U.S. SCIENCE JOURNALISTS' VIEWS AND USES OF ONLINE READER COMMENTS: A QUALITATIVE STUDY

A Thesis

by

MARY BETH SCHAEFER

Submitted to the Office of Graduate and Professional Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

Chair of Committee,	Barbara Gastel
Committee Members,	Renata Ivanek-Miojevic
	Valerie Balester
Head of Department,	Evelyn Tiffany-Castiglioni

December 2014

Major Subject: Science and Technology Journalism

Copyright 2014 Mary Beth Schaefer

ABSTRACT

Online comments have provided a forum for readers to interact with one another on the websites of newspapers, magazines, and other publications. Readers have come to expect comments, but many people, including some journalists, have expressed negative views toward this form of user-generated content. Comments, particularly anonymous comments, have a reputation for being disproportionately uncivil and digressive. The lack of civility has become a challenge for media organizations, some of which do not have substantial resources to dedicate to moderating reader comments. In the realm of science journalism, recent research has suggested that uncivil comments affect readers' perceptions of science-related issues. As a result, the magazine *Popular Science* disbanded comments, igniting controversy over the value of comments for readers and journalists.

Although considerable research has examined online reader comments, most studies have focused on the content of comments rather than readers' or journalists' attitudes toward them. Moreover, studies that have investigated journalists' views of comments have obtained primarily the perspectives of generalist journalists working for newspapers. Therefore, the main objectives of this thesis research were 1) to understand U.S. science journalists' overall attitudes toward reader comments and 2) to learn whether and, if so, how science journalists use reader comments. To achieve these objectives, I conducted nine one-to-one semi-structured interviews with science journalists working for U.S.-based newspapers and magazines.

Overall, the science journalists who participated in this study expressed mixed views toward comments. However, even participants with negative views of comments indicated that they support readers’ ability to comment or noted benefits of comments, such as their potential to increase website traffic. Most participants said that they have used comments in some capacity. These uses included gauging reader reaction to a story or topic, detecting errors, identifying potential sources, and generating story ideas. The findings of this study suggest that some science journalists support comments and use them for various purposes. These results could be useful for media organizations that are currently questioning the overall value of comments for their publications.

DEDICATION

I would like to dedicate this thesis to every family member, significant other, friend, co-worker, and acquaintance who was, at any point, a victim of my stress-induced rants and sleep-deprived unpleasantness throughout my researching and writing. Primarily, however, I would like to dedicate this thesis to my dog, Mr. Bubbles, who spent countless long hours on the couch sleeping beside me as I wrote.

ACKNOWLEDGMENTS

I would, first and foremost, like to thank those whose support, love, and selflessness made the process of researching and writing this thesis possible for me. And to the obstacles I faced, I thank you for making me a stronger and more self-possessed person. I now have 75 pages worth of proof that I can persevere in the midst of ill-timed adversity.

Namely, thank you to my family and friends, both near and at a distance. Specifically, I would like to thank my mother for her wisdom and guidance. I truly cherish her investment in my success and wellbeing. I always appreciated and benefited from your advice, whether it was solicited or unsolicited. I would like to thank my brother for his blind support and sense of protectiveness, as well as his unparalleled sense of humor. And thank you to my father for his faith in me and for accompanying me on the road trip to the conference at which I conducted my first interview for this thesis.

I would also like to extend my gratitude to the faculty members who served as my mentors and guides throughout this process. Thank you to my chair, Dr. Barbara Gastel, for her infinite patience and countless insights. I believe that she and my mother plotted my participation in the Science and Technology Journalism graduate program before I even finished high school. I would also like to thank Dr. Renata Ivanek-Miojevic for her support and guidance, particularly with regard to quantitative research methodologies. (Also, on an unrelated note, thank you, Dr. Ivanek, for rekindling my

love for epidemiology.) And thank you to Dr. Valerie Balester, who has been an incredible boss, mentor, and friend to me for the last eight years (with many more years of mentoring and friendship to come). I am thrilled that you could be part of my committee.

I would also like to thank my friends and family at the Texas A&M University Writing Center, where I have worked since I was 17 years old. After reading what very well might have been hundreds of theses/dissertations, I felt more than equipped to write my own. Because of my experience at the UWC, I was fortunate enough to go into the process of writing my thesis with a preparedness that many others lack, and for that, I am forever grateful. But more than that, I am thankful for the unconditional support of the entire staff. In particular, thank you to my Dissertation and Thesis Assistance (DATA) consultant, David Cameron. (I apologize for being such a terrible DATA student.) Also, thank you to Thad Bowerman for his assistance at the Dissertation and Thesis Writing Retreat. And thank you to my fellow administrators: Flo Davies, Lauren McAuliffe, Nancy Vazquez, Lorna Owens, and Jody Ramirez.

In addition, I want to acknowledge the vital support of several friends. Sarah Potvin and Kevin O'Sullivan welcomed me as their third wheel and took care of me throughout this entire process. Thank you for always making time for me and showing me endless compassion. Additionally, I would like to thank Aaron Bennett, Alyx Herbert, Taryn Martiniello, Chiara Bercu, Faith Brigham, and all of my friends from Brandeis University who have been my cheerleaders and life coaches this last year. Here is another (non-exhaustive) list of friends whose presence in my life during this thesis research and writing has been invaluable: Andrea Schlottman, Ashley Smallwood, Tom Jennings, Jessica Gantt, Jessica Gold, Sarah Watson, Matt Keyworth, my fellow STJR graduate students, and the majority of Texas A&M's Department of Anthropology (and associated significant others).

I am supremely fortunate in that I have too many supportive friends and family members to list exhaustively here. You know who you are. I am infinitely appreciative of your love and encouragement, during my thesis writing and beyond.

TABLE OF CONTENTS

Page

ABSTRACT ii

DEDICATION iv

ACKNOWLEDGMENTS v

TABLE OF CONTENTS viii

CHAPTER I INTRODUCTION 1

CHAPTER II LITERATURE REVIEW 4

- Letters to the Editor and Reader Comments 5
- Gatekeeping in Journalism 7
    - History of Media Gatekeeping 8
    - Gatekeeping of Reader Comments 10
    - Anonymity of Commenters 11
    - The Cost of Gatekeeping 13
    - Current Gatekeeping Practices 14
- Building Online Communities 16
- Changes in the Audience-Journalist Relationship 17
- Journalist Views and Use of User-Generated Content 19
- Reader Comments and Science Journalism 21
- Science Journalists and User-Generated Content 23
- Theoretical Framework 25
- Statement of the Problem 27

CHAPTER III METHODS 29

- Sample 29
- Recruitment 30
- Overall Study Design 31
- Data Collection 32
- Data Analysis 32

CHAPTER IV RESULTS 34

- Moderation of Comments 34
    - Why Moderate? 34
    - Moderation Process 35

- Constraints 39
- Anonymity of Comments 40
- Comment Quality 42
  - Uncivil Comments 42
  - Factors Influencing Comment Quality 43
  - Responsibility 45
- Interactivity 46
- Online Communities 48
- Overall Views Toward Comments 50
- Uses of Comments 53
  - Feedback 53
  - Error Identification 56
  - Story Ideas 57
  - Sources 58

CHAPTER V DISCUSSION AND CONCLUSIONS 61

- How Do Science Journalists View Reader Comments? 61
  - Moderation 61
  - Anonymity 62
  - Comment Quality 63
  - Interaction 64
  - Online Communities 64
  - Overall Attitudes 65
- How Do Science Journalists Use Reader Comments? 66
  - Feedback 66
  - Error Identification 67
  - Story Ideas 67
  - Sources 67
- Strengths and Limitations 68
- Future Research 69
- Conclusions 70

REFERENCES 72

APPENDIX A CONSENT FORM 80

APPENDIX B INTERVIEW GUIDE 83

CHAPTER I

INTRODUCTION

On September 24, 2013, the online content director of *Popular Science*, Suzanne LaBarre, announced the magazine's decision to shut down the commenting feature on its website. She acknowledged the benefits of comments, which can allow for readers to engage in thoughtful discussions on scientific topics, but she also pointed out the ability of comments to make facts that are undisputed in the scientific community seem like matters up for public debate (LaBarre, 2013). *Popular Science* is not the first publication to reevaluate its approach to managing reader comments; it seems to be, however, the first to do so for the reason that “comments can be bad for science.” The value of comments and other forms of content produced by readers has recently become a controversial subject among social science researchers, scientists, the public, and journalists.

Because of commenting capabilities on the websites of many media organizations, readers can now offer immediate—and, in some cases, unregulated—responses to online articles. Public participation in journalism is not entirely new, though. In 18th century England, some newspapers had blank space in which readers could write comments before passing along the paper to friends or family (Wiles, 1965). In broadcast media, radio listeners call stations to voice their opinions. Through letters to the editor, reader perspectives have also been published; however, the letters are typically vetted and selected for print based on certain factors (Wahl Jorgensen, 2002).

More recently, users have been able to interact with one another and disseminate their opinions in online journalistic contexts (for example, websites of newspapers and magazines). Various terms have emerged to describe the active role that audiences are playing in the development of news content, including *participatory journalism*, *citizen journalism*, and *user-generated content*. These terms, despite subtle differences in definition, suggest that crafting content for news websites is becoming more of a collective effort between journalists and their audience. One popular form of this online public participation is reader, or user, comments. Readers, often under aliases, post responses to an article, at times engaging in discussion with other commenters, who sometimes include the journalists who wrote the story. In this thesis, the term "reader comments" is used to refer to responses posted by audience members (either anonymously or self-identified) using online commenting features on newspaper or magazine websites.

Readers' reactions to an article can be useful for both journalists and social science researchers. Comments sometimes provide writers and editors with ideas for sources and stories, and they also identify errors in articles (Reich, 2011). Some writers use comments to gauge reader interest in their work (Levenson, 2010; Reich, 2011). But some journalists have expressed negative feelings about comments because of their tendency to be derisive and digressive (Nielsen, 2014). For researchers, such comments give insight into how self-selected members of the public interpret and react to articles or topics (Xiao & Polumbaum, 2006; Robinson, 2009; Laslo, Baram-Tsabari, & Lewenstein, 2011; Szpunar, 2013). One area of research in participatory journalism that deserves more attention is user-generated content in science journalism contexts, as these settings give specialists and non-specialists the opportunity to publicly discuss science with minimal guidance or supervision. Lately, though, fears that some comments may wrongfully influence readers' perceptions of scientific issues have raised questions about their future on websites of science-related publications (e.g., LaBarre, 2013). Journalists can be the gatekeepers of user-generated content in that they often decide what reader contributions are published. Therefore, their stance in this debate should be considered.

This thesis research investigated science journalists' attitudes toward reader comments. My study also explored whether and, if so, how science journalists use the comments. The following sections include a review of relevant scholarship and theory, an overview of my methods, a summary of my findings, and a discussion of the project's limitations and contributions.

CHAPTER II

LITERATURE REVIEW

The implementation of interactive features on the Internet (deemed Web 2.0) opened the door for users to contribute content to websites hosted by various entities, including media organizations. Although user-generated content and, more specifically, reader comments have garnered considerable attention in recent journalism-related research, most studies have focused on the content of comments (e.g., Santana, 2014) rather than the views of journalists or readers toward them. The minority of studies that have examined journalists' attitudes toward comments have concentrated specifically on *newspaper* journalists (e.g., Nielsen, 2014), excluding the views of writers and editors affiliated with magazines as well as freelancers. Ignoring these groups is problematic because their views and practices could differ markedly from those of newspaper journalists. On top of there being relatively little research on journalists' perceptions of comments, most studies on reader comments involving interviews or surveys with journalists have had diverse samples that include journalists of assorted beats and specializations; however, journalists of various specialties could have different experiences with reader comments from one another and might have differing attitudes toward them. Therefore, this study sought to contribute to journalism scholarship on reader comments by isolating the views and practices of one subset of journalists, science writers and editors, and including the voices of magazine journalists who specialize in science.

A broader study providing context for mine exists in the body of research on science journalism. Fahy and Nisbet (2011) interviewed science journalists from elite media organizations in the United Kingdom and the United States to understand how their roles have changed in the highly dynamic, participatory online environment. The authors said that they “approached [their] article as laying the groundwork for additional research examining the rapidly evolving science media ecosystem” (p. 789). Whereas Fahy and Nisbet focused on science journalists’ changing roles as a result of this “rapidly evolving . . . ecosystem,” my study investigated this group’s views and work practices regarding one aspect of this developing environment: reader comments. Thus, my study serves to follow up and expand on Fahy and Nisbet’s (2011) research.

This chapter describes the history of reader participation in journalism and the gatekeeping mechanisms employed by media organizations to moderate reader-created content. Also presented in this chapter is current knowledge on how the evolving online environment has led to the formation of virtual communities, affected journalists’ relationships with their readers, and shaped journalists’ attitudes and practices. Toward the end of the chapter, I describe the theoretical framework through which this study is contextualized. Following the overview of the theoretical framework is the statement of the problem and the questions that guided my research.

Letters to the Editor and Reader Comments

Audience participation in journalism in the United States dates back to the 1700s, when colonial-era newspapers elicited reader letters (Hart, 1970, p. 99). Since then, letters to the editor have been commonplace in many U.S.-based newspapers and magazines. Nielsen (2010) describes these letters as “a co-production between editors and letter writers” (p. 24)—suggesting that letters to the editor are an earlier form of participatory or collaborative journalism.

In addition to their collaborative aspect, letters to the editor and reader comments share other similarities. According to McCluskey and Hmielowski (2012), reader comments and letters to the editor are similar in that the “journalists provide the context for opinion expressions through the choice of sources and views,” and “the audience can echo those views, provide contrary opinions or introduce new ideas” (p. 305). Also, both reader letters and comments may inspire editors to include content on particular topics or issues (Pritchard and Berkowitz, 1991). McCluskey and Hmielowski suggest, however, that reader comments are more reflective of the public’s opinions than letters to the editor; more readers’ opinions are represented in comments because they are often anonymous and subject to less rigorous gatekeeping than letters. Another notable difference is the ease and immediacy with which some readers can post comments (Landert & Jucker, 2010). These key differences have, in part, caused reader comments to increasingly become a focus of communications research.

Reich (2011) gives five reasons why reader comments are worth researching. His first reason is “the evolution of participatory spaces” (p. 97). More audience members are being heard because participatory spaces are inclusive rather than exclusive. Second, he points out that commenting features allow readers to react immediately to a topic, which is appropriate for the fluid nature of online news. Third, online news has become a hybrid of journalistic content and reader comments. Readers have come to expect that comments follow stories. Fourth, according to Reich (2011), reader comments are currently one of the most popular forms of user-generated content. Readers can quickly and easily publish their responses, and journalists can use comments to assess audience members' interest in their stories. Comments are also associated with more traffic to websites (p. 104). The fifth reason that Reich gives for studying comments is "the controversy they create" (p. 98). He explains that the aggressiveness and profanity of some comments have concerned journalists.

As Reich (2011) indicates, comments have made websites of media organizations participatory spaces. The volume of comments compared with, for instance, the number of letters to the editor printed, is quite substantial. The tendency for their content to be controversial has raised concerns about whether they harm the reputation of the news organization hosting the website. Therefore, journalists have rethought how they manage reader-created content and stepped into new gatekeeping roles.

Gatekeeping in Journalism

In popular media, gatekeeping takes place at various stages in the process of gathering and reporting information to the public. In the context of journalism, Bruns (2005) defines gatekeeping as "a regime of control over what content is allowed to emerge from the production processes in print and broadcast media" (p. 11). Psychologist Kurt Lewin is credited with defining *gatekeeping* and developing gatekeeping theory in the 1940s, although the concept was not formally applied to news practices until White's (1950) paper in *Journalism Quarterly*. White's (1950) case study investigated how media outlets select which news stories to print. Bruns (2005) refers to this stage of gatekeeping as the *output* stage, which takes place between the *input* and *response* stages (p. 12). In the input stage, the gatekeeping that occurs involves the selection of which news to cover—the gathering of news. During the output stage, editors practice gatekeeping by deciding which news to print or broadcast—the publishing of news. In the response stage, which is the primary focus of this thesis, gatekeeping is applied to news commentary.

The gatekeeping of audience commentary occurs in various forms of popular media. For instance, in broadcast journalism, both for radio and television, audience members can call and offer their commentary. The selection of listeners or viewers to voice responses on air can be strict (Bruns, 2005, p. 12). In print media, letters to the editor undergo gatekeeping; they are evaluated and deemed worthy or unworthy of being published. The Internet has allowed media organizations to receive another form of audience response, online reader comments. However, gatekeeping of online media differs from gatekeeping in the print and broadcast media in all three stages (input, output, and response) because it is not limited by the same space and time constraints (Bruns, 2005, p. 13). For example, in the response stage, the sheer volume of comments that can be published online poses problems for gatekeepers of online media, which I address later in this chapter. Although gatekeeping of reader, listener, and viewer commentary by media organizations has evolved over time, this thesis focuses on the gatekeeping that takes place in print and online journalism.

History of media gatekeeping. Reader contributions have had a long history of undergoing scrutiny by journalist gatekeepers. Before online commenting, however, journalists tended to be the only ones encountering the aggressive and inappropriate reader contributions. They could filter out letters that were irrelevant or could reflect poorly on their publication.

In fact, the same qualities that repel some readers from online comments today have dismayed journalists for over a hundred years. Wiles (1965) examined the content and practices of British newspapers in the 1800s. The editor of an 19th century British newspaper, the *Kendal Weekly Courant*, once printed his editorial policy for unsolicited reader contributions, indicating that he would not "suffer [his] Paper to be a Conduit to convey Envy, Detraction, Picque or Prejudice" (Wiles, 1965, p. 276). This policy suggests that printing such reader letters could reflect poorly on the publication. An editor of another paper printed during that time, the *York Courant*, addressed an unfavorable contributor directly in his publication: "The Writer of a Letter, sign'd S.D. [the Post-Mark on which is WAKE-FIELD] may well be asham'd of his Name, since 'tis hard to determine whether his Ignorance, his Lies, or his ill Manners are the most conspicuous" (Wiles, 1965, p. 275). Thus, uncivil contributions from anonymous readers are not recent phenomena.

Today, editors still choose which letters submitted by readers will be published. Wahl Jorgensen (2002), who has viewed letters to the editor as a means of public discussion, determined four main criteria for editors' selection of letters to publish: relevance, brevity, entertainment, and authority. She asserts that some aspects of these selection criteria inevitably smother certain voices. For instance, the *authority* condition gives preference to letters that abide by certain grammatical and stylistic conventions;

journalists tend to perceive readers whose letters are well written as more “informed” or authoritative and are, thus, more likely to publish letters employing proper grammar and style. This practice might exclude some readers from taking part in the discussion (p. 77–78). Most of the current standards used to filter comments are less strict than those imposed on letters to the editor, but some media organizations seem to be moving toward commenting environments that are more exclusionary.

Gatekeeping of reader comments. In August 2013, the *Huffington Post* changed its commenting policy from allowing commenters to be totally anonymous to requiring new commenters to reveal their identities internally. Users now must register with the website before commenting, though they may still remain anonymous to other users (Soni, 2013). Jimmy Soni, managing editor of the newspaper, said this new policy is an attempt to dissuade "trolls," intentionally aggressive and provocative commenters, from posting controversial and uncivil material. Automated trolls would be unable to register, and drive-by (human) trolls might be less likely to take time to register. Other publications have taken similar approaches to manage the quality of comments, but a gold standard for the gatekeeping of reader comments does not yet seem to exist.

As suggested earlier, some journalists worry that abrasive comments reflect poorly on the publication (Harrison, 2010). Many publications have guidelines for commenters that try to promote civility in discussions, which ideally helps protect the reputation of the media organization. Some organizations have moderators who review comments before posting, in part to ensure that they meet certain standards of civility. Other organizations identify inappropriate comments after they are posted by allowing writers, editors, or readers to “flag” offensive posts. In the context of this study, gatekeeping to promote productive discussions is important because the quality of reader commentary could affect how journalists view the comments and perceive their usefulness.

Until the advent of online comments, the public has seen only reader content *chosen* for publication (e.g., letters to the editor). Gatekeeping of online comments tends to be less selective than the process of choosing reader letters to publish, so today’s readers are exposed to the ill-mannered material that was once hidden from them. The impoliteness of many reader posts, though, can be attributed to other factors, such as commenters’ ability to hide their identities.

Anonymity of commenters. Perhaps one of the most contested aspects of reader comments is their tendency to be anonymous. According to a poll conducted by Pew, approximately 25% of Internet users have posted material anonymously online (Rainie, Kisler, Kang, & Madden, 2013). Aliases are typically forbidden in print media, yet most newspapers and magazines have not enforced this rule with online commenters. Many U.S. journalists have said that they are opposed to anonymity of commenters (Santana, 2011). Opposition stems largely from the belief that anonymity of comments results in “uncivil” (Reader, 2012) and “impolite” (Neurauter-Kessels, 2011) comments. In fact, Santana (2014) found that anonymous comments on news websites were more frequently uncivil than non-anonymous comments. Comments’ tendency to lack civility is one reason why some publications have banned anonymous comments. Reader (2012) did a textual analysis of high-profile essays and subsequent comments about the issue of civility in anonymous comments. One essay included in the analysis was from the *Buffalo News,* a publication whose number of comments decreased significantly after it banned anonymous posts. Reader suggests this outcome might indicate that “when it comes to audience feedback, many journalists prefer quality over quantity, but many of those who use such forums seem willing to tolerate substandard writing and vitriol if it encourages broader public participation” (p. 505). Thus, preferences regarding anonymity of comments, and other aspects of commenting, seem to vary.

Some believe that anonymity allows readers to post opinions freely—their identity protected from personal attacks. Permitting anonymity is also thought to allow for the expression of minority viewpoints or a broader range of voices (Haines, Hough, Cao, & Haines, 2012). However, in psychology research, anonymity—particularly in online environments—has been associated with behavioral differences. Suler (2004) describes how and why people’s behavior can change when on the Internet, a phenomenon that he calls the online disinhibition effect. The online disinhibition effect, as defined by Suler, refers to how “people say and do things in cyberspace that they wouldn’t ordinarily say and do in the face-to-face world” (p. 321). He gives six factors that influence this effect, one of them being dissociative anonymity: “When people have the opportunity to separate their actions online from their in-person lifestyle and identity, they feel less vulnerable about self-disclosing and acting out” (p. 322). Suler says that the online disinhibition effect takes two forms: benign disinhibition and toxic disinhibition. Benign disinhibition involves users sharing intimate details about emotions or showing benevolence that one might not have in person. Toxic disinhibition, which is more frequently associated with reader comments, refers to the “rude language, harsh criticisms, anger, hatred, even threats” that people post online. Factors other than anonymity contributing to the online disinhibition effect include asynchronicity and invisibility (Suler, 2004).

The anonymity of some comments, and their often subsequent abrasive content, could affect how journalists perceive their usefulness. Nielsen (2014) conducted surveys of journalists to assess whether and, if so, how anonymous comments have affected news content and newsroom practices, including gatekeeping processes. She notes the culture of skepticism that exists among journalists regarding anonymity, citing the Society of Professional Journalists’ Code of Ethics, which encourages reporters “to question the motives of people who seek anonymity” (p. 5). As previously mentioned, anonymity is generally not allowed in print publications, but many publications do not apply this journalistic convention to user-generated Web content. Of the news journalists that Nielsen surveyed, 73% agreed that reader comments should not be anonymous (p. 10), and “[m]ost of the narrative responses given in response to this statement took the view that anonymity had unfairly given commenters protection not given to journalists, sources, or people who wrote signed letters to the editor” (p. 10). Anonymity alone, however, might not be the only explanation for comments having “little to offer anyone,” as one of Nielsen’s respondents said (p. 14).

The cost of gatekeeping. Whether reader posts are anonymous or not, gatekeeping of audience commentary can be difficult for media organizations. Harrison (2010), for instance, observed gatekeeping practices of user-generated content at the

BBC hub. For the BBC, “moderation of online content . . . has proven to be one of the most time-consuming and resource-hungry elements of the [user-generated content] phenomenon” (p. 250). Comments, though popular among readers, can involve constant monitoring for journalists. Knowing their perceived value and usefulness for journalists, therefore, could be helpful in assessing whether they are worth the investment of an organization’s resources.

Ensuring the appropriateness of user-generated content is not only costly for news organizations; legal implications also exist for commenters whose posts are deemed libelous. A husband and wife from Texas lost their business and were forced to move as a result of defamatory online posts. In 2012, a jury forced anonymous users who posted libelous comments about the couple on the online forum and news aggregation site Topix.com to pay over $13 million (Heussner & Kim, 2012). Other cyber-libel cases have surfaced recently, and cyber bullying remains a concern, as well. Effective gatekeeping could, therefore, protect both the reputation of organizations whose websites host comments and the commenters themselves by preventing potential lawsuits.

Current gatekeeping practices. Different media organizations have different ways of gatekeeping user-generated content on their websites. To manage comments, these organizations have used social media platforms and other content-management services. Some publications allow readers to comment on their articles through their accounts on the social networking site Facebook. Readers use their Facebook accounts to comment, but the comments appear below the article on the publication’s website. Many publications employ the Disqus comment management system. According to the Disqus website, “adding Disqus to your site turns comments into a community.” The basic service is free and includes a built-in spam filter. Disqus also has a social media integration feature, which allows commenters to log in through Facebook to comment. The company Livefyre offers another popular comment management system, which *The New York Times* uses. These products provide platforms for readers to comment through and can aggregate information on analytics related to comments, but the task of actively moderating comments falls primarily on the media organization.

Media organizations employ various moderation strategies or develop policies for commenting that aim to produce “quality” discussions among readers. Diakopoulos and Naaman’s (2011) conference paper focuses on what moderation tactics lead to civil and relevant comments. They define *quality*, with regard to comments, as “the degree of excellence in communicating knowledge or intelligence and normatively includes notions of accuracy, reliability, validity, currency, relevancy, comprehensiveness, and clarity” (p. 133). The authors describe the different mechanisms used to moderate comments. For example, organizations generally employ pre-moderation, in which comments are screened before their publication, or post-moderation, in which comments are evaluated after they are published. Pre- or post-moderation might be executed by a pre-defined member of a media organization, or post-moderation might be crowd based, where readers rank or flag comments to identify inappropriate content. Post-moderation by a member of the media organization can sometimes involve the moderator participating in the comment thread. Diakopoulos and Naaman refer to the interaction between moderators and commenters as *engagement*, whereas they consider *moderation* to be the review and removal of certain comments. The researchers interviewed and surveyed journalists to better understand the effects of comment quality on reader and journalist behavior as well as moderation strategies for addressing comment quality. One key conclusion that they drew from their findings is that "a more tenable approach toward quality improvement is to have reporters engage readers in the comments more directly," interacting in commenting threads rather than passively monitoring them (p. 141).

Gatekeeping exists in various forms in journalism. In practicing gatekeeping through the moderation of comments, journalists can promote productive discussions, but doing so may smother certain voices and can drain media organizations' resources. No standardized formula for promoting civil and relevant online comments has surfaced yet.

Building Online Communities

Participatory features on newspaper and magazine websites, such as reader comments, have the potential to foster online, or virtual, communities. For such an online community to be established, however, both readers and journalists must be dedicated to its development (Meyer & Carey, 2014). Meyer and Carey (2014) surveyed online news editors and audience members who comment to investigate whether and, if so, how communities develop at news websites. They were also interested in why readers leave comments and how journalists feel about this form of audience participation. The researchers found that journalists' interaction with readers is one of the factors determining whether an online community will form. In addition, they found that “creating a sense of virtual community is the most important predictor of how frequently someone will post comments at the end of a news story” (p. 214).

Building an online community depends partly on interaction among readers. Based on in-depth interviews with experts in interactive communication, Downes and McMillan (2000) sought to define *interactivity* as it pertains to online environments. They conclude that online interactive communication has six dimensions, which fit into two categories: “the message dimensions (direction, time, and place) and the participant dimensions (control, responsiveness, and perceived goals)” (p. 173). They note that “in particular, the individual’s control over the message seems to be a key determinant of interactivity” (p. 175). With comments, users have a high level of control over their message and the potential to elicit responses from other readers, or even the journalist who wrote the story.

Changes in the Audience-Journalist Relationship

The expansion of journalism to an online setting has caused the relationship between journalists and their audience members to evolve. Reader comments (and other forms of user-generated content) have given journalists a new vantage point for understanding parts of their readership. For instance, public interest in topics or reaction to a specific event can be evaluated through comments (Xiao & Polumbaum, 2006; Robinson, 2009; Laslo, Baram-Tsabari, & Lewenstein, 2011; Szpunar, 2013). In many cases, readers who comment on online news stories are not representative of the general public (Laslo, Baram-Tsabari, & Lewenstein, 2011), but many more voices are being heard now than ever before.

The transition of journalism to the Web has not necessarily been an easy adjustment for journalists or readers: “The existing research indicates that journalists and audience members alike appear to be having some difficulty in adapting to new forms of online journalism” (Larsson, 2012, p. 260). Recent research has investigated the changes in the distribution of power between journalists and their audience members since the transition to online news and the advent of user-generated content (Robinson, 2010; Jonsson & Ornebring, 2011; Singer et al., 2011; Williams, Wardle, and Wahl Jorgensen, 2011). Robinson (2010) characterizes “traditionalist” journalists or readers as remaining resistant to giving the audience power over the news content, while she says “convergers” believe the audience should be allowed more freedom to produce content. According to Larsson (2012), “the bulk of research on online journalism still suggests that journalist attitudes toward increased user interaction are mostly somewhat conservative” (p. 260).

Regardless of whether journalists are traditionalists or convergers, the journalism environment has changed substantially. As Reich (2011) notes, “as the threads of user comments are x instantly from almost every online news item, journalists can only yearn for the quiet old days” (p. 97). Readers can participate in the production of content on news and magazine websites, but as suggested above, journalists might not think that sharing this space makes readers “co-producers” of news. Nielsen (2014) surveyed U.S. journalists to examine whether anonymous online comments have affected journalists’ newsgathering practices. She found that for the most part, “journalists largely ignored user input” (p. 15), so comments did not affect the way her participants cover news. According to Nielsen, this tendency of journalists to ignore user input took place “largely because of the journalists’ conception of the user” (p. 15); the journalists surveyed still perceived commenters as consumers, not co-producers. Nielsen’s survey, however, was distributed in 2010, so journalists’ views of comments and commenters might have changed with the recent developments in moderation mechanisms.

This shifting dynamic—with journalists possibly distributing more of their power to the audience—could affect how journalists view their readers. Comments have allowed journalists to hear more reader voices than before, and at least in the form of comments, these voices are gaining a reputation for being disproportionately negative.

Journalist Views and Use of User-Generated Content

Research has shown that journalists’ perceptions of user-generated content vary (Thurman, 2008; Levenson, 2010; Vujnovic et al., 2010; Wardle & Williams, 2010; Santana, 2011; Nielsen, 2012). Thurman (2008) surveyed editors and reporters from 10 British news websites. He found that journalists support user-generated content for its potential to increase circulation and produce story ideas, but they also said they thought that content should be either edited or evaluated. Nielsen (2012) surveyed U.S. news journalists and found that they are largely support readers’ ability to post comments, but the participants expressed disfavor toward personal attacks and inaccurate claims in comments. In addition, despite the journalists’ support for commenting, a relatively small percentage said they regularly read comments (35% reported frequently/always reading comments). As noted earlier, US-based journalists have voiced opposition to anonymity of reader comments (Santana, 2011; Nielsen, 2014). Meyer and Carey (2013) found that journalists' attitude toward comments and commenters correlates negatively with the number of comments their publications receive; in their study, journalists who received fewer comments had more favorable views of comments and their readers than journalists whose publications have more comments. However, previous literature suggests that, overall, "journalists have attached little value to the online interactions present in the comments sections at the ends of stories" (Meyer & Carey, 2013, p. 215).

Journalism trade publications also provide insight into how some journalists view comments. In an article on the *Nieman Reports* website, an NPR ombudsman recounts some of her experiences with comments, which have consisted largely of personal attacks, and addresses issues such as moderation and anonymity of comments (Shepard, 2011). She says "the hunt is continually on for workable—and affordable—solutions [to managing comments]. The goal is dialogue, but it's pretty clear that the debate between dialogue and diatribe is still being waged." Similarly, a recent article from *Editor and Publisher* tackles the "commenting conundrum" that publications are facing. The author notes that "publishers of all types of content—not just news—are struggling with how to encourage dialog with the communities they serve, without merely offering a platform for rampant vitriol" (Peck, 2014). Thus, some journalists seem to view reader comments, and the promotion of productive dialogue, as an ongoing challenge for media organizations.

Journalists who perceive comments as valuable have reported using them in various ways. For instance, some journalists use comments to gauge reader interest in their stories. Drawing on personal experience and interviews with journalists, Levenson (2010) discusses the anxiety that some freelancers face regarding reader comments. The anxiety stems from the possibility that their work will receive negative comments—or worse, no comments. Similarly, Reich's (2011) findings through interviews with editors indicate that some journalists view volume of comments as a "rating system," in which critical comments are preferable to no comments (p. 104). Participants in Reich's (2011) study, which was conducted in late 2007 and early 2008, also noted other uses of reader comments: "Another value of user comments stemmed from their ability to help journalists detect sources, story ideas and material, and leads to be followed up" (p. 104).

A range of opinions regarding reader comments exists among journalists today. Some journalists do review and make use of comments on their work. But little is known about science journalists' views and use of reader comments—or the function of user-generated content in a broader science journalism context.

Reader Comments and Science Journalism

As noted earlier, *Popular Science* shut off its online commenting feature in September of 2013. To support this decision, Suzanne LaBarre, the magazine's online content director, cited a recent experimental study that found participants' risk perception of nanotechnology became more polarized when they read uncivil comments (Anderson, Brossard, Scheufele, Xenos, & Ladwig, 2013). *Popular Science*'s decision and reference to Anderson et al.'s (2013) study sparked several Internet discussions about the potential benefits and risks associated with reader comments on science stories (for example, see comment thread following Mullis, 2013). Anderson et al. (2013), however, are not the first to investigate the implications of comments on science stories. Secko, Tlalka, Dunlop, Kingdon, and Amend (2011) performed a narrative analysis of articles and commentary on the website associated with the Canadian newspaper *The Globe and Mail*. The authors found that reader comments can reframe the narrative of a news story, noting that "the journalistic narratives in [their] sample tended to rely on official sources and published studies, whereas commenters seemed less interested in such narrative elements and wished to open the narrative to raw experiences" (p. 821). According to Secko et al., user-generated content has led to science stories that are essentially "unfinished" because the online dialogue remains open.

Online comments allow members of the public to discuss science with one another without constraints of time or distance. Focusing on controversial science topics, researchers have observed these discussions. Laslo, Baram-Tsabari, and Lewenstein (2011), for example, conducted a content analysis of talkbacks—the term used for reader comments in Israel—on Israeli news stories related to animal experimentation. They observed that commenters tend to reframe articles, discussing dimensions of the topic that are most important to them. In addition, they found that more comments regarded the content of other comments rather than to the content of the article itself. Studies have also looked at how readers engage in online discussion about climate change (Holliman, 2011; Nerlich, Koteyko, & Jaspal, 2012) and medical controversy (Park, Metlay, Asch,

& Asch, 2012). User-generated content in science journalism has received some attention from researchers, but few studies have considered the perspective of science journalists (e.g., Fahy & Nisbet, 2011).

Science Journalists and User-Generated Content

Earlier, science journalists served as the primary gatekeepers who disseminated scientific information to the general public (Fahy & Nisbet, 2011). The self-publishing opportunities on the Internet today, however, have allowed scientists, institutions, organizations, journalists, and members of the lay public to share science-related information through social media, personal websites, blogs, and other online vehicles. Consequently, as Fahy and Nisbet (2011) note, there is "a perceived diminished role for science reporters as chief disseminators of scientific content," and "online science news and content has the potential to be highly participatory, social, and collaborative" (p. 782). Little is known about how science journalists today respond to these challenges and opportunities.

Dunwoody (1992) underscores qualities that make popular science communicators appealing as subjects of research. One reason for studying these individuals is pragmatic—by isolating one flavor of journalist, one inevitably eliminates certain confounding factors (p. 12). Additionally, Dunwoody observes that science journalists are often specialists who work among generalists (at least in the case of mass media news organizations). Thus, they might have unique experiences and perspectives. She also discusses how science journalists' relationship with their principal sources, scientists, sets them apart from other journalists. She explains that scientists have little to gain from journalists, which “contrasts sharply with patterns for other sources—politicians, sports figures—who have much to gain from visibility and who have developed rather sophisticated relationships with the press” (p. 13). This relationship might have changed since Dunwoody’s (1992) article, as scientists might now benefit more from increased visibility. Nonetheless, science journalists’ relationship with sources could still affect the way they gather, produce, and evaluate news content. These reasons make it advisable to study science journalists as an isolated group, as their practices are likely to differ notably from those of other journalists.

The literature on user-generated content has not yet covered science journalists’ views or uses of reader comments in depth. Fahy and Nisbet’s (2011) study allowed science journalists from several elite U.S.- and U.K.-based publications to express how the Internet has affected their roles and work practices. Some of the participants touched on the interactive features of online journalism, including reader comments. Fahy and Nisbet’s participants “agreed that their science reporting work involved degrees of reader collaboration” (p. 785). One interviewee “noted that [his] paper encourages its reporters to see reader interactivity ‘as part of the journalistic process, not as a kind of add-on’” (p. 785). But Fahy and Nisbet’s research only touched on science journalists’ attitudes toward user-generated content. Because reader participation has become “part of the journalistic process,” the implications of this new component merit further exploration. More specifically, how science journalists view reader comments and whether and, if so, how they use them in their work should be examined more closely.

Theoretical Framework

Similar to Nielsen (2014), I contextualize my findings using Leonardi's (2009) theoretical framework, which suggests that organizations and technology are mutually constitutive. In other words, not only do an organization's practices influence the development of technology, but new technologies also influence an organization's practices. Early theory on this subject presumed that this influence occurs in only one direction and that technology and organizations develop separately, not simultaneously (e.g., Bijker, Hughes, & Pinch, 1987; Latour, 1987; Hughes, 1983). Leonardi calls for research that considers whether mutual shaping occurs between organizations and technology. He emphasizes that "the activities surrounding development, implementation, and use [of technology] are related, they often overlap, and they influence each other through the choices made within and between the communities that come into contact with the technology" (p. 298). Therefore, according to Leonardi, organizational change and technological development should be thought of as fluid and interrelated processes.

Leonardi's model is based on the need to cross what he calls the "implementation line." He says that previous research has assumed that a distinction exists between the development and use of a technology, and he states that these two processes (development and use) have been separated by an artificial implementation line. On one side, technological change (development) is investigated, and organizational change is thought to be static. On the other side, the technology has been put into use, its development has stopped, and research focuses on organizational change. However, Leonardi asserts that researchers must cross the implementation line and consider how technologies and organizations “co-evolve” (p. 295). Therefore, although my study looks mainly at organizational change surrounding a technology, I also acknowledge that technological development may be co-occurring.

In Leonardi’s framework, which is based on previous theories of the social construction of technology, three main factors are involved in organizational change: *perceptions* of a technology, *appropriations* of a technology (how it is used in work practices), and *interactions* with a technology. These components are not unidirectional; instead, they reinforce one another. Therefore, I constructed my interview questions to ascertain how science journalists perceive reader comments as well as how they have appropriated and interacted with this technology. I anticipated that the participants’ responses would indicate whether mutual shaping between science journalists and reader comments has occurred.

In the context of my study, mutual shaping will have taken place if reader comments are shown to influence the practices of science journalists. (In applying this framework to my study, I assume that science journalists form a certain organization or community in and of themselves, despite their association with various newspapers and magazines. In fact, many science journalists are members of professional organizations, such as the National Association of Science Writers.) In one direction, the evolution of journalism to online settings led to the development of new technologies, such as reader comments. These reader comments could, in turn, shape journalists’ practices. For instance, journalists might use comments for source or story ideas. Nielsen (2014) found through a survey of 583 journalists that this mutual shaping did not seem to occur in U.S. newsrooms, “largely because of the journalists’ conception of the user” (p. 15). In fact, about 88% of the journalists interviewed indicated that anonymous reader comments did not influence how they report, and narrative responses suggested that this lack of organizational change around comments could be attributed to journalists’ views of reader authority and knowledge. I chose to apply the lens of mutual shaping to a slightly different context from Nielsen (2014). My study focused on a narrower population (science journalists at newspapers/magazines, in contrast to general news reporters and editors) and involved interviews rather than surveys. One intention of this study, therefore, was to continue testing Leonardi’s (2009) theory of mutual shaping.

Statement of the Problem

Since the advent of interactive features on publications’ websites, journalists have had access to considerably more feedback from readers on their work or on topics covered in it (Singer et al., 2011, p. 96). Over the last decade, most media outlets with websites have adopted capabilities for user-generated content, with user comments being one of the most common manifestations. Many journalists now have access to responses to their articles from a variety of readers, and the possible effects on the evolution of the journalist-audience relationship merit better understanding. As Dickinson, Matthews, and Saltzis (2013) note, “Journalists’ activities in relation to [user-generated content] and the other developments…must continue to be the focus of scholarly attention for some time to come for they are key to understanding how change is taking place” (p.

12). As user participation in the news expands, the voices of journalists, who are often not active responders to comments (Santana, 2011), must be considered.

Some studies (e.g., Nielsen, 2014; Nielsen, 2012) have investigated journalists' perceptions of reader comments, but few (e.g., Fahy & Nisbet, 2011) have assessed science journalists' views in this regard. Therefore, my research sought to answer the following questions:

Research Question #1: What are science journalists' attitudes toward online reader comments?

Research Question #2: Do science journalists use online reader comments? If so, how?

CHAPTER III

METHODS

To ascertain and understand U.S. science journalists' views and uses of reader comments, I employed a qualitative study involving nine semi-structured one-to-one interviews with science journalists working for U.S.-based publications. According to Merriam (2009), "interviewing is necessary when we cannot observe behavior, feelings, or how people interpret the world around them" (p. 88). Thus, the purpose of the interviews was to expand on our limited knowledge of science journalists' attitudes ("feelings" and "interpretations") and uses ("behavior") regarding reader comments.

Sample

In my study, the designation "science journalist" referred to writers or editors who 1) are on the staff of a newspaper or magazine and 2) produce mostly articles about science. Freelance science writers were excluded because their views and uses of reader comments might differ notably from those of writers with staff positions. In this study, the term "science" included the environment, health, medicine, technology, the physical sciences, and the life sciences. In addition, the publications for which participants worked were published either online only or both in print and online. Only science journalists working for U.S.-based publications were included. Publications that are exclusively blogs were excluded. Potential participants were screened to ensure that they met these criteria before being recruited.

Recruitment

I used various strategies to recruit participants for the study, employing both purposive and snowball sampling. Using purposive sampling helped ensure that my sample represented a range of perspectives. First, I sent recruitment emails to email lists of two professional organizations to which many US-based science journalists subscribe: those of the Association of Health Care Journalists and the National Association of Science Writers. These emails resulted in two potential subjects expressing an interest in participating. Of this group, both met the study criteria, but only one followed through with the interview. Next, I contacted science journalists directly by email. To determine potential participants to contact, I used mastheads of popular magazines and newspapers with reporters and editors assigned to the environment, health, medicine, technology, and the life sciences. After identifying potential participants this way, I contacted them by email. Of the 14 science journalists I invited to participate through email, six replied and followed through with interviews. I contacted one participant through the social networking site Twitter, as her email address was not readily publicly accessible. After the first few interviews, I asked interview subjects to refer me to other science journalists meeting my sample criteria and might be interested in participating. This strategy led to one additional participant. After arranging nine interviews, I stopped recruiting participants until I could determine whether saturation was reached (in other words, no new responses given) or whether more interviews would be needed. Responses seemed to reach saturation, so I decided not to recruit additional participants.

Each subject signed a consent form to agree to the terms of the research (see Appendix A for a sample consent form). The identities of the participants were protected according to Texas A&M University's Institutional Review Board protocol. Each participant was assigned a number. The sample population consisted of six women and three men. The interviewees ranged in age from their 20s to their 40s. Most of the participants, and their publications, were located in the Northeast, two were in the South, and one was in the western United States. Five of the interviewees were editors, and four were writers or reporters. Four were on the staff of newspapers, and five were on the staff of magazines. Participant #3 recently moved from working for a print-and-online magazine that allows comments to an online newspaper that has not yet launched its commenting feature; therefore, during the interview, he described his experiences working for the magazine.

Overall Study Design

As noted above, my study consisted of one-to-one semi-structured interviews with U.S.-based science journalists; I recorded these interviews for accuracy. First, I developed an interview guide based on my research questions (see Appendix B). I used Merriam's (2009) guidance on conducting effective interviews when composing the questions. Then I submitted my study protocol for review to the Texas A&M University Office of Research Compliance and Biosafety. Upon obtaining approval from the Institutional Review Board (Study Number: IRB2014-0021), I conducted a pilot interview to test the interview guide and recording device with a science writer from a U.S.-based, science-related magazine who is a graduate of Texas A&M University's

Science and Technology Journalism master's program. Based on this interview, I decided to not make changes to the interview guide; however, I did make note of additional probing questions that led to more in-depth answers.

Data Collection

I conducted eight of the interviews over the phone and one in person. Phone interviews were recorded, with permission from subjects, through the iPhone application Tape a Call Pro. The in-person interview was recorded with a Sony® digital recorder. Interview recordings were saved on a password-protected computer in a password-protected iTunes account under the number assigned to the participant. I transcribed the interview recordings, which varied in length from approximately 15 to 45 minutes. When transcribing, I used the software ExpressScribe to control the speed of the recording. Interview transcripts were saved on the same password-protected computer as the recordings.

Data Analysis

For the analysis portion of the study, I used the instructions given by Merriam (2009) on coding data. According to Merriam (2009), her guidance on data analysis is based on the constant comparative method described by Glaser and Strauss (1967). This technique involves assigning data to categories and identifying themes based on these categories, a process that Merriam (2009) says should begin during data collection (p.170). Therefore, when conducting the interviews and transcribing the recordings, I made note of potential categories and trends in the data. I divided the data in each transcript into individual idea units and placed each idea unit on a 4" by 6" index card.

The cards were labeled with the participant’s assigned number and a page (card) number. After creating these cards for each set of data, I grouped the cards into similar ideas, or categories. Then, I reviewed the stack of note cards for each category and made note of dimensions that emerged within them. For instance, *moderation of comments* is one category that emerged, and *constraints to moderation* is a dimension that emerged within that category. Upon close examination of the categories and dimensions, I uncovered themes that reflected participants’ general views or experiences. By the end of my analysis, my data had been divided into seven categories. The results of my analysis are presented in the next chapter.

CHAPTER IV

RESULTS

The purpose of this study was to better understand U.S. science journalists' perceptions and uses of online reader comments. The interviews allowed participants to describe their experiences with reader comments and give examples of experiences that helped shape their perceptions. In this chapter, I summarize the data collected in the semi-structured interviews. The data are presented by the categories and dimensions that emerged during the data analysis. Themes that surfaced within each category are also presented.

Moderation of Comments

Most of the participants said they believe that moderation of comments is a necessary mechanism to promote civil and productive reader discussions. The interviewees discussed their publications' comment management process, including who serves as moderator and what constraints limit moderation. No gold standard for comment moderation seems to exist across publications, though some participants identified media organizations that they felt were good models for comment management.

Why moderate? Overall, the participants cited three main reasons for moderating comments. First and foremost, the interviewees' responses indicated that moderation of comments was necessary to maintain civility in comment threads. As Participant #4 put it, "You can't just let your comment section boil off into the Wild

West." Second, participants expressed concerns about liability, which also relates to civility. For instance, Participant #5 mentioned legal issues that have arisen with anonymous comments: "There have been some court cases recently about anonymous commenters spreading completely malicious, libelous things about other people on the Internet. I think there's an issue about liability that hasn't maybe been totally figured out yet." The third reason for comment moderation, which Participant #6 gave, relates to science journalism, specifically: "There's research showing that polarizing comments tend to make people actually remember the science differently." Participant #6 was referring to Anderson et al.'s (2013) study, which *Popular Science* cited when the magazine shut off its commenting feature in September 2013. Participant #6 said she does not think this research was "a good enough argument to shut down comments altogether," but she did say that "it would be a good argument for keeping conversations civil." Therefore, maintaining civility is the primary underlying reason participants gave for why publications should moderate comments.

Moderation process. A few interviewees noted that media organizations are in a state of experimentation with comment moderation. Some discussed how their publications' comment management process has evolved over time. For instance, Participant #3 mentioned how the magazine for which he formerly worked had switched from pre-moderation, in which readers make comments that are either approved or denied by an appointed staff member before being posted, to post-moderation of comments, in which comments are moderated after they are published online (except when a comment's posting is delayed by a spam filter). Participant #8's magazine recently launched a membership program, which gives certain privileges to members who comment. Participant #1 described "experiments" that she has done to maintain civility in comment threads on her articles, including responding to commenters herself (as described later). Thus, publications and individual journalists are still in a trial-and-error phase with regard to comment moderation. According to Participant #1, "There's just a better way to [handle comments] . . . The first organizations that figure out how to [manage comments] well are going to be the ones that are extremely successful."

The interviewees' publications use a variety of methods to manage and moderate reader comments. Most of the publications represented require users to register with the website or log into a social media account before commenting. Several of the participants, including Participants #4 and #7, work for publications that employ the Disqus comment management system This system includes a moderation panel with various tools for comment regulation. Participants #1 and #5's publications allow users to comment by logging in through Facebook. Some participants mentioned that their comment management system has with an automated spam filter, which prevents comments containing expletives from being posted until a moderator has approved them. Most of the interviewees noted that their publications can block users or IP addresses that consistently post uncivil comments. Participant #1 noted that her newspaper disables the commenting feature on crime stories or other articles of "a sensitive nature." Other features of comment management systems that the participants mentioned include flagging of inappropriate material by users or journalists to alert moderators to a comment and "up-voting" or "down-voting" of comments by users. The advantage of using a voting system is that, according to Participant #7, “the most valuable comments tend to rise to the top.” In this way, readers can serve as comment moderators along with editors and reporters.

Most of the participants’ publications practice post-moderation. Participant #8 said that she favors this strategy: “I think it’s more efficient to just go ahead and let everything show up and get rid of the bad things, versus putting any delay into the conversation.” On the other hand, Participant #4 is an editor for a publication that practices pre-moderation. According to Participant #4, deciding whether to approve comments is partly based on “right and hard rules,” but “there are fuzzier areas,” too.

Some of the interviewees also discussed how journalists’ engagement in commenting threads can be a form of moderation. Participant #1 described an experience with a user who posted a negative comment directed at her on an article she wrote about the Affordable Care Act:

> I was not okay with how visceral [the commenter] was being . . . And it was kind of an experiment . . . I have said to all my co-workers this whole time, if people knew that we were in the room, they would not say these things. And so I went down [to the comments], and I said, ‘Hi, I’m the reporter who wrote this story.’ I said something to the effect of, ‘I’m happy to answer any questions you might have about the story, but I would ask that you refrain from attacking my credibility when asking those questions.’ And he responded—said he was sorry and that he just hates the Affordable Care Act so much that any time any story even hints that there’s a positive [aspect to it], he just goes into attack mode.

She also said that she routinely comments on her stories to increase the level of dialogue:

> I'll go on and say, 'Hi, I'm happy to answer any questions you have.' I'll try to be the first person to comment . . . And when I do that, I ignore anyone who's being awful, who's just being nasty—I don't respond to them because they don't need validation. They're not having a conversation. The rest of us are talking, so you can quietly leave. We're all trying to talk like adults here.

Participant #4 also suggested that journalist interaction in the comments could keep discussions relevant and civil. With regard to uncivil comments, he said,

> Maybe that's a case again where an editor can go in and say, 'Can we keep this on topic please?' . . . 'Hey can you keep it civil?' I think editors have to be willing to do that . . . And that [journalist interaction] usually leads to a fairly rapid stabilization of things because people are reminded just by the presence of the journalist.

The presence of the journalist in the comments, thus, has the potential to re-direct an uncivil conversation.

A few of the interviewees mentioned publications that they believe promote good discussion through their comment management. (None of the following publications were represented by participants in this study.) Participant #1, for instance, said that she looks to *ProPublica* as a good model of comment management. In addition, Participant #7 said *Reddit*'s comment management is effective, "especially in the science forums—the commentariate is actually very well educated and very erudite, very interesting. Even the people who aren't scientists have good questions." Participant #9 identified *The New*

York Times as having good comments as a result of careful moderation: “I think the sites that I’ve seen that have the most productive comments—I would say *The New York Times* is one—put a lot of effort into curating them.” He noted, however, that such curation efforts require substantial resources on the part of the publication.

Constraints. Other participants also said their publications face difficulties in keeping up with and moderating comments. Limited staff and lack of time are the two main constraints that participants said restricted the management of comments. For example, Participant #5 is a reporter for an online news organization, and due to limited personnel, the publication does not have an official moderating system: “We don’t have a very formal moderation system that I know of. We just don’t have the staff for that.” Participant #8 also mentioned that a gatekeeping mechanism such as pre-approval of comments would be difficult at her publication because of limited staff.

Finding available time to follow comments amidst other daily tasks can be tough for some reporters. Participant #1, for instance, does not always have time to read the comments or engage with commenters: “I try to remember to read the comments. Sometimes it’s hard with all the duties we have to do now and all the layoffs and how understaffed we are.” Participant #3 gave a similar reason for not more actively following or interacting with reader comments: “It’s more so the time thing than anything else. When I’m working, I want to be producing content, producing articles and stuff. It can be distracting to take a lot of time to be engaging too much in comments.” Therefore, the extent to which participants attend to comments is sometimes affected by external factors, such as time limitations.

Anonymity of Comments

The interviewees in this study generally favored readers' right to remain anonymous. Some participants said that lack of anonymity could stifle certain voices. For example, three participants, all from news organizations, said they recognize that anonymity allows for prominent figures in the local community or in politics to contribute to comment discussions. Participant #5 noted that these otherwise more recognizable voices could offer valuable insights to commenting threads:

> Some of the local news outlets that I've worked at have had interesting arguments in favor of anonymity. For instance, in one place I worked, we got a lot of really great comments from teachers and police officers—current teachers and police officers in the city that we were covering. We thought that if we pulled the anonymity, they were not going to comment anymore. They really had some interesting things to say.

Participant #1 writes for a statewide news organization whose commenters are required to log in and comment through Facebook. Users wishing to remain anonymous can create fake Facebook accounts, but identities of commenters are otherwise disclosed. Audience members from state agencies, therefore, tend not to comment on the publication's stories. Participant #1 emphasized that she cares more about the quality of reader commentary than the disclosure of commenters' identities: "At least with online comments, if I saw somebody who had what I thought was a fake account but they were providing good commentary, I wouldn't [object]." Participant #7, a former anonymous blogger, agreed with this notion: "If what you have to say is of value, you should be able to [be anonymous].” On the other hand, Participant #1 said she might confront a user with a fake account if he or she were “being a meaningless troll.”

Additionally, respondents said that if forced to reveal their identities, readers might not offer perspectives that contradict the values of entities that they represent. Participant #6, whose publication is based in Washington, D.C., said that many local readers have positions that could prevent them from revealing their identities: “Especially here in D.C., people have jobs that are sensitive, and I would hate to lose those people’s voices.” For example, she noted that a self-identified reader who has ties to the military would not want to say something online that could be construed as antimilitary. Participant #6 also suggested that commenters’ privacy is a concern: “I feel like we’re entering into a surveillance state, and people are worried a lot about their privacy, very reasonably.” Thus, respondents’ comments indicated that anonymity can allow for a wider variety of reader voices.

Although the participants tended to emphasize the benefits of anonymity, they also identified possible drawbacks. Participant #6, for instance, said that anonymity decreases some commenters’ sense of accountability. Anonymous commenters, she said, wear masks that make them “feel like they can say whatever they want.” Similarly, Participant #9 said that he thinks anonymity “contributes to the level of discourse a little bit because people feel like they can say things and not be held accountable in any way.” He added, “It’s probably harder to post something that’s really hateful or just stupid if you actually see your real name next to it.” To avoid anonymous trolling, some media organizations have tried to encourage commenters to reveal their identities. Participant

#8 works for a magazine that is experimenting with a membership program that will reward users who register with their real names by giving them certain privileges, such as participation in exclusive discussion forums with members of the publication's staff. Such incentives for users to reveal their identities or attempts to require users to give their real names may not completely deter anonymity, though. According to Participant #1, "If people want to be anonymous, they're going to be anonymous. You can't change human behavior." Therefore, regardless of whether or not anonymity is favorable, full disclosure of each commenter's identity might not be possible with current gatekeeping mechanisms.

Comment Quality

Most of the science journalists who were interviewed expressed concern about the quality of online reader comments. In particular, most noted the tendency for comments to be uncivil or irrelevant. Some participants associated low-quality comments with certain factors, such as story topic and poor moderation. A few interviewees were also concerned about who is responsible for the quality of comments.

Uncivil comments. Although the participants generally noted the value of reader comments, they also discussed comments' propensity for being malicious. Participant #3 said the poor quality of most comments often deters him from reading reader posts:

> You know, I read them sometimes. A lot of the time, it would just not be worth my time because online commenters are kind of disproportionately negative and crazy compared to how people are in real life. Either they don't like your

> opinion, or they want to nitpick. I definitely think there are some valuable contributions coming from them, but at the same time, the majority of them are not worthwhile to read as an author.

Participant #3 was not the only member of the sample who said that comments are “disproportionately negative and crazy compared to how people are in real life.” Participant #1 said she thought that her publication’s requiring commenters to log in through Facebook might promote more civil dialogue, but the readers still post offensive comments:

> You still get people who are blatantly racist, and you think, oh, you must be racist wherever you go—the post office, [restaurants]. There are some people like that. They are going to be racist. They are going to be homophobic. They are going to be all these things that are awful because there are just some awful people in the world.

Similar to Participant #3, Participant #1 suggested that comments do not proportionally represent the general views of readers. She expressed concern that the abundance of negative comments has discouraged other readers from participating in the discussion: “Here’s one of the challenges, I think—figuring out how to get the people like you and me, the people who have turned away from online comments because they think they’re too crazy, to now come back and join the dialogue.”

Factors influencing comment quality. Some participants drew connections between certain factors and the quality of reader comments. For instance, a few noted that stories on particular topics tended to draw more derisive comments. Participant #5, a newspaper reporter covering the environment, observed that although comments on her stories can be negative, reporters covering other beats at her publication deal with such comments more often: “Some topics are going to encourage more vitriolic comments than others. Obviously, our health care reporter probably deals with the worst of it . . . because you’ve got things like abortion.” She also noted how stories about immigration tend to attract more abrasive comments. Participant #3 cited an example of when she wrote a political story involving a celebrity. She said that the comments on the story were “horrible . . . because they were just personal attacks,” and the scathing nature of the comments led her to question comments’ overall usefulness: “That was probably one instance where I felt like, are these comments really serving anyone any purpose?” Participant #1, who is a health and medical reporter, mentioned that her stories on the Affordable Care Act often invite heated commentary. Although Participant #1 tends to monitor her reader comments, she indicated that long commenting threads can sometimes become difficult to keep up with: “If I look and my story’s got 60 comments, it’s too far gone. It’s gone.” As previously noted, her publication also turns off the commenting feature for stories on certain topics, such as crime stories, to avoid offensive comments.

Another factor that participants related the quality of comments to is the audience of certain stories. Participant #8, who is the science and health editor of an online general-interest magazine, said that science-related stories receive comments of a slightly higher caliber from other stories at her publication:

> We get a better quality of comments to our science stories compared to our

> politics and art stories, but it’s still the case that I would say that the majority of commenters are just saying kind of nasty, self-indulgent things and aren’t really saying anything interesting.

When asked why she believes science stories at her magazine have better comments, she speculated that this trend might be related to readership of science stories:

> I think it’s that we get a slightly different group of people commenting. I think we draw a different audience reading the story to start with, that’s the main thing. The audience is a little more sophisticated and a little more interested in facts.

In addition, Participant #9 discussed how his magazine’s science blogs tend to elicit high-quality commentary. He said that the blogs “have a smaller and, [he] guess[es], a more sophisticated audience.” Thus, participants indicated that differences in the audience of science stories could affect the quality of comments.

Responsibility. Some interviewees also discussed the notion of blame for the poor quality of comments. Participant #1 was adamant that journalists are responsible for low-quality comments: “So I think that—and I’m probably in the minority of reporters who think this—but I think it’s the news organizations’ fault that our comments are bad.” She described a previous experience working for a news organization that tried to deter negative comments:

> I worked for a journalism nonprofit, and we tried an experiment. At the top of the comments, we had this big paragraph basically saying, hey, we are trying to do educated journalism, we’d appreciate educated comments . . . We ended up

> not getting very many comments . . . But it was an interesting concept, and to me, it was one example of a news organization taking responsibility and saying, we've created this space—we should create rules and guidelines for how we want people to act in this space.

Similarly, Participant #7 mentioned one magazine whose comments become a "cesspool" because of the publication's poor moderation practices. She said that her view of reader comments "depends on the publication and the level of moderation deployed."

Interactivity

Some participants spoke to the potential for comments to foster interaction between readers and journalists. Participant #1 noted how comments have presented more opportunities for two-way interaction between these groups:

> We've gotten so used to the one-way communication. So many news organizations use social media just as media, not social, and I'm really against that. I'm all about talking to readers in any way, shape, or form, and I think that online comments are one way to do that.

She also described shutting down comments as an act that "points back to the culture of one-way communication that we're used to, and that's got to change if we want to survive." In addition, she suggested that journalists seek commenters' input on how a more civil dialogue could be generated. That way, she said, "you actually have commentary from the people who care about [commenting]." Participant #6 also indicated that interactivity facilitated through comments could be important for maintaining readership:

> I think that newspapers and magazines and science writing in general are in competition with a lot of things that are flashier and more attention grabbing. I don't think we should be robbing ourselves of this interactive component, just because the number of people you'll lose by doing that outweighs the number of people that will slightly better understand articles by doing that.

Participant #3 recently worked for a magazine that had comments but is now a reporter for an online news site that has not yet launched its commenting feature. He said that he likes the break from comments but noted how they can be of value: "I'm enjoying not having comments right now . . . I wouldn't mind if [my publication] never put up comments, honestly. But at the same time, I think they're probably good for traffic, and I think people expect them." Participant #3 said that he prefers to interact with readers through email or Twitter. Participant #1, on the other hand, indicated that she feels more accessible to readers in the comments than in other forms of correspondence: "I just see [comments] as a way that I can have a conversation with people I would never really get to talk to. People call me, but generally, I feel like for whatever reason, journalists feel unapproachable."

Most of the journalists interviewed said that they do respond to comments, at least occasionally. Their responses suggested that they interact with commenters for two primary reasons: to respond to comments specifically directed at them and to help moderate the discussion thread. The participants who respond to comments said that they do so when a commenter asks a question about the story, makes an interesting point, or points out an error. Participant #8 indicated that the tone also affects whether she responds to such comments:

> I comment in response . . . if somebody has a question about something that I've written, I definitely will go in and answer it, if it seems like a respectful, legitimate question. And if somebody raises a good point, I'll definitely say, 'Hey, thank you.' Especially if somebody finds an error, I'll thank them for that and tell them that we're updating it, which is partly to reward people who are nice about spotting errors.

Participant #4 noted that he sometimes interacts in the comments to facilitate a productive discussion: "I try to engage in that conversation, especially if I see the tone is veering or maybe someone's gotten the wrong end of the stick." Participant #7 said that she believes journalists' interaction with readers in the comments improves comment quality:

> I think that journalists being involved in responding to comments absolutely helps [the quality of comments]. People comment because they want to be heard, and being replied back to by the author says they're being listened to—and they appreciate that.

Online Communities

A few participants discussed reader comments in the context of online, or virtual, communities. They suggested that stronger online communities lead to more productive comment threads. Participant #6 wrote a story on members of virtual communities who met and became friends in person, outside of their commenting threads. She said that "commenting communities are actually probably the best way to keep conversations productive." She attributed the development of these communities to the size of the community and the regularity with which members comment: "Why these little commenting communities happen is because there is a consistent small group of people, and they all get to know each other, either just online or they cross over into real life." The commenting communities in Participant #6's story were loyal followers of particular columns. Participant #9 also associated high-quality comments with loyal commenters: "Some of [the bloggers for my publication] have a pretty loyal following of people who get a decent discussion going." Similarly, Participant #5 said that one reason she chooses to look at articles on her stories is because she is interested in reading the views of her regular commenters: "There are a few loyal commenters . . . , who actually say some pretty useful things, so I'm kind of interested to hear what they have to say."

But developing a community of loyal commenters might depend on a few factors. One of these factors is size; as previously mentioned, online communities tend to be small (Participant #6). Participant #7 gave advice on building online communities on the websites of media organizations. First, she said that good moderation helps in building communities:

> [At my blog], I have taken a lot of work in hand to build up a strong commentariate of people who are interesting, and they're going to leave substantive comments. I don't get a lot of crap comments. [My publication] tends toward that as well because they have heavy moderation.

According to Participant #7, journalists' interaction in the comments is another strategy for building online communities: "When building a commenting community, I encourage the people who do well, and I actively smack around the people who don't. When people see that you're active in comments, they love that. They love knowing that people are listening." She also said that promoting other journalists and publications helps in developing commenting communities: "You need to be a good citizen going out as well as coming in . . . If you're a big fish, you should promote littler fish. That's part of being a big fish." Lastly, Participant #7 emphasized one primary determinant for the establishment of online communities:

> Everybody acts like there are these rules for building a commenting community, and I would say that the number one rule is just care about it. Care about having a community. Care about having people like you and your work. That's really all it takes. And if you act like you care, that works.

Overall Views Toward Comments

Participants' general attitudes toward reader comments were mixed. Some interviewees expressed fear of or disappointment in comments, and others said that comments are important for promoting discussion and engaging readers. Even the participants who had a mostly negative view of comments, however, tended to note their value or perceive that readers have come to expect comments with articles.

Participant #2 was one interviewee who said that she is afraid of reader comments on her articles. Even so, she noted their benefits:

> I'm a little wary of [reader comments]. Even though there can be good things, I

> sort of fear them on my own stories. On other people's stories, I actually like to read comments because sometimes you can see . . . how general readers interpret what was said but also just get a little more information. Personally, I think they're a good thing.

She also said that comments offer readers the chance to have a conversation and share their perspective. With regard to negative comments on her stories, Participant #2 said, "It's more about not letting it get under my skin too much, although that's hard." Similar to Participant #2, Participant #3 identified both positive and negative aspects of reader comments:

> I think the benefit is that [comments] engage people, and when you have a robust community of commenters on a site, that means you have traffic on the site, and when you have traffic, you make money. Obviously we want traffic because that's the point of writing—to get an audience. So I think they're good at engaging readers, but I think the actual value of the content of the comments is not, for science writing at least, I don't see it.

Participant #5 did not say that she fears comments, but she mentioned that comments are "generally pretty negative and hostile." She said she believes that readers' ability to comment is a privilege, not a right. Participant #9 said that on his magazine's website, the quality of the comments is typically low: "I usually try to have a quick look on stuff that I've written or edited, but otherwise, I don't worry myself with it because it's pretty depressing when I do."

Some other participants expressed strong support for reader comments. Participant #1 advocated for comments because of their capacity to educate readers, encourage dialogue, and keep journalists accountable:

> I really see some potential in reader comments . . . I feel very strongly that comments have this incredible potential to further dialogue and help educate people and also make us better reporters because people can point out holes.

Participant #7 also expressed support for comments because they show that readers are engaged:

> I think people should have the ability to comment, and it’s important to keep in mind that commenting means they are listening. Commenting means they’re interested . . . I think comments are important, and I also think it’s a great place for people—likeminded people—to get together and discuss an article . . . It’s kind of like being in a lecture hall and saying something controversial and then saying that other people can’t talk about it. If they don’t talk about it in front of your face, they’re going to be talking about it behind your back. Aren’t you glad you’re there to hear what they have to say?

Similarly, Participant #6 said that she likes comments because they prove that readers have read articles and are engaging with the material:

> I think it’s cool that people are actually reading our articles. I like the evidence that people are actually reading the articles. Online I guess you can see traffic and that kind of thing, but just the fact that someone read . . . Any sort of response that someone has that shows they’re engaging with the article and

> thinking about it, and even if they don’t agree with it or they don’t believe in science or whatever, at least their mind is that open that they read it and that they thought about it and they thought of a response.

Uses of Comments

Most of the participants noted at least one way in which they have used comments. The uses that the interviewees identified include gauging reader reaction, recognizing errors, generating story ideas, and finding sources.

Feedback. The most frequent use of comments among participants was to gauge reader reaction. For instance, Participant #4 said that he uses comments “as kind of a temperament barometer.” He looks at comments not only on his publication’s website but also on other websites that publish or refer to the stories, as well as comments on Twitter. He noted how one type of story his publication does consistently receives a particularly good reader response:

> We’re going to keep doing [these stories] because we know fairly authoritatively [that they are received well], based on the comments—not just on the stories themselves, which are often anemic—but looking at the wider blogosphere . . . The savvy editor will pay attention to that wider world in which commenting on their story can occur. It’s not just within your own walls anymore. You have to pay attention.

Participant #7 said that she used to use comments to obtain feedback, but she now mainly looks to re-tweets and story shares on Twitter to judge readers’ responses. Other participants also mentioned that they use Twitter in this way. Reader commentary that science journalists attend to, therefore, is not limited to media organizations' websites. Although Participant #4 reads comments, both on his website and elsewhere, to gauge readers' reactions to stories, he said that this practice should be done carefully to avoid confirmation bias, the practice of paying attention to comments that confirm one's own views: "You have to be very careful about confirmation bias, because you're going to listen to the comments that you like to listen to."

The participants who used reader comments for feedback said they found more value in looking at the content of comments rather than the number of comments. According to Participant #5, the number of comments cannot necessarily tell you whether readers like or dislike a story: "Just because a particular story gets a lot of comments doesn't mean that it's a good story or a bad story." Participant #7 suggested that the number of comments might indicate the overall impact a story or topic had on readers but not readers' opinions:

> [When using comments for feedback], I'm looking at what is actually being said. I suppose number of comments correlates roughly with whether or not something made a splash, but that doesn't tell you what people think. It just tells you that people are thinking, or not, as the case may be.

Participant #1 recalled a particular time when she went to the reader comments to see how her audience reacted to one of her stories:

> I wrote a story about a girl who had cancer for the past two years, and she and her family had been extremely active on social media . . . So we used [the girl] and her family's Tweets, and we put them throughout the story. And it was really

> weird because I didn't realize that it was going to create an emotion in me, but it actually made me really emotional to watch her have cancer again through all the Tweets. So with that story, I wanted to see how people would react; I wanted to see if people got the same feeling . . . Overall, people took the story really positively [based on the comments]. And they also felt emotion afterward.

Participant #8 also said she looks to the comments for reinforcement. She reads them to see if the readers are confused about any points in the story. In addition, the comments might indicate whether a story's publication is timely, so positive reader reactions are "a good reinforcement that a story was pitched at the right degree of newness."

Although comments are a means of receiving instantaneous feedback from readers, they are not the first or only way that publications have gathered reader responses. Participant #4 mentioned one way in which some publications' process of acquiring reader feedback has evolved:

> Back in the days before online media, before the business models of modern publishing collapsed, magazines would have the money to do things like reader panels, which were a new way of acquiring [reader feedback] . . . So there were ways of getting this information. They just tended not to be public, and they tended to be expensive.

According to Participant #4, publications surveyed readers through panels and focus groups to understand which sections and topics they liked. However, he said, "With comments, it's just the opposite of that. We know very tightly what stories they like and don't like. Then, what you have to do is reverse engineer that into what topics they like."

Error identification. Some participants also noted that commenters sometimes point out errors in stories. They described how readers have identified grammatical, technical, or factual issues in the comments. Participants #1 and #8 said that they have had readers point out grammatical errors. Participant #1 said, “Sometimes they’re good editors. Sometimes they’re retired English teachers.” Participant #8’s publication has an email address to which readers can send recommended corrections, but some readers point out errors in the comments instead. Participant #4 recalled that a commenter once identified a technical issue with an image and then the editors went in and fixed it.

A couple of the participants mentioned how commenters have pointed out holes in their stories. For example, Participant #7 described an experience when commenters heavily critiqued one of her blog posts:

> I wrote a piece on bees and cell phones, and it was a bad paper [on which the piece was based]. I didn’t know because I don’t know anything about bees. It was my excuse to post a picture of a dachshund in a bee costume. I wrote this post, and I was like, well, you know, the data isn’t convincing, but maybe cell phones are killing bees. I had an entomologist come [into the comments] and say, ‘This is completely stupid.’ That was his comment: ‘This is stupid.’ I could have just dismissed him and said, oh, he’s trolling my thread, but he was an entomologist. I recognized his name, and I asked another entomologist friend and said, ‘Hey, do you know this guy?’ And he said, ‘Yeah, and your post was stupid.’ So I ended up asking them both about it and printing a much longer correction with their input and a much better piece on bee research . . . They

> made the whole thing way, way better, and my willingness to correct myself on the record and say, ‘I was wrong, and look, here’s me being wrong, and here’s how I’m going to correct it,’ actually solidified my reputation in the science writing community.

Story ideas. A few interviewees said that comments have, on occasion, given them ideas for stories or blog posts. Participant #1, whose newspaper turns off the commenting feature for some types of stories, said that she sometimes asks to have the comments turned back on under her watch: “I’ve done that a few times because I wanted people to comment. That’s sometimes where I get story ideas.” Participant #7 gave an example of when a comment sparked an idea for a post:

> One time, I wrote a post on opponent-process theory, which is an addiction concept, and somebody asked about modafinil, which is a drug used to treat narcolepsy (and I think it’s also used to treat ADHD). They were asking me how it related to opponent-process theory, and because of that, I actually wrote another piece on opponent-process theory, and I wrote a whole piece on modafinil. I think often [the comments] give me blog fodder.

Participant #5 also said that she has seen comments that have made her think, “This is kind of an interesting point. Maybe this would be a good story.”

Participant #4 said that more often than providing story ideas, comments suggest “the start of a story idea, because it’s the difference between topics and stories.” He added, “The comments section can sometimes tell you if there’s some heat to a particular topic." Participant #4 said that he has also looked at engagement in the comments of an article to help him decide whether a follow-up story should be written.

Sources. A handful of the interviewees mentioned using comments to find sources or contemplating using comments to do so. Participant #1 gave an example of a comment posted on a story she wrote about Medicaid expansion:

> A woman commented and said, 'Well, my son has autism, and he needs special services. My husband or I am going to have to quit our job so that we can qualify for Medicaid because we make too much money.' It's times like that where I message somebody on Facebook and say, 'Hey, can I interview you? That's really fascinating.' So to me, [comments] are just a whole other way of getting sources.

Participant #1 gave another example of how she contacted a commenter who had mentioned enrolling in Obamacare. She said that she likes the randomness of finding sources through comments: "That way, we're not provided with some spokeswoman or spokesman or some hospital PIO . . . just someone commenting on the story." Participant #7 also said that she sometimes finds sources through the comments:

> When I write articles about a piece of science and maybe I'm not very critical about it, sometimes I'll get a scientist in the comments who is like, 'This paper is crap, and I'm going to tell you why.' When they have substantive comments, it's worth talking to them.

When Participant #6 wrote a story on commenting communities, she said that she found all of her sources in comments posted in response to articles.

A few other interviewees said that they had considered using or tried to use commenters as sources. For example, Participant #5 described an instance when a reader left a comment that made her think that she should contact that person, but she said she did not follow up with the commenter. Participant #9 said he has hoped to use the comments for sources or story ideas but has not yet succeeded. He gave an example of a time he had looked to the comments on a story for potential sources:

> I wrote an article about a sort of controversial issue, and it was hard to get people to talk on the record. So I was wondering if somebody who knew something would jump in the comments and add some information that I could follow up on, but it didn't happen. Sometimes I look, hoping for some new tidbit of information, but I've been disappointed so far.

Participant #2 also hit a dead end in attempting to use a commenter as a source. The commenter had hinted at the existence of a new type of technology, and she tried to talk to him to learn more:

> I was able to contact him through our commenting service, but in the end, he couldn't tell me what the great [technology] was that he had because it wasn't ready for public view. It seems like there's the potential to sort of build reporting from [comments], but in my experience, it hasn't worked out.

Thus, some of the participants have had more successful in finding sources through comments, and using comments for other purposes, than others have.

In sum, participants expressed their views on several dimensions of reader comments, including moderation, anonymity, and quality. They also discussed comments' potential to foster interaction among readers and journalists and to develop online communities. The overall attitudes of the participants toward reader comments varied, but most of them mentioned both positive and negative aspects of comments. They also identified several ways in which they have used comments, such as gauging reader reaction, generating story ideas, and finding sources.

CHAPTER V

DISCUSSION AND CONCLUSIONS

In the study presented in this thesis, I sought to better understand science journalists' attitudes toward reader comments. In addition, I investigated whether and, if so, how science journalists use reader comments in their work practices. To accomplish these objectives, I conducted nine semi-structured interviews with science journalists working for U.S.-based newspapers and magazines. The implications of noteworthy findings are presented in this chapter and contextualized with the results and conclusions of previous research. The chapter also includes a discussion of the study's limitations and strengths, as well as possibilities for future related research.

How Do Science Journalists View Reader Comments?

The science journalists who participated in this study expressed their views on various aspects of online reader comments, as well as their overall attitudes toward them. These aspects include moderation, the anonymity of comments, comment quality, and comments' potential to foster interaction between readers and journalists. In addition, interviewees discussed commenting communities and journalists' role in fostering reader discussion.

Moderation. Most of the science journalists interviewed expressed the view that moderation of comments is needed to maintain civility in reader discussions. They noted that lack of civility causes concerns about libel, and with regard to science journalism, some participants referred to Anderson et al.'s (2013) findings that uncivil comments can affect how readers perceive scientific issues. Currently, publications manage reader comments in various ways, and no gold standard of comment moderation seems to exist. Many of the publications represented in this study manage comments using one or more of the following: automated spam filters, flagging options, up-/down-voting capabilities, and designated moderators who monitor comments (either before or after they are published). According to participants, though, one of the more effective moderation strategies is for journalists to engage in the comments. This moderation tactic of engaging with readers coincides with Diakopoulos and Naaman's (2011) conclusion that "a more tenable approach toward quality improvement is to have reporters engage readers in the comments more directly" (p. 141). However, journalists' abilities to interact with commenters, and publications' abilities to moderate comments, are constrained by limited staff and lack of time, as also indicated by Larrson (2012) and Harrison (2010).

Anonymity. Some of the participants' views toward anonymity were consistent with previous research, which has suggested that journalists are largely opposed to anonymity of comments (Nielsen, 2014). Specifically, interviewees who identified drawbacks to anonymity said that anonymous commenters lack a sense of accountability and, therefore, are more likely to make uncivil remarks. A few participants, however, favored anonymity, contrary to previous findings. Three of the strong supporters of anonymity among the sample represented newspapers, two statewide and one national. They indicated that forcing commenters to reveal their identities could exclude the voices of recognizable figures who could offer valuable insights. For example, readers with high-profile positions in policy might not comment if required to disclose their identities. In the case of local publications, recognizable community members, such as teachers or law enforcement officers, might refrain from commenting unless they could do so anonymously. Similarly, self-identified commenters might be less likely to post viewpoints that contradict institutions they represent; for example, someone affiliated with the military might not make a comment that could be interpreted as antimilitary. Therefore, although anonymity has been associated with discourse that is less civil (Santana, 2014), some of the journalists in this study expressed favor toward anonymity.

Comment quality. With regard to the quality of comments, the participants discussed comments' tendency to lack civility and factors that influence comment quality. They also speculated about who is responsible for low-quality comments. The journalists interviewed who said they do not pay close attention to reader comments generally said they choose not to because of the hateful remarks commenters sometimes make. They noted how some topics, such as climate change, are more prone to malicious and irrelevant comments than others. One participant (#8), an editor at a general-interest magazine, said that the commentary on science-related articles at her publication seems to be better than comments on other types of stories. She attributed the difference in comment quality to the readers of science articles, who might be "a little more interested in facts." In addition, one participant said she strongly believes that media organizations are to blame for "bad" comments; she noted that media organizations have created this space and should better dictate how people should behave in it. Therefore, although journalists in this study and others (e.g., Nielsen, 2012) expressed dissatisfaction with the abrasiveness of some reader comments, responsibility for comment quality might belong to media organizations, which created the commenting space, and not solely the commenters themselves.

Interaction. Reader comments are distinctive in that they allow readers to interact with other readers without the constraints of time and distance; however, they also provide another medium through which readers can interact with journalists. Most of the participants in this study said they have responded to reader comments on their articles, some more frequently than others. This trend contradicts Larrson’s (2012) assertion that, based on previous research, journalists still have relatively conservative, traditionalist attitudes toward online interactivity with readers. However, this study had a disproportionately young sample (20–29, N=3; 30–39, N=3; 40–49, N=3), and age (as well as years spent as a science journalist) might influence whether the participants were traditionalists or convergers with regard to interactive features on media organizations’ websites (as described by Robinson, 2010). In addition, the fact that the participants were science journalists, specifically, might have affected the attitudes and practices reported. Some participants said they preferred interacting with readers through email or Twitter. One participant (#1) said, though, that she believes that readers do not think journalists are approachable through other modes of communication, such as phone or email. Thus, comments provide a way for readers and journalists to interact that may be more comfortable for some readers.

Online communities. Some participants described the roles comments play in online, or virtual, communities. They said that they noticed conversations tend to be more “productive” where online communities seem to exist. The potential for more productive commenting threads might be a reason to try creating a sense of virtual community at a newspaper or magazine website. Media organizations might not have full control over whether such communities form, but they can facilitate the development of online communities in a few ways. According one participant (#7), comment moderation and journalist interaction in comments are two factors that promote the formation of online communities. This claim supports Meyer and Carey’s (2013) finding that one of the main predictors of whether an online community forms is journalists’ “having an active moderation presence in the [commenting] forums.” Participant #7 also emphasized that the primary “rule” for journalists when building online communities is, simply, to care.

Overall attitudes. The journalists interviewed for this study held mixed attitudes toward reader comments, but overall, their views were disproportionately positive compared to those found in previous research investigating journalists’ perceptions of comments (e.g., Nielsen, 2014). On one hand, this difference could suggest that science journalists have more positive views of comments than the wider population of journalists in the United States. On the other hand, this finding could mean that the journalists who elected to participate were interested in doing so because of their favorable views of comments. Those with predominantly negative perceptions of comments expressed fear of or disappointment in hostile or critical comments (similar to views reported in Levenson, 2010). However, even the participants who seemed to have a mostly negative attitude toward comments still noted their potential benefits, such as fostering audience engagement and increasing website traffic. The interviewees with generally positive views of comments said they see comments as means of facilitating reader discussion and evidence of reader engagement. One participant (#6) noted that traffic indicates how many visitors a website receives, but comments show that someone has read an article, thought about it, and written a response. The participants' general support of readers' ability to comment aligns with Nielsen's (2012) findings.

How Do Science Journalists Use Reader Comments?

In addition to sharing their views of comments, the science journalists who participated in the study described the ways in which they use reader comments. They reported using comments to assess reader feedback, to identify errors in stories, to generate new story ideas, and to find sources. These uses are consistent with those reported in Reich (2011).

Feedback. The most common use of comments reported by the science journalists in this study was to obtain reader feedback. The participants who used comments to gauge readers' reactions to their stories said that they tend to look at the content of comments rather than the number, as what the comments say is a better indicator of readers' opinions. One participant (#4) reported using comments as a "temperament barometer." He also said that when using comments for feedback, journalists should look at the "wider world in which commenting on their story can occur," such as Twitter or other media sites that pick up a story. Based on these comments, according to Participant #4, journalists can determine which stories readers like and sometimes, more broadly, what topics they like. Overall, participants' responses regarding feedback seemed to align with Reader's (2012) conclusion that "when it comes to audience feedback, many journalists prefer quality over quantity" (p. 505).

Error identification. Some of the participants described how commenters have pointed out errors in their stories. They recalled times when readers identified grammatical errors, technical issues, and valid content-related issues or holes in their stories. Participant #7 shared an experience in which a commenter critiqued her blog post, and because of his comment, she posted a correction and follow-up posts, a move that "solidified [her] reputation in the science writing community." Therefore, according to participants in this study, commenters have the potential to hold journalists accountable, if journalists are willing to listen to reader feedback and make adjustments based on their reactions.

Story ideas. Some interviewees reported that comments have given them ideas for articles or blog posts. In some cases, comments may indirectly inspire a story idea. For instance, a topic that stimulates notable reader engagement in the comments might be worth following up with a related article. Participants did not report using comments for story ideas as frequently as they reported using them for feedback and error identification.

Sources. A few participants mentioned using comments to identify potential sources. One participant (#1) has done so several times. Because the newspaper she works for has readers comment through Facebook, she can send them Facebook messages to follow up with them as possible sources. Other interviewees said that they considered or tried identifying commenters who might be good sources but were unsuccessful.

Contrary to Nielsen’s (2014) findings, most of the participants in this study reported using comments in some way as part of their newsgathering and reporting practices. Participants’ use of comments suggests that mutual shaping has taken place between science journalists and commenting technology, as described by Leonardi (2009), in that comments have influenced the work practices of science journalists in this study. The difference between Nielsen’s (2014) conclusions and my own could be explained by the differences in our respective samples, study designs, and time of data collection; Nielsen (2014) surveyed U.S. newspaper journalists, and I interviewed U.S. science journalists from newspapers and magazines. Another explanation could be that my sample generally had a positive view of reader comments: As Leonardi (2009) notes, perceptions of a technology reinforce appropriations of and interactions with the technology. Additional research is needed to further test Leonardi’s (2009) theory of mutual shaping between organizations and technology.

Strengths and Limitations

This study contributed to science journalism scholarship by addressing a gap in the current body of literature. Prior to this research, little was known about science journalists’ perceptions and uses of online reader comments. For the most part, researchers who have examined views and uses of comments surveyed generalist journalists working for newspapers, and many previous studies related to science journalism focused on the content of comments on science stories. This thesis included the views of magazine journalists, a group that is largely excluded from previous research on comments. In addition, not only did the findings provide insight into *how* some science journalists view and use comments, but employing a qualitative methodology also allowed me to assess *why* the participants perceive and use comments in certain ways.

The conclusions of this thesis are also limited by a few factors. Primarily, this study involved qualitative interviews with a small sample, so the results are not generalizable to science journalists across the United States. Second, the participants who self-selected to participate in this study might reflect a population that has a higher interest in reader comments; thus, their tendency to read or use comments might differ from the wider body of U.S.-based science journalists. Additionally, because my sample was limited to science journalists on the staff of a publication, the views represented in this study might not reflect those of freelance science journalists.

Future Research

Future studies on science journalists' views and use of reader comments should involve different methods and sample populations from the study presented in this thesis. For example, future research should use quantitative methods with a larger sample size and randomization so that results can be more easily generalized across U.S. science journalists. Generalizable findings on science journalists' perceptions and uses of reader comments could be helpful in assessing the overall value of online comments to science journalism. Also, additional studies are needed to understand freelance science journalists' views and uses of reader comments, as many science journalists in the United States are freelancers. Freelancers might have substantially different experiences with reader comments than staff writers and editors, so their views and uses of comments merit investigation. For example, freelance science journalists might interact with readers in the comments more frequently because they are not under the same work-flow constraints as staff journalists are. In addition, their experiences working with various publications could give them unique insights into more and less effective strategies for comment moderation.

Conclusions

This thesis research investigated U.S.-based science journalists' views and uses of reader comments through nine one-to-one semi-structured interviews. Some of the previous research on reader comments has suggested that journalists have negative views of comments and have found little value in them. However, several of the participants in this study expressed a positive attitude toward comments, and most of the science journalists interviewed used comments in at least one way (for instance, to obtain reader feedback or identify potential sources). Even interviewees with relatively negative views of comments because of their quality seemed to recognize some value in this form of user-generated content. Participants who appeared to have positive perceptions of comments also were more likely to report using them in their work practices. The majority of participants noted that moderation, despite constraints of time and limited personnel, is necessary to encourage productive and civil commentary. According to the participants, journalists' direct engagement in the comments, beyond only answering questions directed at them, appears to be an effective way of facilitating relevant, substantive, and polite discussions among commenters. Overall, this research has demonstrated that some science journalists are not only strongly in favor of reader comments but also have found ways to integrate comments into their reporting practices.

REFERENCES

Anderson, A., Brossard, D., Scheufele, D., Xenos, M., & Ladwig, P. (2013). The “nasty effect”: Online incivility and risk perceptions of emerging technologies. *Journal of Computer-Mediated Communication, 19*(3), 373–387.

Bijker, W. E., Hughes, T. P., & Pinch, T. J. (1987). The social construction of technological systems: Introduction. In W.E. Bijker, T.P. Hughes, & T. J. Pinch (Eds.), *The social construction of technological systems: New directions in the sociology and history of technology* (pp. 8–15). Cambridge, MA: MIT Press.

Bruns, A. (2005). *Gatewatching: Collaborative online news production.* New York: Peter Lang Publishing, Inc.

Diakopoulos, N., & Naaman, M. (2011). Toward quality discourse in online news comments. In *Proceedings of the ACM Conference on Computer Supported Cooperative Work* (pp. 133–142). Hangzhou, China: Association for Computing Machinery.

Dickinson, R., Matthews, J., & Saltzis, K. (2013). Studying journalists in changing times: Understanding news work as socially situated practice. *International Communication Gazette*, *75*(3), 3–18.

Downes, E. J., & McMillian, S. J. (2000). Defining interactivity: A qualitative identification of key dimensions. *New Media & Society, 2*(2), 157–179.

Dunwoody, S. (1992). The challenge for scholars of popularized science communication: Explaining ourselves. *Public Understanding of Science, 1*, 11–

14.

Fahy, D., & Nisbet, M. (2011). The science journalist online: Shifting roles and emerging practices. *Journalism, 12*(7), 778–793.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Piscataway, New Jersey: Aldine.

Haines, R., Hough, J., Cao, L., & Haines, D. (2012). Anonymity in computer-mediated communication: More contrarian ideas with less influence. *Group Decision and Negotiation*, 23, 765–786.

Harrison, J. (2010). User-generated content and gatekeeping at the BBC hub. *Journalism Studies*, *11*(2), 243–256.

Hart, J. A. (1970). *Views on the news: The developing editorial syndrome, 1500–1800*. Carbondale, IL: Southern Illinois University Press.

Heussner, K. M., & Kim, S. (2012). ‘Anonymous’ posters to pay $13 million for defamatory comments. *ABC News*. Retrieved from http://abcnews.go.com/Business/jury-awards-13-million-texas-defamation-suit-anonymous/story?id=16194071

Holliman, R. (2011). Advocacy in the tail: Exploring the implications of ‘climategate’ for science journalism and public debate in the digital age. *Journalism, 12*(7), 832–846.

Hughes, T. P. (1983). *Networks of power: Electrification in Western society*. Baltimore, MD: Johns Hopkins Press.

Jonsson, A. M., & Örnebring, H. (2011). User-generated content and the news.

Journalism Practice, 5(2), 127–144.

LaBarre, S. (2013). Why we're shutting off our comments. *Popular Science*. Retrieved from http://www.popsci.com/science/article/2013-09/why-were-shutting-our-comments?dom=PSC&loc=recent&lnk=3&con=why-were-shutting-off-our-comments-.

Landert, D., & Jucker, A. H. (2010). Private and public in mass media communication: From letters to the editor to online commentaries. *Journal of Pragmatics, 43,* 1422–1434.

Larrson, A. O. (2012). Understanding nonuse of interactivity in online newspapers: Insights from structuration theory. *The Information Society: An International Journal, 28*(4), 253–263.

Laslo, E., Baram-Tsabari, A., & Lewenstein, B. V. (2011). A growth medium for the message: Online science journalism affordances for exploring public discourse of science and ethics. *Journalism, 12*(7), 847–870.

Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.

Leonardi, P. (2009). Crossing the implementation line: The mutual constitution of technology and organizing across development and use activities. *Communication Theory, 19*(3), 277–310.

Levenson, E. (2010). Courting comment for survival. *British Journalism Review, 21*(2), 57–62.

McCluskey, M., & Hmielowski, J. (2011). Opinion expression during social conflict:

Comparing online reader comments and letters to the editor. *Journalism*, *13*(3), 303–319.

Meet Disqus. (2014). Retrieved May 21, 2014, from https://disqus.com/websites/

Merriam, S. (2009). *Qualitative research: A guide to design and implementation.* San Francisco, CA: John Wiley & Sons, Inc.

Meyer, H. K., & Carey, M. C. (2014). In moderation: Examining how journalists' attitudes toward online comments affect the creation of community. *Journalism Practice*, *8*(2), 213–228.

Mullis, S. (2013). *Popular Science* shuts comments, citing Internet "trolls." *NPR*. Retrieved from http://www.npr.org/blogs/alltechconsidered/2013/09/24/225793577/popular-science-mag-online-comments-are-bad-for-science.

Neurauter-Kessels, M. (2011). Im/polite reader responses on British online news sites. *Journal of Politeness Research: Language, Behavior, Culture*, *7*(2), 187–214.

Nerlich, B., Koteyko, N., & Jaspal, R. (2013). Climate change and "climategate" in online reader comments: A mixed methods study. *Geographical Journal*, *179*(1), 74–86.

Nielsen, C. (2012). Newspaper journalists support online comments. *Newspaper Research Journal*, *33*(1), 86–100.

Nielsen, C. E. (2014). Coproduction or cohabitation: Are anonymous online comments on newspaper websites shaping news content? *New Media & Society*, *16*(3), 470–

487.

Nielsen, R. K. (2010). Participation through letters to the editor: Circulation, considerations, and genres in the letters institution. *Journalism*, *11*(1), 21–35.

Park, J. D., Metlay, J., Asch, J. M., & Asch, D. A. (2012). *The New York Times* readers' opinions about paying people to take their medicine. *Health Education & Behavior, 39*(6), 725–731.

Peck, G. A. (2014). A commenting conundrum. *Editor and Publisher*. Retrieved from http://www.editorandpublisher.com/Features/Article/A-Commenting-Conundrum

Pritchard, D., & Berkowitz, D. (1991). How readers' letters may influence editors and news emphasis: A content analysis of 10 newspapers, 1948–1978. *Journalism Quarterly*, *68*(3), 388–395.

Rainie, L., Kiesler, S., Kang, R., & Madden, M. (2013). Anonymity, privacy, and security online. *Pew Research Internet Project*. Retrieved from http://www.pewinternet.org/2013/09/05/anonymity-privacy-and-security-online/

Reader, B. (2012). Free press vs. free speech? The rhetoric of "civility" in regard to anonymous online comments. *Journalism & Mass Communication Quarterly, 89*(3), 495–513.

Reich, Z. (2011). User comments: The transformation of participatory space. In J. B. Singer, A. Hermida, D. Domingo, A. Heinonen, S. Paulussen, T. Quandt, Z. Reich, & M. Vujnovic (Eds.), *Participatory journalism* (pp. 96–118). Malden, MA: Wiley-Blackwell.

Robinson, S. (2009). A chronicle of chaos: Tracking the news story of Hurricane

Katrina from The Times-Picayune to its website. *Journalism, 10*(4), 431–450.

Robinson, S. (2010). Traditionalists vs. convergers: Textual privilege, boundary work, and the journalist—Audience relationship in the commenting policies of online news sites. *Convergence: The International Journal of Research into New Media Technologies, 16*(1), 125–143.

Santana, A. D. (2011). Online readers comments represent new opinion pipeline. *Newspaper Research Journal, 32*(3), 66–81.

Santana, A. D. (2014). Virtuous or vitriolic: The effect of anonymity on civility in online newspaper reader comment boards. *Journalism Practice, 8*(1), 18–33.

Secko, D. M., Tlalka, S., Dunlop, M., Kingdon, A., & Amend, E. (2011). The unfinished science story: Journalist–audience interactions from *The Globe and Mail*'s online health and science sections. *Journalism, 12*(7), 814–831.

Shepard, A. Online comments: Dialogue or diatribe? *Nieman Reports*. Retrieved from http://www.nieman.harvard.edu/reports/article/102647/Online-Comments-Dialogue-or-Diatribe.aspx

Singer, J., Hermida, A., Domingo, D., Heinonen, A., Paulussen, S., Quandt, T., … & Vujnovic, M. (2011) *Participatory journalism.* Wiley-Blackwell.

Soni, J. (2013). The reason *HuffPost* is ending anonymous accounts. *Huffington Post*. Retrieved from http://www.huffingtonpost.com/jimmy-soni/why-is-huffpost-ending-an_b_3817979.html.

Suler, J. (2004). The online disinhibition effect. *Cyberpsychology & Behavior, 7*(3), 321–326.

Szpunar, P. M. (2013). The horror at Fort Hood: Disseminating American exceptionalism. *Media, Culture, & Society, 35*, 182–198.

Thurman, N. (2008). Forums for citizen journalists? Adoption of user generated content initiatives by online news media. *New Media & Society, 10*(1), 139–157.

Vujnovic, M., Singer, J. B., Paulussen, S., Heinonen, A., Reich, Z., Quandt, T., … & Domingo, D. (2010). Exploring the political-economic factors of participatory journalism. *Journalism Practice, 4*(3), 285–296.

Wahl Jorgensen, K. (2002). Understanding the conditions for public discourse: Four rules for selecting letters to the editor. *Journalism Studies*, *3*(1), 69–81.

Wardle, C., & Williams, A. (2010). Beyond user-generated content: A production study examining the ways in which UGC is used at the BBC. *Media, Culture & Society*, *32*(5), 781–799.

White, D. M. (1950). The ‘gatekeeper’: A case study in the selection of news. *Journalism Quarterly*, *27*, 383–390.

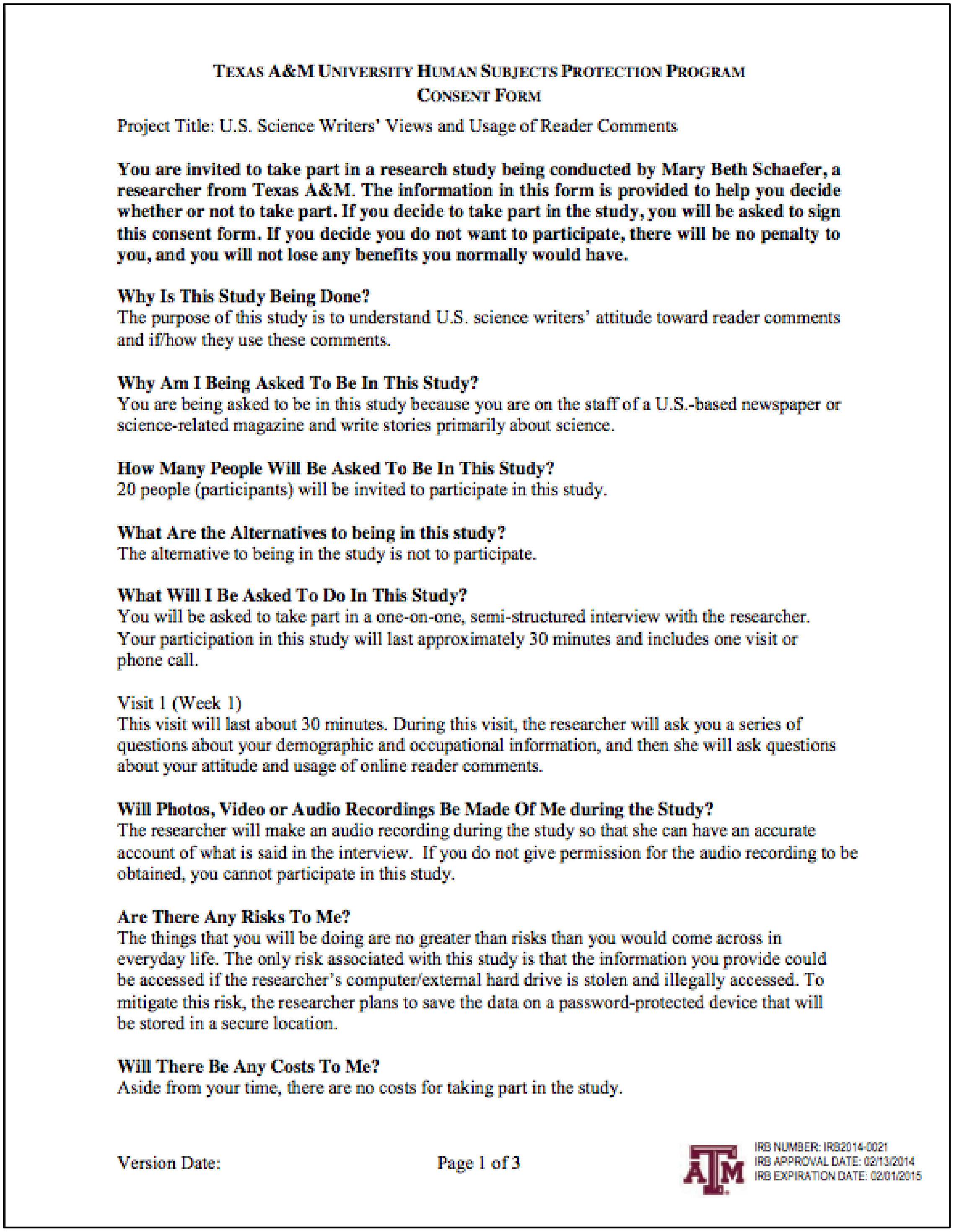
Wiles, R. M. (1965). *Freshest advices: Early provincial newspapers in England*. Columbus: Ohio State University Press.

Williams, A., Wardle, C., & Wahl Jorgenson, K. (2011). Have they got news for us? *Journalism Practice, 5*(1), 85–99.

Xiao, L., & Polumbaum, J. (2006). News and ideological exegesis in Chinese online media: A case study of crime coverage and reader discussion on two commercial portals. *Asian Journal of Communication*, *16*(1): 40–58.

APPENDIX A

CONSENT FORM



TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM
CONSENT FORM

Project Title: U.S. Science Writers' Views and Usage of Reader Comments

You are invited to take part in a research study being conducted by Mary Beth Schaefer, a researcher from Texas A&M. The information in this form is provided to help you decide whether or not to take part. If you decide to take part in the study, you will be asked to sign this consent form. If you decide you do not want to participate, there will be no penalty to you, and you will not lose any benefits you normally would have.

Why Is This Study Being Done?
The purpose of this study is to understand U.S. science writers' attitude toward reader comments and if/how they use these comments.

Why Am I Being Asked To Be In This Study?
You are being asked to be in this study because you are on the staff of a U.S.-based newspaper or science-related magazine and write stories primarily about science.

How Many People Will Be Asked To Be In This Study?
20 people (participants) will be invited to participate in this study.

What Are the Alternatives to being in this study?
The alternative to being in the study is not to participate.

What Will I Be Asked To Do In This Study?
You will be asked to take part in a one-on-one, semi-structured interview with the researcher. Your participation in this study will last approximately 30 minutes and includes one visit or phone call.

Visit 1 (Week 1)
This visit will last about 30 minutes. During this visit, the researcher will ask you a series of questions about your demographic and occupational information, and then she will ask questions about your attitude and usage of online reader comments.

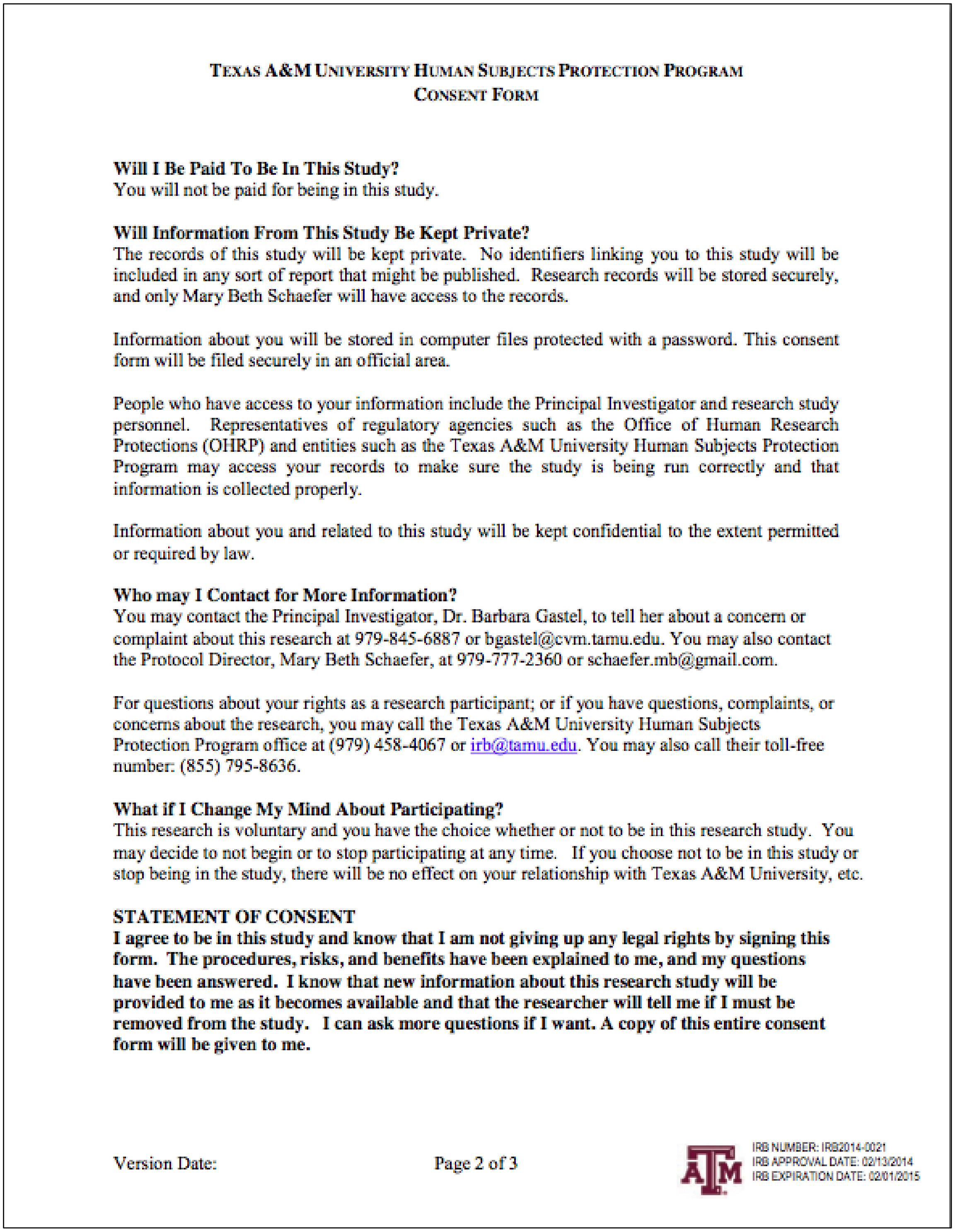
Will Photos, Video or Audio Recordings Be Made Of Me during the Study?
The researcher will make an audio recording during the study so that she can have an accurate account of what is said in the interview. If you do not give permission for the audio recording to be obtained, you cannot participate in this study.

Are There Any Risks To Me?
The things that you will be doing are no greater than risks than you would come across in everyday life. The only risk associated with this study is that the information you provide could be accessed if the researcher's computer/external hard drive is stolen and illegally accessed. To mitigate this risk, the researcher plans to save the data on a password-protected device that will be stored in a secure location.

Will There Be Any Costs To Me?
Aside from your time, there are no costs for taking part in the study.

Version Date: Page 1 of 3

IRB NUMBER: IRB2014-0021
IRB APPROVAL DATE: 02/13/2014
IRB EXPIRATION DATE: 02/01/2015



TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM
CONSENT FORM

Will I Be Paid To Be In This Study?
You will not be paid for being in this study.

Will Information From This Study Be Kept Private?
The records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that might be published. Research records will be stored securely, and only Mary Beth Schaefer will have access to the records.

Information about you will be stored in computer files protected with a password. This consent form will be filed securely in an official area.

People who have access to your information include the Principal Investigator and research study personnel. Representatives of regulatory agencies such as the Office of Human Research Protections (OHRP) and entities such as the Texas A&M University Human Subjects Protection Program may access your records to make sure the study is being run correctly and that information is collected properly.

Information about you and related to this study will be kept confidential to the extent permitted or required by law.

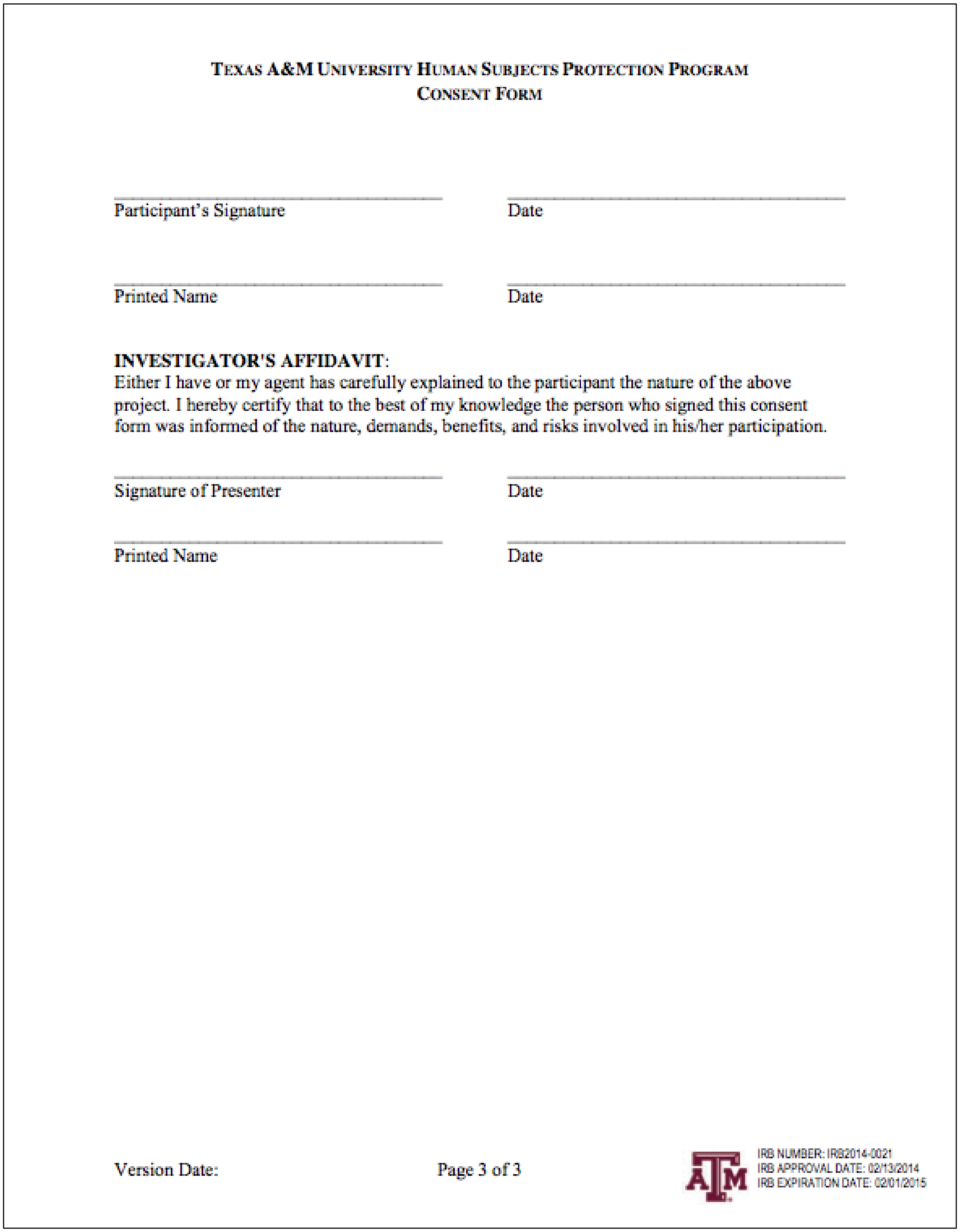
Who may I Contact for More Information?
You may contact the Principal Investigator, Dr. Barbara Gastel, to tell her about a concern or complaint about this research at 979-845-6887 or bgastel@cvm.tamu.edu. You may also contact the Protocol Director, Mary Beth Schaefer, at 979-777-2360 or schaefer.mb@gmail.com.

For questions about your rights as a research participant; or if you have questions, complaints, or concerns about the research, you may call the Texas A&M University Human Subjects Protection Program office at (979) 458-4067 or irb@tamu.edu. You may also call their toll-free number: (855) 795-8636.

What if I Change My Mind About Participating?
This research is voluntary and you have the choice whether or not to be in this research study. You may decide to not begin or to stop participating at any time. If you choose not to be in this study or stop being in the study, there will be no effect on your relationship with Texas A&M University, etc.

STATEMENT OF CONSENT
I agree to be in this study and know that I am not giving up any legal rights by signing this form. The procedures, risks, and benefits have been explained to me, and my questions have been answered. I know that new information about this research study will be provided to me as it becomes available and that the researcher will tell me if I must be removed from the study. I can ask more questions if I want. A copy of this entire consent form will be given to me.

IRB NUMBER: IRB2014-0021
IRB APPROVAL DATE: 02/13/2014
IRB EXPIRATION DATE: 02/01/2015



TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM
CONSENT FORM

Participant's Signature	Date
Printed Name	Date

INVESTIGATOR'S AFFIDAVIT:
Either I have or my agent has carefully explained to the participant the nature of the above project. I hereby certify that to the best of my knowledge the person who signed this consent form was informed of the nature, demands, benefits, and risks involved in his/her participation.

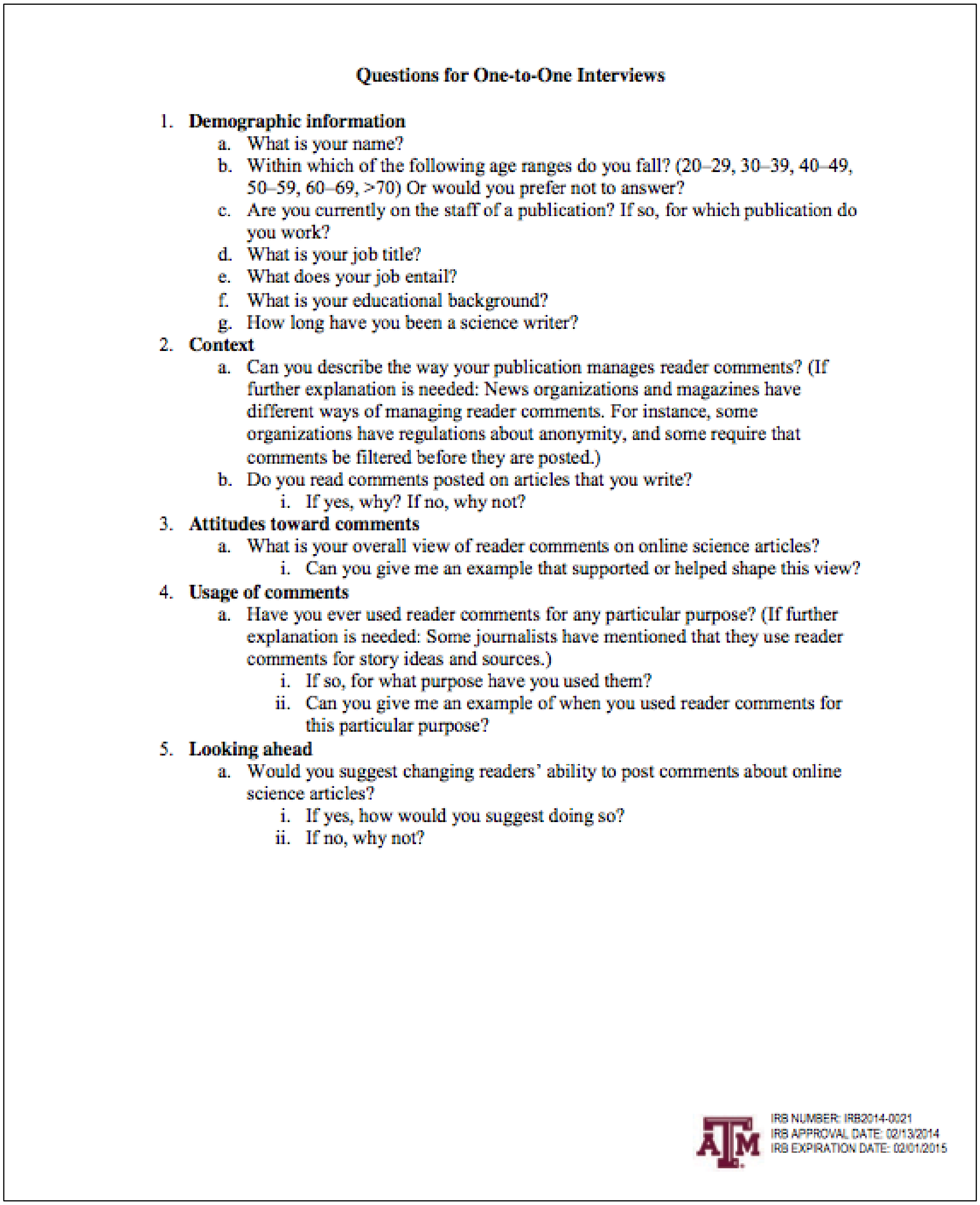
Signature of Presenter	Date
Printed Name	Date

Version Date: Page 3 of 3

IRB NUMBER: IRB2014-0021
IRB APPROVAL DATE: 02/13/2014
IRB EXPIRATION DATE: 02/01/2015

APPENDIX B

INTERVIEW GUIDE



Questions for One-to-One Interviews

1. **Demographic information**
    a. What is your name?
    b. Within which of the following age ranges do you fall? (20–29, 30–39, 40–49, 50–59, 60–69, >70) Or would you prefer not to answer?
    c. Are you currently on the staff of a publication? If so, for which publication do you work?
    d. What is your job title?
    e. What does your job entail?
    f. What is your educational background?
    g. How long have you been a science writer?
2. **Context**
    a. Can you describe the way your publication manages reader comments? (If further explanation is needed: News organizations and magazines have different ways of managing reader comments. For instance, some organizations have regulations about anonymity, and some require that comments be filtered before they are posted.)
    b. Do you read comments posted on articles that you write?
        i. If yes, why? If no, why not?
3. **Attitudes toward comments**
    a. What is your overall view of reader comments on online science articles?
        i. Can you give me an example that supported or helped shape this view?
4. **Usage of comments**
    a. Have you ever used reader comments for any particular purpose? (If further explanation is needed: Some journalists have mentioned that they use reader comments for story ideas and sources.)
        i. If so, for what purpose have you used them?
        ii. Can you give me an example of when you used reader comments for this particular purpose?
5. **Looking ahead**
    a. Would you suggest changing readers' ability to post comments about online science articles?
        i. If yes, how would you suggest doing so?
        ii. If no, why not?

IRB NUMBER: IRB2014-0021
IRB APPROVAL DATE: 02/13/2014
IRB EXPIRATION DATE: 02/01/2015