communities are more likely to cover the big-picture, long-term issues associated with the oil spill than in communities where oil drilling plays a less important role in the local economy. Regardless, the data did illustrate that community structure does play a significant role in shaping newspaper coverage of the BP oil spill, consistent with previous studies (Tichenor et al., 1980; Donohue et al., 1985; Griffin & Dunwoody, 1995, 1997; Hindmant et al., 1999; McCluskey et al., 2009; Watson & Riffe, 2011).

What these previous studies have not addressed is *how* these community structure variables enter the news gathering process. This study attempted to build on the

theoretical understanding of this process, testing a model that suggested that as journalists are socialized into the local community structure, their own attitudes toward important social issues are molded to reflect the dominant social structure in which they are embedded, and that these attitudes in turn influence the stories journalists write. Journalists who lived in communities that relied more heavily on the oil industry for employment did have significantly more positive attitudes toward the oil industry following the BP oil spill; journalists with more positive attitudes toward the oil industry were also less likely to frame the BP oil spill thematically. This last finding supports the contention that journalists' coverage may be to some extent biased by their personal point of view. This study, however, generally found small and largely non-significant patterns of bias in these journalists' coverage.

There was also no evidence that journalists' personal point of view mediates the relationship between community structure and journalists' coverage. The indirect effects of community structure on journalists' coverage via their attitudes toward the oil industry were non-significant, and the direct effects were stronger for all paths in the community structure path model. Thus, this dissertation failed to add to scholars' understanding of how community structure's influence enters the news gathering process. The process by which these community structure variables affect news coverage deserves further investigation in future studies. Community structure is particularly deserving of further research because this study did show that the community structure model could be successfully extended to explain local differences in Tweets about the oil spill. Like journalists, Twitter users who live in more pluralistic communities were more likely to focus on negative news related to the BP oil spill.

Though the community structure variables tested did not explain a large percentage of the variance in journalists' or Twitter users' coverage of the BP oil spill, social structure and economic reliance on the oil industry did not necessarily play a small role in shaping coverage of the BP oil spill. It is possible that adding to and improving those measures used in this study – for example, measuring reliance on the oil industry using the percentage of the GDP contributed by the oil industry and more direct measures of the dispersion of social power within communities – may be able to explain additional *local* variation in journalists' and Twitter users' coverage. Certainly, there is more empirical work that can be done to validate existing measures of community structure – measures of structural pluralism, in particular. Within the existing measures' limitations, however, this dissertation makes two important points: first, census data can only be used to measure the *potential* distribution of social power; and second, measures of structural pluralism different researchers have used should be evaluated within the studies' proper historical and community contexts.

Beyond these individual community-level variables, however, journalists' coverage also reflects patterns that were predicted based on a more routinized social control/social maintenance function that transcends local geography, or any individual-level effects based on personal ideology and attitudes. It should also be acknowledged that these more general patterns in journalists' newspaper stories – and Tweets, for that matter – are inherently *conservative*. Not necessarily in the ideological partisan sense – there was significant evidence of a *very* slight ideological bias in the journalists' work – but in terms of reinforcing the status quo. Journalists treated the BP oil spill as an isolated, episodic event, relied most heavily on official characters, and were not as

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negative about the crisis as the facts of the story should have dictated. Certainly this conservative social maintenance/social control function outweighed any community-level or individual-level effects. Thus, while improving the local community structure model, which from the outset was expected to explain only a small proportion of the variance in journalists' coverage, may help explain additional local variance in media coverage, future studies should also explore those variables that shape media's social control/social maintenance function using other levels of analysis.

While this study was not able to illuminate how community structure variables enter the news gathering process, it was able to illustrate empirically that a crisis may have the positive effect of momentarily dislodging some reporting routines and temporarily affording an opportunity for typically marginalized unofficial and more critical perspectives to be represented in the news media's coverage. Graber (2009) describes the initial chaos that ensues after a crisis occurs as being a particularly low period for journalistic reporting, marked by reporting rumors and inaccurate information. Tichenor et al. (1980), however, hinted that the initial chaos following a crisis, before the official interpretation of a disaster starts to emerge, may have the positive effect of momentarily opening up the public discourse to a wider range of voices and critical perspectives. This study tested empirically whether there are at least two distinct periods of crisis reporting; the first marked by the inclusion of more non-official, critical voices prior to officials gaining control over the crisis, and the official interpretation of the crisis emerging, once again limiting what voice and perspectives are viewed as being legitimate.

This study did find some empirical evidence for two distinct periods of crisis reporting. Prior to President Obama's June 15, 2010, Oval Office address on the BP oil spill crisis, stories were slightly more likely to mention unofficial characters and to report negative news related to the oil spill. There was no theoretical guidance, however, as to which date to use to split coverage of the crisis into two periods (the Oval Office address was chosen from a timeline of events, simply because they represented the first major official comments on the oil spill and the government's response). The shift in tone before and after the speech may also be attributed to the fact that news related to the oil spill did objectively improve in the weeks and months following President Obama's Oval Office address. Nonetheless, these empirical findings suggest, while not dismissing any shortcomings in factual reporting that occur following crises, that these events may have a positive effect in terms of partially dislodging media routines and permitting, at least temporarily, a more inclusive discussion of society's problems. Whether there are distinct periods in crisis coverage and what effects those periods have on reporting of crises deserves further study.

What is most striking about this current study, however, are the similarities that were observed between journalists' and Twitter users' attitudes toward, and coverage of, the BP oil spill. One would expect some differences, particularly based on the content analysis variables, if only due to the difficulty of devising equivalent measures of content across stylistically very different media. However, individual journalists and Twitter users did not differ in their attitudes toward the oil industry, nor the likelihood that they would focus on BP or the government's role in the crisis; use thematic frames; focus on negative news related to the spill; or use unofficial characters in their stories or Tweets.

There were some statistically significant differences between overall newspaper and Twitter coverage of the BP oil spill: Tweets were less likely to use unofficial characters and more likely to focus on BP's role in the crisis, and be framed thematically. The latter is a bit counterintuitive: How is it that 140-character Tweets tackle more big-picture issues than news stories? Many Tweets, however, consist of links to newspaper stories and other information that Twitter users found intriguing. It could be that thematically-framed newspaper stories are slightly more likely to be Tweeted and re-Tweeted than are episodic stories, which would explain why a greater proportion of Tweets than newspaper stories were framed thematically.

It should be emphasized, however, that these small differences aside, Twitter and newspaper coverage of the BP oil spill followed identical patterns. It was hypothesized, for example, that more newspaper stories would be framed episodically than thematically: 94% of newspaper stories *and* 87.4% of Tweets were framed episodically. Furthermore, the factors that shaped individual journalists' and Twitter users' coverage were also remarkably similar.

Journalists and Twitter users did differ in how their attitudes toward the oil industry affected their use of thematic frames: journalists with more positive attitudes were *less* likely to use thematic frames; Twitter users were *more* likely to use thematic frames. This finding cannot be explained, except to suggest that perhaps there are real differences in how journalists and Twitter users frame issues that clash with their personal beliefs: journalists minimize these issues by treating them as episodic events. On the other hand, Twitter users who are more supportive of the oil industry — freer to be more brashly political — tie these issues to larger ideological arguments: further

government regulation will stunt the competitiveness of the U.S. economy; President

Obama strong-arming BP into establishing a government-controlled escrow account to

pay for the oil spill is only further evidence that he is a socialist; the fact that the worst

environmental fears did not materialize following the oil spill is only further evidence

that environmental concerns are overblown, etc. The other significant difference between

the two groups is that Twitter users with more positive attitudes toward the oil industry

were significantly more likely to focus on the government's role in the oil spill, and less

likely to focus on BP's. Journalists' attitudes toward the oil industry did not significantly

influence whose role in the crisis they focused on more frequently.

Generally speaking, however, the two groups are more similar than they are

different, undermining any notion that, at least in the context of Gulf Coast coverage of

the BP oil spill, that Twitter represented a counter public. Based on Fraser's (1990) and

Warner's (2002) definition of counter publics, if Twitter was a counter public one would

expect not only to observe differences in journalists' and Twitter users' attitudes toward

the oil industry, their coverage of the BP oil spill, and those individual and community-

level factors that influence their attitudes and coverage, but *radical* differences. A counter

public not only represents a different, often more inclusive point of view, but challenges

those constraints that limit debate in a mainstream public, in this instance mainstream

newspaper coverage of the BP oil spill.

Twitter does appear to be more inclusive, evidenced by the fact that when

compared to journalists, Twitter users' political and environmental ideologies, as well as

their attitudes toward the oil industry, have greater variances. These additional variances,

however, primarily represent greater numbers of individual Twitter users at either

extreme. Thus, Twitter could also be said to be more polarized, which reflects mainstream political discourse more than it challenges it. If one believes that discourse concerning important societal issues, including the BP oil spill, is too politically divisive, newspapers, which are supposed to be less ideological and are not shaped by authors' personal points of view to the same degree as Twitter users' (journalists' focus on either BP or the government's role in the oil spill was not significantly shaped by their attitudes toward the oil industry), are, perhaps, an important alternative to Twitter. However, while there were some statistically significant differences between journalists' and Twitter users' coverage of the oil spill, none of these differences were radical enough to support a contention that either medium is a counter public.

Future studies should explore at greater depth why and how journalists' and Twitter users' attitudes converge to be so similar. The current study's data, however, do suggest one possible reason that these journalists and the *most-followed* Twitter users are so similar: both groups represent a very similar social stratum. The average journalist and Twitter user were both white, male, professionals, who are slightly left of center politically, and have a mild degree of concern for the environment. Twitter users were, on average, slightly wealthier. Both groups' average income, however, exceeded the per-capita income of all of the Gulf Coast states (U.S. Census Bureau, 2012). That is, these journalists represent a privileged stratum of society, which is likely to have little incentive to radically challenge the status quo. These demographic similarities support Wu et al.'s (2011) contention that "while attention that was formally restricted to mass media channels is now shared amongst other 'elites,' information flows have not become egalitarian by any means" (p. 6). Future studies might investigate additional media-

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centric theories about why these journalists' and Twitter users' coverage are so similar, for example, inter-media agenda setting. However, the fact that professional journalists and mostly amateur Twitter users' coverage of the BP oil spill converge to the degree they do, could suggest that media institutions may be ancillary to more general sociological processes (i.e., the same sociological processes shape conversations about the BP oil spill at local bars, on Twitter, and on the nightly news), contrary to the assumption that media institutions and routines are central to shaping public information and knowledge (Tichenor et al., 1980). Put another way: the media's coverage may reflect social processes, specifically in regard to how that stratum of society that possesses more social influence relates to and reinforces power, rather than the media shaping those social relationships and processes. Thus, media-centric theories and research approaches (e.g., inter-media agenda setting), may not be the most fruitful for further understanding how and why newspaper journalists and Twitter users come to have very similar points of views on the BP oil spill.

The findings of this study, however, should be interpreted with caution due to the study's limitations, which in many ways are inevitable when studying a crisis that unfolds in real-time. In particular this study's time-sensitive tasks of collecting Tweets and surveying journalists and Twitter users as soon after the oil spill as possible required having to triage the need for efficiency and valid measurement, within the constraints of time and limited resources.

A significant limitation is that neither the journalists nor Twitter users in this study represent a scientific random sample. The Twitter users intentionally only represent those most-followed users that are likely to dominate discussions on the social media site.

But even from that list of most-followed users of the site, they were not randomly sampled. These users were not randomly sampled because this study relied on previously untested survey methods, including distributing 140-character survey invitations to the Twitter users via the social networking website. Because the potential response rate associated with using this strategy was unknown, one could not be confident that a random sample would yield a large enough sample of respondents and Tweets in order to model multivariate relationships between variables in the study (and one can use multivariate statistics to understand the pattern and strength of relationships between a study's variables, even if one's goal is not to make statistical inferences (Tabachnick & Fidell, 2007)). Because the response rate was low (16.6%) and the sample was non-random, one should be concerned about potential non-response bias. The problem with the Twitter survey data in particular is that there is not a known-population with which to compare the sample. The response to the journalist survey was also modest (32.3%), though the basic characteristics of the journalists mirrored those in Weaver et al.'s (2007) survey of journalists, which suggests that though this sample is also non-random, it is not necessarily non-representative. Both surveys, however, yielded sufficient samples to produce robust models of the relationships between variables within the samples. However, because the study uses non-scientific samples, conclusions about the relationships among these variables should not be generalized beyond these Gulf Coast newspaper journalists and most-followed Twitter users in the sample.

Another limitation of the data is that journalists and Twitter users were surveyed about attitudes that are presumed to have affected their coverage of the BP oil spill sometime after the event. Thus, it is possible that these data do not reflect relevant

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attitudes that could have shaped both journalists' and Twitter users' coverage of the oil spill. Journalists and Twitter users were also were not surveyed simultaneously. Thus, it is possible that the two groups' attitudes differed – perhaps Twitter users initially had stronger, more visceral attitudes toward the oil industry – but since they were surveyed months later than journalists, Twitter users' attitudes mellowed to the point that they were indistinguishable from journalists (given the consistent similarities between the groups, however, this is unlikely).

It should also be clear that the variables that define the similarities and differences between these journalists and Twitter users represent only a small fraction of those variables that could be used to describe either group, and that the lack of precision of the measurement of these variables may mask meaningful differences. The complexity of the content variables in particular were restricted by the nature of the 140-character Tweets being analyzed; only so much complexity can be teased out of such short texts. It is possible, though, that future studies might be able to deploy coding strategies that can produce richer descriptions of Twitter content by looking for patterns across a large number of Tweets instead of coding Tweets based on the present/absence of attributes within individual Tweets. The complexity of the content variables in this study, however, was also restricted by the need to have measures that could be applied equivalently across two very different media, a goal that was achieved at least as measured by the inter and intracoder reliability associated with both the newspaper and Twitter content analyses variables. Simplifying the variables in order to achieve equivalency in measurement, however, may have masked more complex differences between the two media. Conceptually, a "negative" news story and a "negative" Tweet do not necessarily have

the same meaning. There was certainly more raw emotion and degrees of negative and positive tone in many of the Tweets about the BP oil spill than was captured in this study. Thus, future studies might try to come up with different content analysis strategies and other methodological approaches for exploring other possible similarities and differences between "new" and more established media. These comparisons are valuable because they can serve as a basis for understanding how changes in communication technologies are, and are not, fundamentally changing communication about public affairs issues.

Another limitation of this study is the limited modeling of the mixed levels of analysis: reporters nested within newspapers, newspapers and Twitter users nested within cities, newspaper stories/Tweets nested in reporters, etc. Nested data are frequently analyzed using multi-level modeling, a statistical technique that allows researchers to model unique effects at each level of nested data, i.e., to model distinct individual-level and community-level affects on journalists' and Twitter users' attitudes toward, and coverage of, the BP oil spill. However, some statisticians have suggested that multi-level modeling requires 30 individuals per group, and at least 30 groups (Hox, 1998). More recently, however, Maas and Hox (2005) suggested that multi-level modeling requires at least 50 "level-two" groups. Regardless, the data in this study did not meet the sample-size requirements for conducting multi-level modeling, whether the data were analyzed using the individual author or their newspaper/stories Tweets as the unit of analysis.

Estimating clustered standard errors for each independent author, though, does control for the fact that each story does not represent an independent observation. This clustering of the data, however, does not control for the fact that the journalists are clustered by newspaper and both journalists and Twitter users are also clustered by city,

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which also violate the assumption of independent observations. MPlus, however, only permits a single clustering variable for a single level analysis. Clustering, however, primarily affects the standard errors and estimates of statistical significance, not the direction or size of regression coefficients in the model, particularly when inter-cluster correlations are small (Julian, 2001). While this study could not account for all potential clustering, it did account for the clustering of articles based on author, which should have the largest inter-cluster correlations of all the potential clusters. Nonetheless, because the assumption of independence is violated, the results of this study should be interpreted cautiously.

That being said, by examining newspaper coverage of the 2010 BP oil spill, this study illuminated the dominant interpretation of the oil spill as an isolated oil drilling accident, which is likely to emerge among the public that closely followed news coverage of the disaster in the Gulf Coast newspapers that were part of this study. Given the lack of "big picture" coverage, particularly of energy and environmental policies following the oil spill, it is not surprising that there have not been any major "lessons learned," as has been reflected by the lack of Congressional action following the disaster (Jaffe & Parkinson, 2011).

This dissertation also highlighted a combination of individual-level and community-level factors that shaped newspaper coverage of the BP oil spill. And by comparing the similarities of these factors across media, this study revealed that Twitter, at least in the context of those Tweets authored by the most-followed users most likely to dominate Twitter discussions, might not be as "new" or "alternative" of a medium as some might assume. Not only were journalists and Twitter users demographically similar,

but also their coverage of the oil spill was nearly identical. Furthermore, their coverage of the BP crisis can be explained by identical sociological theories, including those community structure theories that predict differences in coverage based on differences in *local* community structure, which also challenges any notion that this online medium overrides the significance of local geography. These findings suggest rich avenues for future research comparing journalism and other "new media" as a framework for understanding how advances in communication technology are, or are not, changing communication about public issues, as well as to investigate the continued role that the geography in which users of these media are situated shape online discussions of these issues.

Minimally, this dissertation should rekindle concern that the questions Freudenburg and Gramling (2011) suggested should be asked following the BP oil spill may not have received adequate coverage in the Gulf Coast media. Instead of raising these critical questions, newspaper reporters' coverage of the BP oil spill reinforced the status quo. Given their lack of environmental or energy beat reporting experience or training on covering these issues, one might question if it was foolhardy to ever expect these journalists to delve into the policy problems implicated in the disaster. Furthermore, Twitter did not appear to represent a counter public, which could be relied upon to counteract the overall shortcomings in journalists' coverage, or challenge those social and economic factors that conspired to restrict more critical examination of the systemic failures that contributed to the BP oil spill. One might hope improving journalists' training and making them more aware of the system-maintenance biases prevalent in their coverage, along with concerted efforts to make online alternative voices more prominent

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in the public debate, may improve coverage of future crises. One should also ask,

however, what institutions might fulfill their surveillance function if the media fail to do

so, and the role these institutions can play in disseminating information to shape the

public affairs discourse

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Table 1
Journalists' and Twitter Users' Political and Environmental Ideologies
(descriptive statistics)

	Journalists		Twitter Users		Total	
	M	*SD*	*M*	*SD*	*M*	*SD*
Political Ideology						
How would you characterize your political ideology, from left to right?	3.41	1.090	3.75	1.508	3.61	1.362
Environmental Ideology						
Humans are severely abusing the environment.	3.86	.774	3.92	1.060	3.89	.954
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	3.689	.756	3.733	1.073	3.715	.956
The so-called "environmental crisis" has been greatly exaggerated.	3.762	.906	3.738	1.281	3.748	1.142
Humans will eventually learn enough about how nature works to be able to control it.	3.756	.807	3.871	1.012	3.824	.935
Total Environmental Ideology	3.767	.570	3.815	.860	3.795	.755
N	164		240		404	

Table 2

Journalists' and Twitter Users' Attitudes Toward the Oil Industry Following the 2010 BP oil spill (descriptive statistics)

	Journalists		Twitter Users		Total	
	M	SD	M	SD	M	SD
Oil drilling companies are generally concerned with limiting their environmental impact.	2.84	.899	2.45	1.142	2.61	1.066
Oil drilling companies are committed to protecting the public.	2.60	.856	2.35	1.091	2.45	1.009
The government does not do enough to regulate the oil drilling industry. (Reverse-coded)	2.40	.863	2.46	1.192	2.44	1.070
The oil drilling industry generally complies with government regulation.	2.82	.860	2.80	1.106	2.81	1.012
Government regulation of the oil industry is adequate.	2.38	.889	2.46	1.112	2.43	1.027
U.S. regulators should allow continued off-shore drilling for oil at current levels.	3.07	.855	3.23	1.222	3.17	1.090
The U.S. should encourage exploration for new off-shore oil fields.	3.09	.929	3.18	1.296	3.14	1.161
Strict environmental laws and regulations cost too many jobs and hurt the economy.	2.26	.782	2.44	1.229	2.37	1.073
Government regulation of business is necessary to protect the environment. (Reverse-coded)	1.99	.771	2.00	.937	2.00	.873
U.S. energy policy should continue to encourage production of more domestic oil supplies.	3.27	.902	3.48	1.124	3.40	1.044
U.S. energy should shift attention away from fossil fuels to sources of renewable energy. (Reverse-coded)	1.96	.798	1.68	.947	1.80	.899
The collapse of the Deep Water Horizon oil platform and the oil spill in the Gulf of Mexico was a rare accident.	3.43	.900	3.15	1.232	3.26	1.116
Tragic as the Deep Water Horizon accident was, we cannot let it get in the way of developing domestic oil supplies.	2.96	.942	3.04	1.327	3.00	1.185
Total Oil Towards Oil Industry	2.68	.563	2.67	.849	2.68	.746
N	164		240			

Table 3
Intercoder Reliability – Newspaper Stories and Tweets

Variable	Tweets		News Stories	
	Simple Agreement	Krippendorff's Alpha	Simple Agreement	Krippendorff's Alpha
Date	100%	1	100%	1
Episodic/Thematic	93%	.825	95%	.835
Linkage	89%	.865	86%	.821
Evaluative Tone	90%	.819	89%	.800
Official Characters	98%	.960	92%	.793
BP	97%	.940	89%	.781
Other Oil Industry	100%	1	99%	.904
Elected Government Official	99%	.966	92%	.798
Other Government Official	99%	.928	93%	.848
Unofficial Characters	97%	.914	91%	.819
NGO/Activist/ Volunteer	98%	.658	98%	.847
Independent Scientist/ Engineer	100%	1	98%	.492
Local Business/ Fisherman/ Oil Industry Employee	99%	.853	94%	.778
Expert	1	100%	99%	.853
Other	99%	.964	91%	.764

Note: Intercoder reliability is based on two independent coders' judgments on a randomly selected sample of 100 newspaper stories and 100 Tweets, or 10% of the total newspaper stories and Tweets analyzed.

Table 4
Intracoder Reliability – Newspaper Stories and Tweets

Variable	Tweets		News Stories	
	Simple Agreement	Krippendorff's Alpha	Simple Agreement	Krippendorff's Alpha
Date	100%	1	100%	1
Episodic/Thematic	97%	.897	95%	.841
Linkage	93%	.907	91%	.860
Evaluative Tone	92%	.859	93%	.875
Official Characters	95%	.900	98%	.944
BP	93%	.859	98%	.960
Other Oil Industry	100%	1	100%	1
Elected Government Official	99%	.966	96%	.899
Other Government Official	98%	.847	97%	.936
Unofficial Characters	100%	1	97%	.941
NGO/Activist/ Volunteer	100%	1	100%	1
Independent Scientist/ Engineer	100%	1	100%	1
Local Business/ Fisherman/ Oil Industry Employee	100%	1	98%	.926
Expert	100%	1	1	100
Other	100%	1	99%	.970

Note: Intracoder reliability is based on a primary coder's judgments on the same randomly selected sample of 100 newspaper stories and 100 Tweets used to establish intercoder reliability at the beginning and end of data collection.

Table 5

Frequency of Dichotomous Present/Absent Content Analysis Variables in Newspaper and Twitter Coverage of the BP Oil Spill

Content Analysis Variable	Newspaper Stories Present Frequency	Percent	Tweets Present Frequency	Percent
Linkage				
BP	155	15.5	323	32.3
Government Oversight/Regulation	318	31.8	203	20.3
Other Oil Industry	27	2.7	29	2.9
Environmental/Health Risk	189	18.9	165	16.5
Environmental/Energy Policy	13	1.3	14	1.4
Economic	131	13.1	21	2.1
Other	167	16.7	245	24.5
Thematic Frame	59	5.9	126	12.6
Tone				
Positive	133	13.3	99	9.9
Negative	499	49.9	570	57.0
Neutral	368	36.8	331	33.1
Official Characters	774	77.4	559	55.9
BP Official	355	35.5	394	39.4
Other Oil Industry Official	33	3.3	11	1.1
Elected Official	243	24.3	134	13.4
Other Government Official	439	43.9	107	10.7
Unofficial Characters	386	38.6	176	17.6
NGO/Activist/Volunteer	70	7.0	19	1.9
Independent Scientist/Engineer	81	8.1	16	1.6
Local business/Fisherman/Oil Industry Employee	140	14.0	28	2.8
Expert Character	11	1.1	8	.8
Other Character	71	7.1	103	10.3

Table 6
Chi-Square Test of Difference in the Use of Unofficial Characters Before and After President Obama's June 15 Oval Office Address on the BP Oil Spill

| Unofficial Character | Oval Office Address | | χ^2 | Φ | *P* |
	Before	After			
Absent	112	502	4.168	-.065	.041
	(55.2%)	(63.0%)			
Present	91	295			
	(44.8%)	(37%)			

Note: Column percentages appear in parentheses below group frequencies.

Table 7
Chi-Square Test of Differences in Story Tone Before and After President Obama's June 15 Oval Office Address on the BP Oil Spill

| Story Tone | Oval Office Address | | χ^2 | Φ | *P* |
	Before	After			
Not Negative	82	419	9.598	-.098	.002
	(40.4%)	(52.6%)			
Negative	121	378			
	(59.6%)	(47.4%)			
Not Positive	184	683	3.430	.059	.064
	(90.6%)	(85.7%)			
Positive	19	114			
	(9.4%)	(14.3%)			
Not Neutral	140	492	3.640	.060	.056
	(69%)	(61.7%)			
Neutral	63	305			
	(31%)	(38.3%)			

Note: Column percentages appear in parentheses below group frequencies.

Table 8
Correlations of Major Variables for Journalists and Twitter Users (Variances On the Diagonals)

Variables	1	2	3	4	5	6	7	8
1.) Political Ideology	.125 (2.937)							
2.) Attitudes Toward the Oil Industry	.472^c (.785)	.193 (.876)						
3.) Un-official Character	.002 (-.036)	.053 (-.065)						
4.) Enviro. Attitudes	-.435^c (-.748)	-.482^c (-.781)	-.032 (.075)	.339 (.970)				
5.) Story Tone	.103^b (.282)	.073^a (.305)	-.196^c (.021)	-.102^c (-.305)				
6.) Thematic Frame	-.07^a (.121)	-.073^a (.102)	-.007 (-.017)	.122^c (-.122)	-.017 (.131)			
7.) BP Link	-.024 (-.109)	-.112^c (-.100)	-.062^a (-.133)	-.039 (.172)	.162^c (-.186)	.085 (-.044)		
8.) Gov. Link	-.038 (.229)	.027 (.266)	-.553^c (-.447)	-.043 (-.280)	.071 (.159)	.095^b (.038)	-.797^c (-.833)	

Note: Values for Twitter are in parentheses; correlations are tetrachoric correlations because some bivariate relationships are between two dichotomous variables; ^{a} $P < .05$; ^{b} $P < .01$; ^{c} $P < .001$.

Table 9
Coefficients of Path Model (Journalists), labeled by research question or hypothesis

	Path		Estimate		95% CI		
	From	To	(Std. Est.)	*SE*	LL	UL	*P*
R$_4$	Structural Pluralism	Government Link	-1.132 (-.066)	1.001	-3.094	.830	.258
H$_{4a}$		**BP Link**	**2.652 (.150)**	**1.043**	**.608**	**4.696**	**.011**
H$_{4b}$		Thematic Frames	-0.986 (-.057)	0.977	-2.901	.928	.313
H$_{4c}$		**Story Tone**	**-2.228 (-.128)**	**1.030**	**-4.247**	**-.209**	**.031**
H$_{4d}$		Unofficial Characters	.609 (.035)	1.185	-1.714	2.931	.608
R$_5$	% Workforce in Oil Industry	Government Link	.024 (.014)	.112	-.215	.263	.843
H$_{5a}$		BP Link	.217 (.121)	.117	-.013	.446	.064
H$_{5b}$		**Thematic Frames**	**.243 (.138)**	**.101**	**.045**	**.441**	**.016**
H$_{5c}$		Story Tone	.197 (.111)	.121	-.040	.434	.103
H$_{5d}$		Unofficial Characters	-.158 (-.090)	.093	-.341	.024	.088
H$_{6a}$	Structural Pluralism	Attitudes Toward Oil Industry	.648 (.083)	.740	-.802	2.098	.381
H$_{6b}$	% Workforce in Oil Industry	**Attitudes Toward Oil Industry**	**.205 (.257)**	**.063**	**.080**	**.329**	**.001**
H$_7$	Journalists' Political Conservatism	**Attitudes Toward Oil Industry**	**.132 (.308)**	**.031**	**.072**	**.192**	**.000**
H$_8$	Journalists' Pro-Environmental Attitudes	**Attitudes Toward Oil Industry**	**-.288 (-.368)**	**.048**	**-.382**	**-.194**	**.000**
R$_6$	Attitudes Toward Oil Industry	Government Link	.042 (.019)	.144	-.240	.323	.771
H$_{9a}$		BP Link	-.077 (-.034)	.202	-.472	.318	.703
H$_{9b}$		**Thematic Frames**	**-.277 (-.125)**	**.125**	**-.523**	**-.031**	**.027**
H$_{9c}$		Story Tone	.260 (.117)	.145	-.024	.543	.073
H$_{9d}$		Unofficial Characters	.104 (.047)	.155	-.199	.408	.501

Note: $\chi^2(10) = 11.173$, $P = .672$, RMSEA=.000, CFI=1.000, TLI=1.033; statistically significant paths are in bold.

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Table 10
Direct and Indirect Effects — via Journalists' Positive Attitudes Toward the Oil
Industry — of Community Structure on Journalists' Coverage of the BP oil spill

Path			Estimate		95% CI		
From	To	Effects	(Std. Est.)	SE	LL	UL	P
% of workforce in oil industry	BP linkage	**Direct**	.217 (.121)	.117	-.013	.446	.064
		Indirect	-.016 (-.009)	.041	-.097	.065	.705
Structural Pluralism	BP linkage	**Direct**	2.652 (.150)	1.043	.608	4.696	.011
		Indirect	-.050 (-.003)	.126	-.297	.197	.693
% of workforce in oil industry	Thematic Frames	**Direct**	.243 (.138)	.101	.045	.441	.016
		Indirect	-.057 (-.032)	.033	-.121	.007	.083
Structural Pluralism	Thematic Frames	**Direct**	-.986 (-.057)	.977	-2.901	.928	.313
		Indirect	-.180 (-.010)	.227	-.625	.266	.429
% of workforce in oil industry	Story Tone	**Direct**	0.197 (.111)	.121	-.040	.434	.103
		Indirect	0.053 (.030)	.035	-.015	.122	.128
Structural Pluralism	Story Tone	**Direct**	-2.228 (-.128)	1.030	-4.247	-.209	.031
		Indirect	0.168 (.010)	.223	-.269	.606	.451
% of workforce in oil industry	Un-official Characters	**Direct**	-0.158 (-.090)	.093	-.341	.024	.088
		Indirect	0.021 (.012)	.032	-.041	.083	.500
Structural Pluralism	Un-official Characters	**Direct**	0.609 (.035)	1.185	-1.714	2.931	.608
		Indirect	0.068 (.004)	.112	-.153	.288	.548

Note: Effects in bold indicate the larger of the direct or indirect effect, regardless of significance of the overall *P* value.

Table 11
Coefficients of Path Model (Twitter users)

Path		Estimate		95% CI		
From	To	(Std. Est.)	*SE*	LL	UL	*P*
Structural Pluralism	Government Link	-.149 (-.008)	1.135	-2.375	2.076	.895
	BP Link	.644 (.035)	1.082	-1.477	2.764	.552
	Thematic Frames	-.862 (-.047)	1.447	-3.699	1.975	.552
	Story Tone	**-2.165 (-.118)**	**.995**	**-4.114**	**-.215**	**.030**
	Unofficial Characters	.264 (.014)	.954	-1.605	2.132	.782
% Workforce in Oil Industry	Government Links	.001 (.000)	.107	-.209	.210	.996
	BP Links	-.071 (-.044)	.100	-.267	.126	.481
	Thematic Frames	-.105 (-.065)	.123	-.346	.136	.393
	Story Tone	.010 (.006)	.095	-.175	-.175	.915
	Unofficial Characters	-.064 (-.040)	.087	-.234	.106	.459
Structural Pluralism	Attitudes Toward Oil Industry	1.690 (.097)	1.632	-1.507	4.888	.300
% Workforce in Oil Industry	**Attitudes Toward Oil Industry**	**.530 (.345)**	**.219**	**.101**	**.959**	**.016**
Twitter Users' Political Conservatism	Attitudes Toward Oil Industry	.164 (.291)	.110	-.052	.379	.137
Twitter Users' Pro-Environmental Attitudes	**Attitudes Toward Oil Industry**	**-.625 (-.643)**	**.165**	**-.948**	**-.302**	**.000**
Attitudes Toward Oil Industry	**Government Links**	**.318 (.303)**	**.057**	**.205**	**.430**	**.000**
	BP Links	**-.152 (-.044)**	**.065**	**-.280**	**-.023**	**.020**
	Thematic Frames	**.140 (.135)**	**.068**	**.006**	**.274**	**.040**
	Story Tone	**.370 (.352)**	**.051**	**.270**	**.470**	**.000**
	Unofficial Characters	-.069 (-.066)	.049	-.165	.027	.157

Note: $\chi^2(14) = 22.580$, *P* = .068, RMSEA=.018, CFI=.855, TLI=.544; statistically significant paths are in bold.

Table 12
Fit Indices and Chi-Square Difference Tests for Nested Models Examining
Differences Between Journalists and Twitter Users

	χ^2	df	P	RMSEA	CFI	TLI	$\Delta\chi^2$	df	P
Model 1 (Unconstrained)	33.190	28	.229	.014	.969	.904			
Model 2 (Equal thresholds/ means)	41.924	36	.229	.013	.965	.915	10.100	8	.258
Model 3 (Equal thresholds/ means and coefficients)	82.318	55	.010	.022	.839	.742	42.993	19	.001
Model 4 (Equal coefficient for oil attitudes to thematic frames relaxed)	71.825	54	.053	.018	.895	.829	31.504	18	.025
Model 5 (Equal coefficient for oil attitudes to government link relaxed)	67.383	53	.090	.017	.915	.859	27.277	17	.054
Model 6 (Equal coefficient for oil attitudes to thematic frames relaxed)	62.513	52	.151	.014	.938	.895	22.134	16	.139

Table 13
Chi-square tests of differences in overall newspaper and Twitter coverage of the
BP oil spill

Content Analysis Variable			News Story	Tweet	χ^2	Φ	P
BP Link	Absent	N	845	677	77.590[a]	.197	.000
		%	84.5%	67.7%			
	Present	N	155	323			
		%	15.5%	32.3%			
Government Link	Absent	N	682	797	34.326[a]	-.131	.000
		%	68.2%	79.7%			
	Present	N	318	203			
		%	31.8%	20.3%			
Thematic Frame	Absent	N	941	874	26.738[a]	.116	.000
		%	94.1%	87.4%			
	Present	N	59	126			
		%	5.9%	12.6%			
Negative Tone	Absent	N	501	430	10.130[a]	.071	.001
		%	50.1%	43.0%			
	Present	N	499	570			
		%	49.9%	57.0%			
Unofficial Character	Absent	N	614	824	109.137	-.234	.000
		%	61.4%	82.4%			
	Present	N	386	176			
		%	38.6%	17.6%			

Figure 1

Structural Equation Model: How Community-Level Variables and Authors' Personal
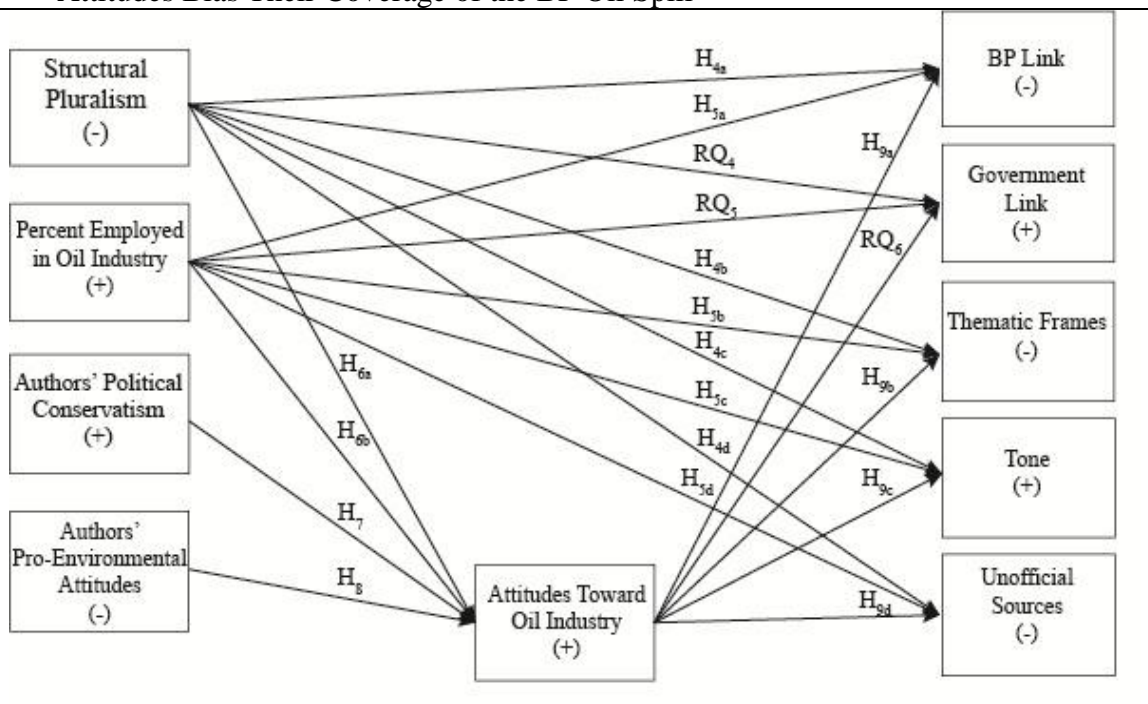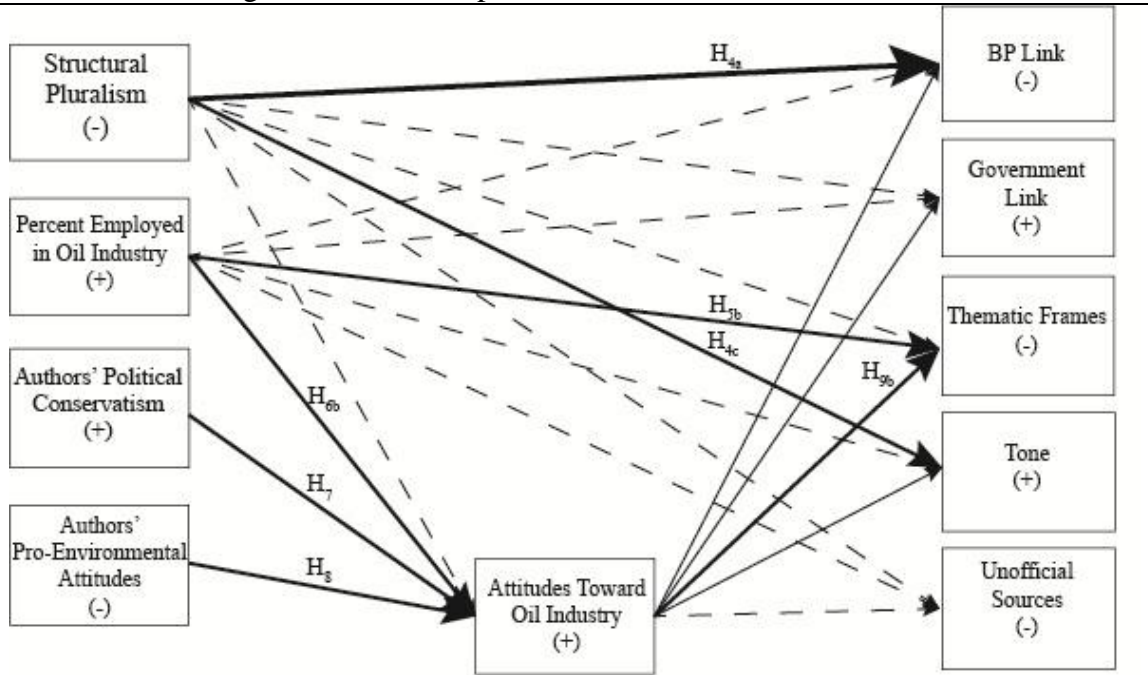Attitudes Bias Their Coverage of the BP Oil Spill

Figure 2

Significant Paths: How Community-Level Variables and Authors' Personal Attitudes Bias Their Coverage of the BP Oil Spill

Ho	Path		Journalists	Twitter Users
	From	To	Estimate (Std. Est.)	Estimate (Std. Est.)
H_{4a}	Structural Pluralism	BP Link	2.652 (.150)*	.644 (.035)
H_{4c}	Structural Pluralism	Story Tone	-2.228 (-.128)*	-2.165 (-.188)*
H_{5b}	% Workforce in Oil Industry	Thematic Frames	.243 (.138)*	-.105 (-.065)
H_{6b}	% Workforce in Oil Industry	Attitudes Toward Oil Industry	.205 (.257)**	.530 (.345)*
H_7	Authors' Political Conservatism	Attitudes Toward Oil Industry	.132 (.308)***	.164 (.291)
H_8	Authors' Environmental Attitudes	Attitudes Toward Oil Industry	-.288 (-.368)***	-.625 (-.643)***
H_{9b}	Attitudes Toward Oil Industry	Thematic Frames	-.277 (-.125)*	.140 (.135)*
	Attitudes Toward Oil Industry	BP Link	-.077 (-.034)	-.152 (-.044)*
	Attitudes Toward Oil Industry	Government Link	.042 (.019)	.318 (.303)***
	Attitudes Toward Oil Industry	Story Tone	.260 (.177)	.370 (.352)***

Notes: Bold paths significant for both journalists and Twitter users; non-bold paths significant only for Twitter users; dashed-paths are non-significant for either group.

Figure 3
The Distribution of Journalists' and Twitter Users' Political Attitudes
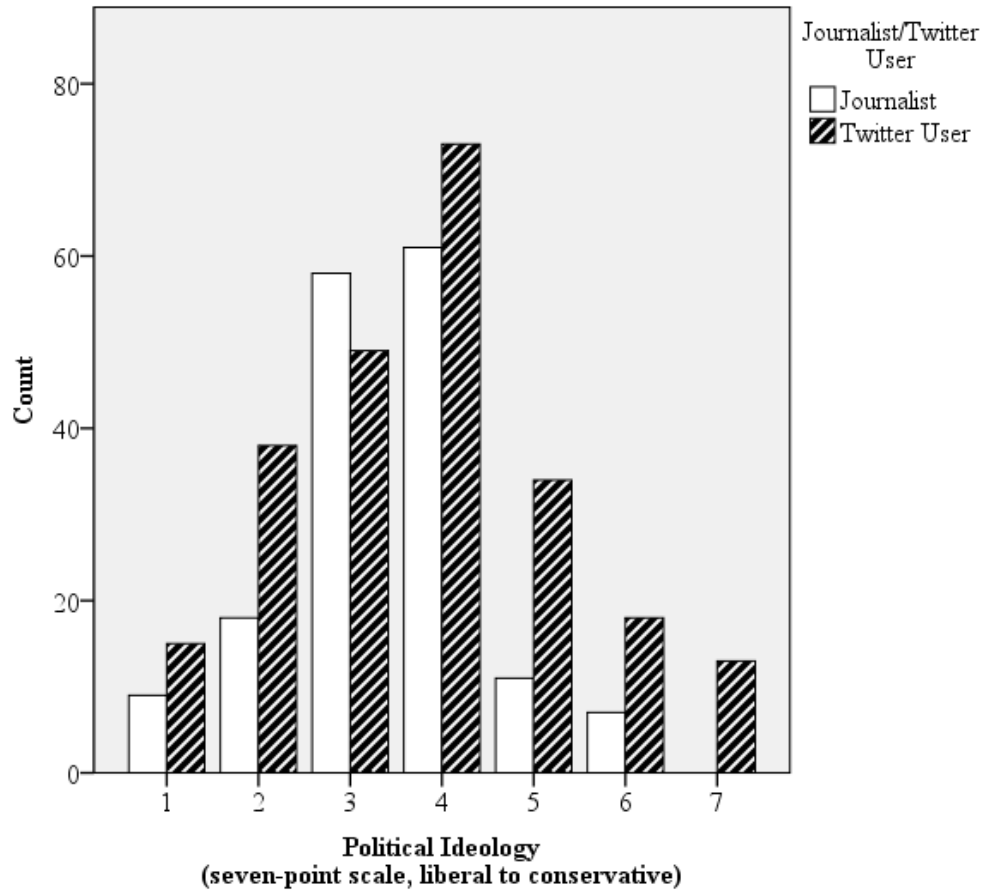
Coding Protocol
Coverage of the Gulf Oil Spill

V1: Story/Tweet number *(assigned on list of stories/Tweets to code)*

V2: Newspaper's name *(Leave blank for Tweets)*

V3: Reporter's name/Twitter username

V4: Story/Tweet Date (mm/dd/yyyy)

V5: Episodic Versus Thematic Frames

Frames in news stories should be coded based on the *first four consecutive paragraphs of each story that are substantially about the oil spill* (Example: a story's lead may say that a candidate visiting town A fielded tough questions about the economy, bank bailouts, and the BP oil spill. This paragraph is not substantially about the oil spill, because it only makes brief mention of the story. You should code those paragraphs later in the story that actually discuss the questions the politician fielded about the oil spill).

Code any portion of the Tweet that is substantially about the oil spill.
You can use hyperlinked sources in Tweets for additional contextual clues, but coding decisions must be made based on the contents of the Tweet.

Code only the *first* mention of a frame in each news story or Tweet. You must choose either/or.

An **episodic frame** "focuses on specific events or particular cases" (single event stories). For example, a story that reports on specific seafood safety test results following the spill should be coded as having an episodic frame. **Thematic frames** puts issues "and events in some general context" (trend stories). Put another way: "Episodic framing depicts *concrete events* that illustrate issues, while thematic framing presents *collective or general evidence*."

For example, a story that discusses the general threat of the BP oil spill to coral reefs should be coded as a thematic story (if the threat is described only in terms of a *specific* reef — i.e., a particular case — the story should be coded as being episodic). Another example: A story that talks broadly about the impact of the oil spill on the fishing industry, or confidence on seafood safety, should be coded as thematic. However, if such a story is event based (i.e., the result of a report, survey, etc. being released), the frame should be coded as being episodic, even if the story also raises thematic concerns.

If it is not clear from the story/Tweet that the story is thematic, code it as being episodic.

V6: Linkages

Linkages should be coded based on the *first four consecutive paragraphs of each story* substantially about the oil spill. (Example: a story's lead may say that a candidate visiting town A fielded tough questions about the economy, bank bailouts, and the BP oil spill. This paragraph is not substantially about the oil spill, because it only makes brief mention of the story. You should code those paragraphs later in the story that actually discuss the questions the politician fielded about the oil spill). Code any portion of the Tweet that is substantially about the oil spill. Code only the first linkage mentioned (i.e., the primary linkage).

You can use hyperlinked sources in Tweets for additional contextual clues, but coding decisions must be made based on the contents of the Tweet. You can also use an Internet search engine to help identify individuals/organizations/legislation, etc., mentioned in the story in order to help you correctly categorize the linkage.

A linkage is a reference in the story that links the BP oil spill to another specific issue. For example, a story about the impact of the oil spill on seabirds would be coded as having an environmental/health linkage.

BP Linkage

Focuses on the connection between the oil spill and BP, including BP responsibility for the spill; BP response to the spill; the impact of the spill on BP (cost, share prices, etc.). Do not code BP as a linkage if BP is not explicitly mentioned; be careful not to code BP as a linkage if BP is only referenced as part of the identifying name of the oil spill, as in the "2010 BP Oil Spill," of if a hashtag or @BP reference is only used as a label and not in place of the company's name as part of the subject of the Tweet.

Other Oil Industry Linkage

Focuses on the connection between the oil spill and broader industry beyond BP (increased scrutiny/regulation, loss of public support, etc.). Linkages to *specific* regulatory action, such as the moratorium on offshore drilling, should be coded as a "Government/Regulation/Oversight."

Environmental/Health Risk Linkage

Focuses on the connection between the oil spill and the impact on the environment (including, for example, oil washing up – or not washing up – on beaches, or on the impacts on human health of the spill, or spill clean-up, for example the mental health effect on fisherman, or the effects of the oil on clean-

up crews' health. If the story is primary about a policy issue – i.e., the need for more support for renewable energy – the story should be coded as having an environmental/energy policy linkage.

Environmental/Energy Policy Linkage

Focuses on the connection between the oil spill and *long-term* energy and/or environmental policy, such as the country's reliance on fossil fuels. If the story focuses primarily on short-term responses to the spill, including the government's short-term moratorium on offshore oil drilling, the story should be coded as having a government/regulation/oversight linkage.

Economic Linkage

Focuses on the connection between the oil spill and businesses, employment, real estate, either at the local, state, or national level, including impact on local, state, and national economies. If the economic linkage only focuses on the fishing industry, see "Fishing/Seafood."

Government/Regulation/Oversight Linkage

Focuses on the government's responsibility for and response to the oil spill, including government-lead clean-up efforts, government hearings, government meetings convened to discuss the oil spill, etc., as well as discussion of government oversight/regulation as it relates directly to the BP oil spill (more long-term regulation/oversight issues should be coded as "environmental/energy policy linkage). Covers all levels of government: international, national, state, county, local, etc.

Other Linkage

Includes any linkage that does not fit clearly into one of the above categories. Provide a succinct one-sentence description of the linkage so that it can be appropriately categorized.

V9: Evaluative Tone

Stories should be coded positive, negative, or neutral based on the first four paragraphs of the story that are substantially about the oil spill. Code any portion of the Tweet that is substantially about the oil spill.

Positive stories are those that portray events as being desirable: progress capping the well; better-than-expected reports about the ecological impacts of the spill; fishermen getting back to work; tourists returning to the Gulf, etc., or events portrayed as advantageous for BP or other parties responsible for causing the BP oil spill —

primarily Haliburton and Transocean — or for those with responsibility for cleaning up the oil spill.

Negative stories focus on undesirable outcomes: set-backs for BP's efforts to cap the well, ecological damage due to the spill, negative impacts on tourism and local business due to the spill, etc., or events portrayed as being disadvantageous for BP or other parties responsible for causing the BP oil spill — or for those with responsibility for cleaning up the oil spill.

Stories that do not meet either of these two previous descriptions, or those stories that mention both positive and negative outcomes in the "same breadth" — for example, "BP made progress capping the well today, but the worst of the environmental damage has already likely been done" — should be coded as being "neutral." Code only the first event mentioned.

As a secondary method of classifying the stories/Tweets, code stories/Tweets as being either positive or negative if the tone is *obvious* from language used in the story or Tweet, even if it's not possible to discern tone based on the above rules (though these rules should take precedence). Another example: A Tweet that said, "I'm so damn pissed about the oil spill," should be coded as being negative, even though it doesn't involve a specific outcome.

However, Tweets that use negative/angry language in such a way as to defend/protect BP – or its protectors – from criticism, should be coded positively. Additionally, obvious irony should be coded accordingly (i.e., a Tweet that said, "Wow! In latest genius move, BP's Tony Hayward has decided to go yachting this weekend," should be coded as being negative.

Only code tone as it relates to the oil spill. For example, a Tweet that said, "Check out John Smith's amazing article about the oil spill," should be coded as being neutral, because there is no indication about how the author feels about the *oil spill*. "Negative" words such as disaster, spill, accident, etc., that are used to describe the spill, but not express a clear evaluation of the spill, should not be coded as negative. For example, "Obama will appear in the Rose Garden at 12 p.m. to comment on the BP disaster," should not be coded as being negative. However, a Tweet that says, "BP's response to the oil spill is such a disaster," should be coded as negative.

V10: "Characters"

In this section you should record whether a character falling in one of the specified categories was mentioned in the *first four consecutive paragraphs of a news story or Tweet substantially about the oil spill.* You can use an Internet search engine to help identify individuals/organizations/legislation, etc., mentioned in the story in order to help you correctly categorize a given character.

Do not count organizations/institutions as characters if specific individuals also represent the organization in the text. Also, be careful not to count individuals/organizations twice in the instance that both a generic reference and specific name refer to the same individual/organization. However, *count all individuals as separate characters*, even if they belong to the same organization/institution.

Do not count general references to non-specific group of individuals: "Gulf Coast residents," "business owners," "crewmembers," etc. However, count generic references to specific groups of individuals: "11 crew members died," "protesters gathered at the beach, Monday," etc. Always count references to groups of individuals, such as in these preceding examples, as a single character. Again, do not count groups as separate characters if individual members of the group are also mentioned.

For example, in the following paragraphs there are only two characters: The plaintiff (Luke Boudreaux) and the defendant, Craig Creppel (Creppel is a representative of the DRC Group, thus it is not counted as being a separate character).

> "An oil spill cleanup worker has filed a lawsuit against his employer after he suffered respiratory failure as a result of exposure to oil products.
>
> Luke Boudreaux filed the lawsuit against Craig Creppel and the DRC Group on Dec. 29, 2011 in federal court in New Orleans. The alleged incident occurred on Sept. 28, 2010 as Boudreaux was employed by the defendants as a crewmember of the vessel Captain Matt.
>
> The vessel and its crewmembers were conducting BP oil spill cleanup operations in the Gulf of Mexico. Boudreaux claims that he suffered acute hypoxic respiratory failure and bipolar pneumonia as a result of his exposure to toxic oil products being remediated by the vessel."

Only code characters that are the subject of the news story/Tweet. For example, if the Tweet was "NYT: Tony Hayward says, 'I would like my life back,'" the New York Times is not the subject of the Tweet. Only Tony Hayward, BP's disgraced former CEO, would be coded as a character.

Do not count @reply or RT Twitter handles as characters; do count Twitter handles and/or hashtags (#) if they're clearly used in place of an individual/organization's name that is relevant to the oil spill. Example: "@BP are a bunch of jackasses." In this instance, BP should be coded as a "BP Official" source.

Also, do not code first-person references as being characters. For example, a Tweet that said, "Check out our amazing gallery of BP oil spill photos," should be coded as having zero characters (in this context BP is referenced only in terms of the name of the oil spill).

First decide if a character is an "Official Character" or "Unofficial Character." Then try to categorize the character further.

Official Characters

Official characters are government and corporate officials, employees, and contractors, who have some degree of official involvement in/jurisdiction over the BP oil spill and related issues.

BP Official

Includes any official representative of BP, including BP contractors; excludes individual employees who are not officially representing the company's point of view (though it includes company representatives that might comment officially, even if they are not authorized by the company to do so). Includes engineers, scientists, etc., who work for and/or are under contact with (includes research grants) BP.

Other Oil Industry Official

Includes any official representative of an oil company, other than BP, including contactors, as well as those in related supply businesses; excludes individual employees who are not officially representation the companies' point of view (though it includes company representatives that might comment officially, even if they are not authorized by the company to do so). Includes engineers, scientists, etc., who work for and/or are under contact with (includes research grants) an oil company or industry group other than BP.

Elected Government Official

Includes elected officials — local mayors, state representatives, U.S. Congressmen, etc. Also includes references to elected bodies, such as the Louisiana Senate, local town councils, etc. Includes individuals running for elected office.

Regulatory/Enforcement Official

Includes those institutions/organizations and affiliated individuals with primary responsibility for regulatory issues related to the oil spill and oil industry more generally, such as the Bureau of Ocean Energy Management. Does not include those individuals/organizations with responsibility for

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environmental/health/science issues, such as the Environmental Protection Agency or the Occupational Safety and Health Administration (see "Government Official (Environmental/Science Related"). Includes contractors.

Environmental/Health/Science Related Government Official

Includes any official government agency (local, state, national) that has primary responsibility for environmental, health, or science topics, including local, state, and national environmental protection or wildlife agencies, including the Environmental Protection Agency, the National Marine Fisheries Service, etc. Excludes governmental agencies participating in the environmental cleanup, which don't have direct responsibility for the environment, such as the Coast Guard (see "Response Official"). Includes engineers, scientists, etc., who work for and/or are under contact with (includes research grants) an environmental agency. Includes contractors.

Other Government Official

A government official, government contractor, or governmental body that does not fit one of the previous descriptions of governmental officials above.

Other Official Character

An official character that does not meet one of the preceding definitions. *Please provide a detailed one-sentence description in the open-ended response section so that these characters can be appropriately categorized.*

Unofficial Characters
A character that does not have any official involvement in/jurisdiction over the BP oil spill.

Environmental/Health Organization/Activist

Includes any non-governmental agency/volunteer group, etc., that is participating in, and/or commenting on environmental clean-up or some other aspect of the oil spill, such as Greenpeace, the Sierra Club, etc., or individuals who are explicitly identified as being environmentalists or activists (such as those boycotting BP or participating in some other protest action). Also includes health organizations, such as those providing mental health care to those adversely affected by the spill, as well as non-profit science organizations commenting on the spill.

NGO

Includes other non-governmental agencies/non-profits that do not fit the description of an environmental/health/science characters, such as those

organizations that provided financial counseling and/or job training/re-training in the wake of the oil spill.

Volunteers

Includes individual clean-up or other response volunteers who do not clearly belong to an organization meeting the description of an "Environmental/health organization/activist" or an "NGO."

Independent Scientist/Engineer

Includes any scientist or engineer (or scientific or engineering organization) not compensated by BP or the oil industry (including as a contractor) who is commenting on the oil spill based on their professional expertise, such as university researchers (don't worry about grants and other forms of compensation from the industry that are not mentioned in the story).

Local Business Owner/Employee

Includes any person explicitly identified as the owner and/or employee of a specific, non-oil or fishing-related business. Includes those who work for restaurants, hotels, etc. who are commenting on the spill based on their capacity as either a business owner or employee, for example discussing the spill's impact on business.

Local Fisherman/Fishing Organization

Includes individual fishermen and those who work for related businesses, as well as others representing the interest of fishermen,

Oil Industry Employee

Includes employees of BP and the oil industry more generally (including related industries), which are commenting in non-official capacities, nor at the behest of the oil industry or BP (for example, at a press conference). Includes BP contractors, including clean-up workers, who are mentioned in non-official capacities.

"Expert"

Includes any individual/organization who based on their professional expertise/background are asked to comment on aspects of the BP oil spill, but are not themselves involved in the issue. Would include, for example, legal commentators not directly involved in legal action (or potential legal action) related to the oil spill.

Other Local Citizen or Visitor

Includes individuals that do not fit into one of the above categories; a "man on the street" interview.

Other Unofficial Character

Includes any character that does not fit one of the above definitions. *Please provide a detailed one-sentence description in the open-ended response section so that these characters can be appropriately categorized.*